DEVELOPING YOUNG CHILDREN'S TEXT PROCESSING SKILLS BY USING DETECTIVE BOARD GAMES AND RWCT TECHNIQUES

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Abstract

Using board games in the classroom is an opportunity for experiential learning. A previous examination proves that the systematic use of Rory's Story Cubes in the methodology of native language teaching can be included as a playful method because they are useful in the development of oral and written communication. I have reflected on this with a new project focusing on reading skills. My goal is to examine how the card games, Black Stories Junior (Red Stories, Rainbow Stories) combined with RWCT techniques (Reading and Writing for Critical Thinking) can develop the interpretation of texts in 9 to 10-year-old students. The games contain riddles with exciting criminal cases for children. The players try to reconstruct the stories by asking, guessing, and fiddling. RWCT methods are the sum of cooperative, interactive and reflective techniques that make the learning process more successful and creative. In the first period, the experimental and the control group were formed. After that, the experimental group played the card game 30 times and got to know graphic organizers, drama pedagogical methods, and creative writing tasks related to the short stories. The activities were carried out under the supervision of the methodical leader of the experiment and recorded with a video camera. In the end, the students could use the learned methods independently and achieved more points on reading comprehension tests than the control group members. Thanks to the drama techniques the students were able to write in a more meaningful way from another person's perspective. The results show that the consistent use of the given board game is beneficial for reading and writing skills. The project's achievements may contribute to the widespread educational use of board games and RWCT techniques, thereby expanding the methodology of native language teaching.

Keywords: Board game, primary education, cooperation, Black Stories Junior, RWCT techniques.

1. Introduction

Good communication skills are essential for success in school, the labour market, and society. However, in Hungary, less than half of the students reach the minimum reading comprehension level defined by the OECD, even though this level would be crucial for successful entry into the labour market (Arató, 2006). I realized that many primary school students have difficulty in understanding and interpreting fiction and non-fiction texts. Lack of adequate reading comprehension skills makes it difficult for students to learn independently and access information in adulthood. Therefore, I believe that one of our most crucial tasks as educators is to introduce students the use of easy-to-operate toolkits that facilitate the absorption of paper and electronic texts. Students need abilities that help them process text (*for example, seeing cause-and-effect relationships, highlighting the point, recognizing and formulating sentences, visual knowledge of information, prediction based on keywords, and note-taking)*. The use of diverse and creative text-processing procedures has a beneficial effect on students' reading comprehension levels. In addition, it is essential that students encounter different text genres and text types that help them in everyday life. The regular use of collaborative working methods is also key to the development of students (Tóth, 2006).

Board game pedagogy, one of the areas of experiential pedagogy, provides an excellent opportunity for students not only to learn in a frontal framework but also to acquire knowledge indirectly and experientially (Jesztl, & Lencse, 2018; Zsiray, 2021). Our previous experiment had proved that the oral and written communication of students between the ages of 9 and 10 can be improved by using Rory's Story Cubes regularly. Significant positive changes have appeared in the oral text creation of the participants both at the individual and group levels (Zsiray, & Koós, 2022).

Their written texts became more coherent and meaningful thanks to the complexity of the plot, the forward movement of the train of thought, and the nuanced use of language. The development can

also be seen in the increasing tendency of MLU numbers (Crystal, 1997) and KFM values (Lee, & Canter, 1971; Gerebenné, Gósy, & Laczkó, 1992). My current research focuses on the ability to text comprehension, as it is closely related to text processing skills.

2. Methods

The RWCT program (Reading and Writing for Critical Thinking) reached Hungary through the mediation of the Hungarian Reading Association. The IRA (International Reading Society) initiated its development, which was supported by the Soros Foundation in its dissemination. RWCT techniques are a collection of interactive and reflective learning methods that help the efficiency and creativity of the teaching and learning process with cooperative procedures (Nemoda, 2008). The program is based on the theory of metacognition and constructivism (Tóth 1999). RWCT techniques include graphic organizers, discussion techniques, creative writing tasks and methods for developing reading comprehension and speaking skills, in addition to elements of drama pedagogy (Pethőné, 2005).

