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Multibook vs. traditional book in early reading and writing instruction: a transactional analysis of preferences and behaviors of primary education students – research report

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Abstract

The aim of this article is to provide an in-depth transactional analysis of the preferences and behaviors of early primary school students in the context of using two different forms of educational materials: multibooks — digital, multimedia textbooks — and traditional printed books in the initial stage of learning to read and write. It is assumed that the choice of educational medium initiates specific transactional patterns both in the student–material relationship and in student–teacher interactions. The article shows how the form of content delivery affects the dynamics of learning processes and the development of language competences. The theoretical approach is based on the principles of educational transactional analysis, which makes it possible to interpret students' actions as the result of complex interpersonal and intrapsychic interactions shaped by the nature of the educational tools used.

Keywords: educational media, new technologies, transactional analysis, student preferences, interactions

Introduction

The ongoing digitalization of education is significantly redefining the relationships between participants in the educational process, including the place and function of textbooks in early schooling. Today's generations of students operate in a reality marked by the ubiquity of the Internet, mobile devices, and technologies based on artificial intelligence (Kolek, Galanciak 2024, pp. 133–134). New learning environments, built on interactive solutions, create conditions for developing the digital literacy of both teachers and students (Juszczak, 2023).

One of the important manifestations of this transformation is the widespread use of multibooks — multimedia textbooks that combine textual content with interactive digital resources, animations, or audio materials (Walat, 2004, pp. 18–46). Despite their growing role, printed books continue to hold a dominant position in teaching reading and writing in early primary education. Previous research indicates that the choice of learning medium is not limited solely to technical or cognitive aspects but is also connected with specific patterns of interaction between the student, teacher, and learning

material. Changing the form of the textbook initiates transactional processes in which students engage not only with the teacher but also with the educational tool itself. This phenomenon is confirmed by studies showing that children attribute human-like qualities to digital devices and respond to them emotionally (Reeves, Nass 2000, p. 194; Łęski, 2017; Iwanicka, 2024).

In light of the transactional analysis approach, the learning process appears as an exchange of signals and stimuli between the student and their environment — including the digital one (Łęski, 2023, p. 89). The educational medium thus becomes not only a carrier of content but also a factor shaping the child's working style, motivation, and cognitive strategies. This is confirmed by recent reports emphasizing that digital technologies should support the educational process by strengthening the quality of relationships (UNESCO 2023).

The aim of this article is to present the results of a transactional analysis of the preferences and behaviors of early primary school students in the context of using multibooks and printed books in the initial stages of learning to read and write. This topic fits within the field of research on the relational dimension of education and constitutes an attempt at an in-depth interpretation of the role of educational media in shaping educational transactions.

Roles of transaction participants: Teacher, Student, Technology

The traditional model of education assumes a two-way teacher–student relationship. The teacher acts as a guide and organizer of the learning process, supporting the development of competences (Tomlinson, 2014, p. 73), while the student plays the role of an active participant exploring new knowledge. With the development of educational technologies, a new participant enters this system — the digital tool, such as an interactive multibook. Technology transforms traditional didactic patterns by introducing interactivity, personalization, and multimedia elements, which foster greater engagement and learning effectiveness (Pedró, 2018, p. 122).

From the perspective of transactional analysis, technology is not merely a content carrier but an active partner in the educational exchange. As Laurillard (2013, p. 89) emphasizes, modern technologies enable a dynamic flow of information and instant feedback, which reshapes the traditional roles of teacher and student. The multibook — as a “transaction partner” — influences the ego states: it can support the Adult state (rational content processing) through clear instructions and automatic feedback, while multimedia elements activate the Child state, stimulating curiosity and emotions. The role of the teacher shifts towards moderating and supporting (Parent), which makes it possible to better adapt the interaction to the individual needs of the student.

The Multibook as an active partner in the educational transaction

A multibook is a multimedia, digital textbook that combines the content of a traditional book with interactive elements and audiovisual materials. In early childhood education, it functions as a modern, multisensory learning environment that supports visual, auditory, and kinesthetic perception. In the present study, we used a multibook published by Nowa Era, designed for first-grade students. It serves as a digital extension of the standard textbook and includes animations, audio recordings, short videos, photo galleries, interactive tasks, puzzles, language and mathematics exercises, and sets of formative assessment activities. Through these features, the multibook acts not only as a medium for content delivery but also as a didactic tool that activates the learner and enables multisensory information processing.

