

## ACTIVATING BACKGROUND KNOWLEDGE: DIGITAL TOOLS IN THE PRE-READING STAGE OF FOREIGN LANGUAGE LESSONS

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**Abstract:** *Developing reading skills, both in L1 and L2, is crucial for a quality education. In today's changing educational and professional landscape, students must meet traditional reading comprehension and 21<sup>st</sup> century digital literacy demands. Thus, there is an urgent need to incorporate digital approaches in reading instruction. This paper emphasizes the importance of activating students' background knowledge before reading tasks, explores schema theory, and discusses the three main stages of a reading lesson. It highlights the pre-reading stage and examines some digital tools for enhancing pre-reading activities, with examples from an innovative class at Yoan Ekzarh Balgarski Secondary School - Shumen during the 2022/2023 and 2023/2024 school years.*

**Key words:** *schema theory, background knowledge, pre-reading stage, digital tools*

### **АКТИВИРАНЕ НА ПРЕДВАРИТЕЛНИ ПОЗНАНИЯ: ДИГИТАЛНИ ИНСТРУМЕНТИ В ПРЕДЧЕТИВНИЯ ЕТАП НА УРОКА ПО ЧУЖД ЕЗИК**

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**Резюме:** *Развиването на умения за четене, както на роден, така и на чужд език, е основополагащо за придобиване на качествено образование. В днешния променящ се образователен и професионален пейзаж учениците трябва да притежават не само традиционни умения за четене, но и необходимата за XXI в. дигитална грамотност. Поради това се очертава необходимост от прилагане на дигитално-ориентирани подходи в обучението по четене. Статията разглежда ролята на активирането на предварителните познания, теорията на когнитивните схеми и основните етапи в урока по четене. Акцентът е върху предчетивния етап, като се разглеждат някои дигитални инструменти. Приложените примери са апробирани в иновативна паралелка в СУ „Йоан Екзарх Български“ – Шумен през учебните 2022/2023 и 2023/2024 години.*

**Ключови думи:** *теория на когнитивните схеми, предварителни познания, предчетивен етап, дигитални инструменти*

### **Introduction**

Developing reading skills, both in L1 and L2, has long been recognized as a foundation of high-quality education. In today's rapidly changing educational and professional landscape, students need to be equipped to meet not only the traditional reading comprehension requirements, but also the digital literacy demands of the 21<sup>st</sup> century (Grabe & Stoller 2020: 151). Among those are the ability to understand information encoded within a written text displayed on a screen, to evaluate it critically, to interact with digital content, and to communicate via various online platforms. This outlines an urgent need to transform reading instruction by incorporating more digital approaches both in intensive classroom procedures and in extensive reading practices.

This paper aims to emphasize the importance of activating students' background knowledge before assigning reading comprehension tasks. It explores the connection between schema theory and the concept of activating background knowledge. Additionally, the paper discusses the three main stages of a reading lesson (pre-reading,

while-reading and post-reading), highlighting the significance of the pre-reading stage. It also examines the functionalities of some educational platforms and digital tools that can transform typical pre-reading activities into engaging and interactive ones. The examples provided were implemented with students from an innovative class at Yoan Ekzarh Balgarski Secondary School during 2022/2023 and 2023/2024 school years.

### **Schema theory**

Schema theory was developed by the British psychologist Sir Frederic Bartlett. In his book *Remembering: A Study in Experimental and Social Psychology*, he used the term “schema” to refer to the “active organization of past reactions, or of past experiences” (Bartlett 1932: 201) and laid the foundations of the idea that “schemata” are cognitive structures which help us organize and interpret information. Later, the theory was further developed and psychologists like Richard Anderson and David Pearson (1984) applied it to the process of reading comprehension. They explored “how the reader’s schemata”, or pre-existing knowledge, “function in the process of interpreting new information” and integrating it into their existing knowledge (Anderson & Pearson 1984: 255).

In *Second Language Teaching and Learning*, David Nunan (1999: 201) states that “schema theory is based on the notion that past experiences lead to the creation of mental frameworks that help us make sense of new experiences”. This means that readers would comprehend a text better if they activate their pre-existing knowledge on the topic. He also associates schema theory with both top-down and bottom-up processing by highlighting how readers use their prior knowledge to interpret new information (top-down) while relying on decoding textual details (bottom-up) to achieve comprehension (Nunan 1999: 257-258). Ivanova (2017) points out that correct interpretation of either an oral or a written text would be “very difficult or even impossible” without activating the “previous or pre-existent knowledge of the world (known as mental schemata)” (Ivanova 2017: 16).