My research focuses on the children's versions of the exciting Black Stories card game, which are called Red Stories and Rainbow Stories. Author Corinna Harder recommends these editions for children ages 8 and up, which are great fun for kids. Magical creatures and mysterious legends can be found in the cards of Rainbow Stories. Crime cases and everyday stories play the central role in Red Stories. Based on the title of the mystery, the 1-2 sentence hint, and the illustration of the card, the players have to ask questions to arrive at the complete solution, which only the game master knows. The only thing mysteries have in common is that nothing is what it seems at first glance. Detectives often face the challenge of deciphering misleading clues that may not be as straightforward as they initially appear. The journey of a joint investigation can be full of unexpected twists and turns, with detectives encountering both comical blunders and uplifting breakthroughs along the way. Laughter is never in short supply during such investigations. The cards in both packs are divided into three levels of difficulty, making the game more exciting and offering new challenges even for experienced detectives. After solving a mystery case in the card game, players have the opportunity to learn or practice an RWCT technique based on the text of the current mystery.

To commence the research, I assembled an experimental and a control group of fourth-grade students at the ELTE Bolyai János Practice Primary School. The age of 4th grade is a critical period in terms of students' mother tongue competencies. By this age, the students' reading technique has already developed to such a level that they can read in sentences. This provides an opportunity to move the development of communication skills in the direction of creative text interpretation and creation. The card game suggested for 2-20 players was chosen as the investigative tool. The experimental group comprised nine students (seven girls and two boys), and I deemed this number appropriate for active participation, allowing each child to have a role in the investigation and ask questions. The control group only participated in certain aspects of the research process. The sample selection criteria prioritised different reading comprehension levels among the children. Gender differences were not a focus of the research. The series of sessions comprised thirty occasions, held twice a week, each lasting approximately thirty minutes, audio and video recordings were captured to analyse the students' verbal and non-verbal responses.

During the planning of the session series, my goal was to create a gradual and spiralling structure. In the initial sessions, the children were introduced to the game and learned its basic rules and elements. They also solved a mystery from each of the decks while adhering to the standards of behaviour essential for a game that is enjoyable for all. One of these standards included paying attention to each other, as the cause-and-effect relationships in the mystery emerged from the players' guesses that ultimately led to the solution. To break away from the typical frontal teaching style, we arranged ourselves around two benches at the beginning of each session, enabling cooperative problem-solving as the participants could see each other. Additionally, instead of the usual hand-raising, we used laminated paper magnifiers that allowed players to ask questions by placing their magnifying glasses in front of them and being called on by the game master. This approach allowed the children to immerse themselves even more in the role of a detective. In the third session, the students were introduced to the RWCT technique alongside solving the mystery. I chose to use graphic organisers as one of the procedures, as they could be related to the card game. After encountering the technique, the students independently practised this procedure. Techniques that were already introduced were repeated at certain intervals to ensure a more permanent impression.

I structured the sessions based on the RJR model (*ráhangolódás – jelentésteremtés – reflektálás*), in which three phases are distinguished (Bárdossy et al., 2002). In the introduction phase, the children recalled the previous mystery. The recall was done using the worksheet containing the most recently learned RWCT technique. At this stage, the children can return to the detective role. In the

meaning-creation phase, namely the game phase, I offered the students several cards from which they could choose the mystery of the day. In the beginning, I played the role of the game master, but later in the session, I allowed the students to experience the game from a completely different perspective. After I disclosed the clues on the chosen card, the process of guessing commenced, which ultimately resulted in the solution to the mystery. During the reflection phase, I distributed an RWCT technique template to all participants, which we filled out together. In the case of uncomplicated techniques (*mind map*), the children themselves created the given graphic organizer on a blank piece of paper. If we practiced a learned procedure, everyone first solved the task independently, then we discussed the ideas, and those who could not write in all the places, could get ideas from the work of the others. Depending on the mystery's time and nature, we also used drama pedagogic procedures. During the latter half of the session, we focused more on dramatic plays. Among the organizers, the participating students learned the mind map, the five-line summary, the prediction table, the character map, the cluster diagram, the timeline, and the T-chart.