Introducing the multibook into the first-grade classroom transforms the nature of a traditional lesson, creating a new quality of educational transaction. From the perspective of transactional analysis, this technology becomes an active partner in the interactions between teacher and student, shaping both the course of the lesson and the dynamics of the learning process. Within the multibook environment, the child does not merely receive content but engages in actions, makes decisions,

receives immediate feedback, and can correct their own errors. This positions the learning process within Kolb's (1984) experiential learning cycle, in which the learner moves through stages of acting, reflecting, and re-engaging.

In everyday early education practice, the multibook was used at various stages of the lesson:

- during the introduction of new content, to visualize concepts and build a shared field of attention within the class,
- during guided practice, through interactive tasks completed on the multimedia board,
- in the exercise phase, where adaptive tasks and automatic feedback supported individualized learning,
- during lesson summarization, enabling quick assessment of students' understanding.

For the youngest learners, adjusting the level of difficulty to diverse developmental needs is essential. The Nowa Era multibook supports this process through personalization, allowing repeated practice, the selection of work pace, and adaptation of content presentation to the child's individual needs. Thanks to immediate feedback, the student learns not only the curriculum content but also self-regulation and the evaluation of their own actions.

From a transactional perspective, the multibook functions as a third, active participant in the didactic communication. It introduces new stimuli, initiates student actions, provides responses, and thus influences the nature of the teacher–student relationship. The teacher becomes a designer and moderator of the learning environment, while the student gains a sense of agency and a greater role in constructing knowledge (Bruner, 1966; Vygotsky, 1978). In this way, the multibook not only supports the teaching process but co-creates it, becoming a real and active partner in the educational transaction.

The Multibook and the roles of “Adult”, “Parent”, and “Child” in transactional analysis

Transactional analysis, developed by Berne (Berne, 1964), distinguishes three basic ego states: the “Adult”, the “Parent”, and the “Child”, understood as sets of characteristic thoughts, emotions, and behaviors. The Adult state is responsible for rational, objective decisions based on facts and data analysis. The Parent state reflects norms, values, and attitudes adopted from authority figures, fulfilling a nurturing or normative function. The Child state represents the sphere of emotions, spontaneity, and creativity.

In the traditional model of education, the teacher–student relationship is often based on a “Parent”–“Child” dynamic, where the teacher assumes the role of authority and caregiver, and the student takes the role of a subordinate recipient of knowledge. The introduction of the multibook as an active partner in the educational transaction makes it possible to redefine these patterns. The multibook, in the “Adult” role, functions as an objective source of knowledge: it provides structured content, monitors progress, and generates reliable feedback based on results. In the “Parent” role, the multibook supports and motivates — it offers guidance, reminds students about tasks, and rewards achievements, reinforcing positive signals of support. At the same time, in the “Child” role, it becomes a space for play and exploration — gamification elements, animations, and interactive formats stimulate the student's curiosity and creative activity.

In this way, the multibook acts as a hybrid participant in the transaction, balancing rational, nurturing, and emotional functions. It breaks the traditional hierarchical educational relationship, creating conditions for more autonomous, conscious, and engaging learning.

Research report — analysis of first-grade students' behavior during reading and writing lessons

The study was conducted among 103 first-grade primary school students from the Zagłębie Dąbrowskie region. The aim was to determine the impact of the multimedia textbook Multibook on

the development of reading and writing skills in early primary education. A pedagogical experiment using Solomon's design was carried out over ten months, supplemented by participant observation based on an original observation sheet.

Observation of students' behavior was a key element of the experiment. It made it possible to capture how the use of the Multibook influenced students' activity, engagement, perseverance, and cooperation with the teacher and peers during reading and writing lessons. The analysis focused on students' reactions to interactive content and graphomotor exercises carried out using an interactive whiteboard and stylus pens.