Douglas Brown (2000) distinguishes between two types of schemata: *content schemata*, which consist of readers’ knowledge about “people, the world, culture, and the universe” and *formal schemata*, which consist of “knowledge about discourse structure” (Brown 2000: 300). Readers usually need to activate both types in order to achieve a better understanding of the messages conveyed in the texts they read. Anderson (1999) also agrees that comprehension is influenced by the prior knowledge a reader brings to a text, as well as by his or her “understanding of how texts are organised” (Anderson 1999: 12).

### **Activating background knowledge**

In *Exploring Second Language Reading*, Neil Anderson (1999) discusses the following eight strategies which foreign language teachers need to consider when teaching reading: activating background knowledge, cultivating vocabulary, teaching for comprehension, increasing reading rate, verifying strategies, evaluating progress, building motivation, and planning and selecting appropriate reading materials. The author does not emphasize on any of these strategies, stating that they are all interconnected, much like the threads in a tapestry, a metaphor which aligns with the concept of the “interactive nature of the reading process” (Anderson 1999:4). When discussing the first strategy on the list – i.e. activating background knowledge, Anderson uses another metaphor and compares reading with gardening, activating background

knowledge with preparing the most fertile soil, and second language learners with plants, which “require constant attention” (Anderson 1999:11).

Background knowledge refers not only to knowledge about a certain topic, but also to knowledge about how language systems work, how different types of texts are structured (e.g. emails, reports, etc.), how cultural contexts can affect readers’ understanding of a text, etc. According to Jeremy Harmer (2007), teaching language learners how “to get in touch with that knowledge or schema” is an essential part of teaching receptive skills (Harmer 2007: 271). In *The Practice of English Language Teaching*, he suggests that this could be done by showing students some images that can make them interested in the topic, by encouraging discussions, or by pre-teaching some key vocabulary, which may further increase learners’ interest and curiosity. Activating background knowledge is an essential component of any well-structured reading lesson.

### **Stages of a reading lesson**

A typical lesson aiming at developing reading skills is structured around three main stages. These are pre-reading, while-reading and post-reading (Ivanova 2017: 86-87). Douglas Brown refers to these stages as “pre-reading, during-reading and after-reading phases” and encourages teachers to follow a “three-part framework” containing activities for each of them, no matter how advanced students are. He suggests that before learners are made to read, teachers should introduce the topic, activate students’ schemata, and arouse their desire to read for gist and for details, so that they “can bring the best of their knowledge and skills to a text” (Brown 2000: 315).

In their book *Teaching and Researching Reading*, Grabe and Stoller (2020) discuss fourteen principles for second language reading-curriculum design. Their number ten principle is that a reading lesson should follow the “pre-, during-, post-reading stages” framework in order for students to have the opportunity to practice “the range of reading sub-skills and strategies used by skilled readers at different points in the reading process” (Grabe & Stoller 2020: 149). The authors suggest that in order for all three stages to be efficient enough, the main text should be comparatively short, or the activities should be incorporated within a series of reading lessons.

Activating background knowledge usually occurs at the lead-in or during the pre-reading stage of a lesson. Reading teachers have a very important role since, as Anderson (1999) points out, sometimes students might not have prior knowledge to activate, so teachers should establish it. It could be even more challenging for language teachers to eradicate “wrong” background knowledge, which might have a negative influence on text comprehension.

### **Digital transformation in education & reading comprehension instruction**

Education today is undergoing a significant transformation driven by advancements in technology. In recent years, the role of using information and communication technologies (ICT) in teaching and learning has been extensively explored. Numerous national and international educational projects and policy documents have been created to encourage and regulate their use, ensuring that they “improve and advance learning” (Anderson 2020: 3). The *Digital Education Action Plan 2021-2027*, for example, aims to enhance digital literacy and skills across Europe’s education systems, aligning with the European Union’s broader goals of fostering personal fulfillment, social cohesion, economic growth, and innovation. It emphasizes

the strategic importance of improving education quality and digital skills during the digital transitions, addressing challenges such as the need for effective digital pedagogies and infrastructure. A comparatively new development in the Bulgarian education system is the introduction of the "digital backpack" (<https://edu.mon.bg/>) as part of the Ministry of Education's "Education for Tomorrow" project. This Unified electronic platform for educational services and content represents a significant step in education digitization efforts, laying the groundwork for personalized learning initiatives.

Nowadays students have access to online libraries and e-readers, which provides them with the opportunity to choose from a wide range of texts based on their interests. Moreover, extensive reading can be facilitated and can become more attractive for students by using reading tracking applications and social reading platforms, many of which have free versions as well. Teachers can also organize digital book clubs on Microsoft Teams, Google Classroom, Zoom, or other video conferencing platforms, where students can discuss their extensive reading experience.