I introduced my group to the mind map, one of the elemental graphic organizers, during our first occasion. The members quickly grasped the concept and discovered numerous advantages to its application. In creating the diagram, they honed their skills in defining key terms and were able to quickly recall the previous crime next time. In contrast, the five-line summary I offered as the second technique diverges significantly from the former and requires greater attention and practice to master. While both methods share the task of identifying keywords, the five-line form demands strict adherence to the prescribed types of words and alignment with the verse structure.

Prediction is a technique that encourages students to make educated guesses about a text using limited information. After reading the text, they can compare their predictions with the actual outcomes, analyse the discrepancies, and consider which of their assumptions were correct, how, and why. During the game, the students made predictions on three occasions. They started by making predictions based on the title and clues presented in the figure and justified their inferences. For the second prediction, their guess was corrected based on the short text. The final prediction was made halfway through the game when the mystery had already been partially solved. I found that it was challenging to convince kids to record their predictions as it interrupted their gameplay experience. They were not enthusiastic about having to document their ideas first and then discuss them with each other. It was also difficult to support their assumptions with justifications.

A character map is an appropriate tool in games, where players are committed to make inferences, as it allows them to step into the shoes of the characters being investigated. For example, they may try to uncover the motives of a criminal by thinking like them. After much contemplation, by the end of the game, students gain a more intricate understanding of the characters and their personalities.

The cluster diagram is a more sophisticated version of the mind map that involves defining additional nodes, not just assigning information to a central idea. After the investigation, this technique proved helpful in enabling students to create a clear and comprehensive visualization of the network of characters, locations, and events in the plot.

Using a timeline, the students could visually represent the sequence of events in the mysteries. The T-chart provided an effective tool for discussing the topics that arose on the cards and summarizing the arguments and counterarguments in a clear and organized table.

At the beginning and end of each session, I gave students emoji cards to help them determine their current mood. With this, on the one hand, I investigated the effect of the experience of the playful session on them. On the other hand, I encouraged them to express their feelings as nuanced as possible. I also used emoticons before the drama pedagogic procedures and the diary technique. After solving the mysteries, the students used emojis to depict the emotional changes the characters might have gone through. After identifying and naming the emotions, it was no longer a problem to write a diary from the perspective of the characters or to present a scene authentically. After thirty sessions, I tested the effectiveness of the drama techniques and the emoji cards with a text creation task. I considered the complexity of the texts and the quantity and nature of the words referring to emotion found in them as an evaluation aspect.

3. Results

I conducted an assessment of the proficiency level of various RWCT techniques, as well as the impact of these sessions on reading comprehension, using worksheets. During the development of the worksheets, I kept the principle of gradualness in mind. The tasks followed each other in a gradually increasing order of difficulty. To ensure unequivocal correction, I considered the three general requirements of the methodology: objectivity, validity, and reliability (Csapó 1997). After thirteen sessions, both the experimental and control groups were tasked with independently processing a narrative

text. At the end of the series of sessions, after thirty occasions, the students had to independently process an informative text. In both cases, the students of the control group could start filling in the worksheet immediately, while members of the experimental group used different graphic organizers to arrange the acquired information before the test. It was important to me that the texts used for the tasks were appropriate for the age group and matched their interests and knowledge (Csapó 1997).

Firstly, I selected J.K. Rowling's "The Tale of the Three Brothers" from the "Beedle the Bard" volume. I chose this genre as the 4th-grade students had already extensively covered fairy tales. Before completing the worksheet associated with the text, members of the experimental group had to prepare a five-line summary and two-character maps based on the story content. Meanwhile, members of the control group were able to begin completing the test immediately after reading the story. Once the children in the sessions created their graphic organizers, they were given a set of tasks. Examining the prepared graphic organizers, it can be concluded that the students are at the expected mastery level, most of them were able to fill out the provided templates correctly without help. The content of the five-line summaries were almost flawless, in some cases, the wrong part of speech was listed *(use of a noun instead of a verb)*. For the two-character maps, the students could choose the characters from the story they wanted to examine. By reading the characterizations and the arguments associated with the characteristics, I got a complex picture of the given character thanks to the children's extensive vocabulary. Of the available 32 points, the experimental group achieved an average of 25 points, while the control group achieved 20.2 points. In terms of average scores, the children participating in the sessions performed better in all tasks. The most significant point difference was perceived in the tasks requiring completion of the outline and those related to the character's traits. In the latter case, it is clear that the students had already spent time examining the personalities of the characters when creating the two-character maps. The completion of the outline was supported by the five-line summary, as the children had to condense the events in the text.