The results of the observations indicated that students in the experimental groups (E1, E2) showed a higher level of interest and engagement than their peers in the control groups (K1, K2). Particularly significant were the large-surface graphomotor exercises on the interactive whiteboard, which supported the development of hand-eye coordination, writing precision, and fluency. By allowing full-arm and hand movements, students improved their writing technique, which had a positive impact on the legibility and neatness of their written symbols.

Additionally, interactive elements and gamification increased students' intrinsic motivation. The observations revealed a willingness to tackle further tasks, openness to experimenting with different writing techniques, and active cooperation in groups. Working with the interactive whiteboard and stylus pen was attractive and novel for the children, which strengthened their engagement and positive attitude toward learning.

The analysis of students' behavior was conducted according to seven categories: engagement, activity, enthusiasm, perseverance, cooperation with the teacher, cooperation with other students, and overall attitude toward the lessons. The data were recorded using a point scale (0–3), which enabled a comparison between the experimental and control groups and an assessment of the effectiveness of the Multibook in the initial stages of learning to read and write.

Table 1

Descriptive measures of students' behavior during reading lessons

	Students' behavior during reading lessons						Overall attitude toward lessons
	Engagement in lessons	Activity in task completion	Enthusiasm	Perseverance	Cooperation with the teacher	Cooperation with other students	
E1	3,00	3,00	3,00	3,00	3,00	3,00	3,00
E2	3,00	3,00	3,00	3,00	3,00	3,00	3,00
K1	2,30	2,20	2,00	2,20	2,20	2,20	2,20
K2	1,80	1,70	1,50	1,70	1,70	1,70	1,70

Source: Own elaboration.

The analysis of students' behavior revealed clear differences between the experimental groups (E1, E2) and the control groups (K1, K2). Students using the multimedia textbook Multibook achieved the highest scores in all assessment categories. The average results in the experimental groups indicate very high engagement (3.0) and activity in completing reading tasks (3.0). Cooperation with the teacher also reached the maximum value (3.0). While working with the Multibook, students eagerly participated in reading interactive stories with sound elements and animations, which maintained their attention and motivated them to take an active part (engagement: average 2.8; activity: average 2.7). Cooperation with the teacher in groups E1 and E2 was on average 2.9, and cooperation with other students averaged 2.6. The interactive format encouraged free exchange of observations, text interpretation, and peer learning. Students showed enthusiasm and a positive attitude toward the lessons (average 2.8). In the control groups (K1, K2), where traditional printed textbooks were used, the average results were significantly lower. Engagement was 2.3 (K1) and 1.8 (K2), while activity was 2.2 (K1) and 1.7 (K2). The lack of interactive elements reduced the attractiveness of the lessons, which

limited students' activity and their cooperation with the teacher (average 1.8) as well as with peers (average 1.7).

These results indicate that the use of the Multibook significantly increases the level of engagement, activity, and cooperation, supporting the process of learning to read and write in first grade. Multimedia content, animations, and sounds stimulated cognitive curiosity, fostered interaction, and built a positive attitude toward learning.

Table 2

Descriptive measures of students' behavior during writing lessons

	Students' behavior during writing lessons						Overall attitude toward lessons
	Engagement in lessons	Activity in task completion	Enthusiasm	Perseverance	Cooperation with the teacher	Cooperation with other students	
E1	3,00	3,00	3,00	3,00	3,00	3,00	3,00
E2	3,00	3,00	3,00	3,00	3,00	3,00	3,00
K1	2,20	2,10	2,00	2,20	2,10	2,10	2,10
K2	1,80	1,70	1,50	1,70	1,70	1,70	1,70

Source: Own elaboration.

Analiza The analysis of students' behavior during writing lessons confirmed the trends observed in the reading lessons. The experimental groups (E1 and E2), which used the Multibook multimedia textbook, achieved high scores across all behavioral categories. The average scores for engagement and activity were 3.0, and cooperation with the teacher was rated equally high.

The writing lessons in the experimental groups were enriched with interactive elements such as animated letters, audio instructions, and simulations of pen movements on an interactive whiteboard. Students could practice correct letter formation, copy words, and receive immediate confirmation of accuracy through short animations and congratulatory messages. This form of work supported the consolidation of writing technique, developed graphomotor skills, and motivated students to participate actively (motivation: average 3.0; activity: average 2.8). Using the Multibook allowed for a variety of exercises — from writing simulations on the board, through word games, to typing words on a computer with rewards in the form of animations. Children responded enthusiastically to the animated characters and interactive tasks, which significantly increased their engagement and perseverance. Cooperation with the teacher was dynamic — the teacher moderated exercises, supported students in correcting mistakes, and encouraged reflection on writing accuracy. In contrast, in the control groups (K1 and K2), where traditional printed textbooks and lined notebooks were used, graphomotor exercises took the form of repetitive copying of letters and words from the textbook. The lack of interactive stimuli meant that students lost concentration and motivation more quickly (motivation: average 2.2; activity: average 2.0). Cooperation with the teacher was less intensive (average 1.8), and students were less likely to share observations and solve problems together (cooperation with other students: average 1.7).

The analysis of educational transactions shows that the Multibook fostered the development of complementary and growth-oriented transactions. Children working with animations operated from the position of the "Free Child" — spontaneous, creative, and curious — while the teacher assumed the "Adult" role — supporting and moderating the process. The Multibook, by providing immediate feedback, played the role of a "Technical Adult" — objective and precise. For example:

- *Support transaction*: a correctly written letter resulted in praise in the form of an animation and the teacher's comment ("Great! Look how beautifully you wrote that!").
- *Exploration transaction*: the student independently selected exercises and analyzed results with the teacher's help ("What was difficult? What will you do differently?").
- *Cooperation transaction*: children wrote words on a large whiteboard, corrected them together, and discussed the form, strengthening peer relationships.

In the control groups, where the method of copying letters from the textbook dominated, more parallel transactions were observed — the teacher corrected, the students reproduced the material, often passively, from the position of the “Adapted Child”.

In summary, the results confirm that the Multibook, as a multimedia tool, not only supports the development of writing technique but also fosters the creation of positive educational transactions. Students are more motivated, active, and open to cooperation, which aligns with contemporary approaches to student-centered education. The results are consistent with the research of Mayer (2009) and Gunter and Kenny (2008), which demonstrate that multimedia and interactive methods significantly enhance the effectiveness of the learning process.

Discussion

The conducted empirical study confirms the significant impact of using the Multibook multimedia textbook on the development of reading and writing skills among first-grade primary school students. The results of the experiment showed clear differences between the experimental and control groups in terms of engagement, activity, cooperation, and overall attitude towards the lessons. The high scores achieved by the experimental groups are consistent with Mayer’s (2009) cognitive theory of multimedia learning, which states that integrating various channels of delivery (visual, auditory, interactive) significantly increases the effectiveness of acquiring educational content. These findings also support the conclusions of Gunter and Kenny (2008), which indicate that the use of interactive technologies not only facilitates knowledge acquisition but also develops social skills and critical thinking.

The observed educational transactions demonstrate that the Multibook creates conditions conducive to the development of so-called complementary and growth transactions (Berne, 1964). Children working in an environment rich in interactive stimuli responded from the position of the “Natural Child” — they were more open, creative, and willing to explore, which fostered positive relationships with the teacher and peers. The teacher, operating from the position of the “Supportive Adult,” moderated this process, strengthening students’ sense of competence and motivation to learn. It is worth noting that in the control groups, which worked with traditional textbooks, parallel or normative transactions predominated, where the teacher assumed the role of the “Controlling Parent” and the students adopted the role of the “Adapted Child.” As Harris (1994) and James and Jongeward (2000) point out, such an arrangement can lead to lower levels of engagement and less willingness to think and act independently. The results of the study confirm that interactive forms of graphomotor exercises not only support the development of manual skills but also increase the attractiveness of lessons and help maintain students’ attention. Gamification elements present in the Multibook (e.g., instant feedback in the form of animations or rewards) act as positive reinforcers, which play an important role in motivating children to work systematically. Based on the obtained results, it can be stated that using a multimedia textbook in teaching reading and writing not only increases instructional effectiveness but also changes the nature of didactic relationships. The Multibook becomes an active participant in the educational process, supporting both the student and the teacher in organizing and monitoring the work. From a pedagogical practice perspective, this means that the appropriate implementation of multimedia technologies in early education can effectively support teachers in working with children, especially in developing key skills at this stage — such as reading, writing, and cooperation. Moreover, the research results align with the broader trend of contemporary education focused on the learner and their activity, which emphasizes the importance of creating a learning environment based on interaction, intrinsic motivation, and shared responsibility for the learning process. It seems reasonable to continue developing and improving digital educational tools in early childhood education. At the same time, it should be remembered that their effectiveness largely depends on teachers’ digital competences, their readiness to adopt modern methods, and their ability to consciously design educational situations using technology.