During the final measurement, the members of the experimental and control groups prepared an informative article that presented the work of Hungarian natural scientists and researchers. The students of the experimental group started their task by designing a cluster diagram and a timeline and filling in a T-chart. During this time, the others could already solve the worksheet associated with the text. In this study, the experimental group was able to effectively use the techniques taught, even without the assistance of the game. They could organize the necessary information before starting the task, as shown by the cluster diagrams they produced. Most students could summarize the text and highlight the essential parts visually. However, some had difficulty reducing selected sentences into word combinations or identifying the most crucial information from the context. Students who had good graphic organization skills also scored higher on the reading comprehension test. They were able to identify important events in the researcher's lives in their life summary timelines. Finally, the T-chart allowed the students to express their thoughts on the advantages and disadvantages of moving away from home. Based on the average scores from 32, the experimental group received 25.6 points, while the control group received 21.5 points. The most significant difference was observed in the tasks where the statements about the characters of the article had to be categorized, and when the starting sentences had to be finished based on the text. I believe that the reason for this is that the created graphic organizers helped them to separate the characters and to recognize cause-and-effect relationships.

In both cases, the members of the experimental group spent a relatively long time, on average 35-40 minutes, on reading and creating RWCT techniques out of the available 60 minutes, but they were able to complete the worksheet quickly afterward. Based on this, I concluded that the thoughtful preparation of graphic organizers provided immense help to the students in organizing their knowledge, making the task easier to solve.

At the end of the research, the students of both groups had to write diary entries independently from the perspective of another person. The posts deal with an everyday topic that is close to children. According to the given situation, a student diligently prepared for his mathematics assessment. While writing the test, his classmate copied her, but he did not report this to the teacher. When the paper was assigned, the main character was shocked because his classmate got a better mark than him. In the first diary entry, the students had to write a narrative about the day the assessment was written, and in the second, the day the test was assigned. It was an important aspect that, in addition to recording the events, the emotions associated with the situation should also play a role. The results show that the members of the experimental group mentioned more words or combinations of words in their sentences that express emotions. These emotions mostly appeared as adjectives *(nagyon dühös voltam; csalódott voltam)* or verbs *(reméltem, elszomorodtam)* in the diary entries. While eighteen different emotions appeared in the works of the test group, only thirteen appeared in the control group. In the experimental group, I also encountered a status-determining structure three times *(büszkén léptem be, kíváncsian várom)*. In one case, there was personification in the text *(zakatolt a szívem az izgalomtól)*, which further increases the

stylistic value of the wording. In terms of sentence types, in addition to declarative sentences, exclamations and questions appeared in higher numbers in the experimental group, which had an emotional charge and added colour to the text.

4. Conclusion

The results of the research prove that using the Black Stories junior card games can be an effective tool for learning RWCT techniques. The products created during the independent tasks prove that the students can efficiently organize the acquired knowledge with the help of graphic organizers. Students also gradually developed their investigative skills and were able to solve increasingly challenging riddles as their keyword search strategies and understanding of cause-and-effect relationships improved. Based on the scores of the reading comprehension worksheets, the members of the experimental group performed an average of five points better than the control group. The students participating in the activity process have been able to enhance the emotional depth and personal tone of their texts through detective story-based drama games and emotion-focused tasks using emoji cards. The completed reflective questionnaires confirm that participating students would recommend these activities to their peers. According to their feedback, they have learned a lot, enjoyed playing, and gained valuable experiences during the sessions.

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