In conclusion, the results of the conducted experiment provide strong arguments for the wider adoption of interactive multimedia textbooks in early education. They also highlight the need for further research to deepen our understanding of the impact of technology on the development of children's language, social, and cognitive competences.

Challenges and limitations of educational partnership with technology

Although the Multibook, as a multimedia digital textbook, demonstrates significant potential in supporting students' cognitive engagement and motivation, a transactional analysis of the preferences and behaviours of young learners also reveals areas of risk and limitations associated with transferring parts of the educational process into the digital space. According to the classical assumptions of transactional analysis (Berne, 1964), the teacher–student relationship is a dynamic structure in which developmental transactions take place. Their effectiveness depends on the quality of communication and the appropriate balancing of the ego states: the “Adult” — rational and informational; the “Parent” — supportive and normative; and the “Child” — creative, spontaneous, and exploratory. The results of the presented study confirm that the Multibook largely activates the “Natural Child” state — stimulating curiosity and enthusiasm — and also supports the student's “Adult” state by providing immediate feedback. However, excessive use of digital resources may limit the role of the “Supportive Parent,” which the teacher naturally fulfils in early childhood education. In the traditional model with a printed book, interaction with the teacher more often takes the form of complementary transactions in which the “Parent” confirms, corrects, and regulates the child's emotions. In the digital model, some of these functions are taken over by the interactive textbook, which may weaken the element of emotional support and lead to digital isolation of the child — especially if the teacher does not play an active role as a facilitator and moderator of work with the Multibook.

Additionally, the problem of cognitive overload (Ciesielska, Szczepanowski, 2019) must be taken into account. In conditions with overly complex multimedia stimuli, this may result in chaotic transactions or interruptions in the flow of information. For younger students who are only beginning to develop attention self-regulation strategies, this is a real risk. In such situations, the dominant ego state may become the “Adapted Child” — passively following stimuli instead of creatively exploring.

From the perspective of transactional analysis, it should therefore be emphasised that an educational partnership with technology must be consciously moderated. It is crucial to design lessons in a way that balances transactions: the Multibook should not replace the teacher–student relationship but rather complement it, reinforcing the teacher's role as a “Supportive Parent” and “Adult Guide.” This makes it possible to maintain a dynamic balance between the child's autonomy, interactive information processing, and the emotional security provided by close contact with the teacher and peers. In the context of early childhood education, this means that lesson scenarios must be consciously designed so that technology remains a tool — not the dominant partner — in the learning process.

Conclusion

The conducted analysis indicates that both Multibooks and traditional printed books play different yet equally important roles in shaping educational relationships. The choice of medium initiates specific transactional patterns that can either foster or weaken a child's motivation, concentration, and engagement. In light of educational transactional analysis, the didactic medium functions not only as a cognitive tool but also as an active participant in the educational relationship — strengthening or modifying the student's psychological needs.

When properly designed and consciously implemented, Multibooks can enhance students' sense of agency by offering interactivity, flexibility, and instant feedback. At the same time, however, they require careful teacher mediation and attention to maintaining a balance between digital activity and

direct interpersonal experiences. Traditional books — although less dynamic — remain an important space for attentive reading, narrative reflection, and the close presence of the teacher as a guide in the learning process.

The study's conclusions emphasize that effective teaching should not focus on technology itself but on the quality of the educational relationships it supports. A Multibook can be a valuable component of the learning environment, provided its use in school practice is guided by pedagogical reflection and awareness of its potential impact on the child's emotional and cognitive balance. Therefore, the integration of modern tools should serve to strengthen — not replace — the key pillars of educational partnership: presence, empathy, and dialogue.

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