Various online educational platforms and digital tools can be implemented during the three main stages of an intensive (performed in a classroom, under the control and supervision of a teacher) language lesson, which is focused on developing learners' reading skills. In the pre-reading stage, for example, teachers can use online educational videos or 3D animations to activate or establish students' background knowledge, as well as to attract their attention. In addition, interactive quizzes or polls (e.g. created on Quizizz or Kahoot!) related to the topic can be used to assess the prior knowledge students have. Digital tools and applications allowing for collaboration can also be used, so that students can brainstorm ideas and share what they already know about the topic. Revising and facilitating key vocabulary can be facilitated by the functionalities of online platforms and educational software solutions such as mozaBook, Wizer.me, LearningApps, Quizlet, etc.

### **Digitizing pre-reading activities**

In *Becoming an English Language Teacher: from Theory to Practice*, Ivanova (2017) suggests a list of activities, which can be implemented in the pre-reading stage of a lesson focusing on developing students' reading skills. These activities include a lead-in or introduction to the topic, engaging students, sharing attitudes and opinions, "personalization, pre-teaching or revising key vocabulary and structures", discussing images and "giving instructions" (Ivanova 2017: 86-87). Harmer (2007), Scrivener (2011), and Brown (2020), to name a few, suggest similar activities such as discussions on the topic, making an "explicit link between the topic of the text and students' own lives and experiences", making predictions about the content of the text based on some extracted information, etc. (Scrivener 2011: 267).

The examples presented below provide some ideas on how to digitize the abovementioned activities. In the pre-reading stage of a lesson on "Natural Phenomena"<sup>1</sup>, twenty-seven seventh-graders were engaged in several interactive activities designed to introduce key vocabulary and activate learners' prior knowledge. The lesson began with students looking at an image gallery, created with the Gallery tool

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<sup>1</sup> Dooley, J, Blaze for Bulgaria for the 7<sup>th</sup> Grade, Express Publishing, 2021, Module D Me and Nature, Unit 6 Natural landmarks, tourism and the environment, Lesson 6.4 Natural Phenomena, p. 94.

on mozaBook, showing labelled images of natural phenomena such as a moonbow and earthquake lights (Fig. 1). This visual introduction helped students familiarize themselves with new vocabulary and concepts while checking their existing knowledge. Following this, they participated in a matching activity generated from the image gallery, reinforcing their understanding and memorization of the new vocabulary – they had to match the image of the natural phenomenon to its name and the system provided them with instant feedback.

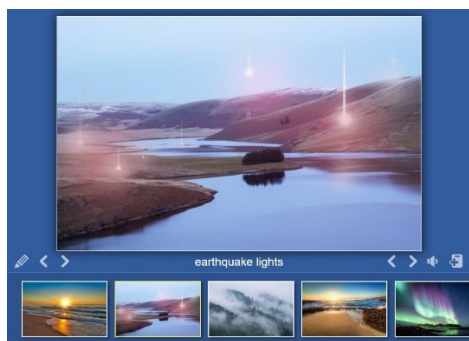


Fig. 1

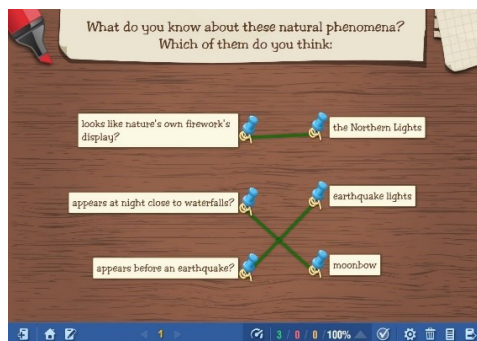


Fig. 2

To prepare for the reading text, students completed another matching exercise that encouraged them to make predictions about key facts related to the phenomena, setting a purpose for their reading and enhancing their engagement with the topic (Fig. 2). They were encouraged to think what they knew about the natural phenomena in question and to make guesses, which they later checked against the text. (e.g. *What do you know about these natural phenomena? Which of them do you think appears at night close to a waterfall? Answer: the moonbow, etc.*) These activities not only built a foundation for the lesson but also served as a basis for initial discussions, since students were encouraged to share their thoughts, personal experiences and opinions on natural phenomena.

Another useful mozaBook functionality for the initial stage of a reading lesson is the "relation diagram" tool. This tool can be used to create mind maps and spidergrams, helping to organize brainstormed ideas and visually represent relationships between concepts. The mind map presented below (Fig. 3) was created based on students' ideas on what chores they can think of. This was the beginning of a lesson on the topic "My Day at Home"<sup>2</sup>. Creating the diagram also led to a discussion about which of these chores they help with at home. Some new vocabulary items were introduced.

<sup>2</sup> Dooley, J, Blaze for Bulgaria for the 6<sup>th</sup> Grade, Express Publishing, 2017, Module C My Everyday Life, Unit 5 My Day, favourite activities, Lesson 5.1 My Day at Home, p. 72.

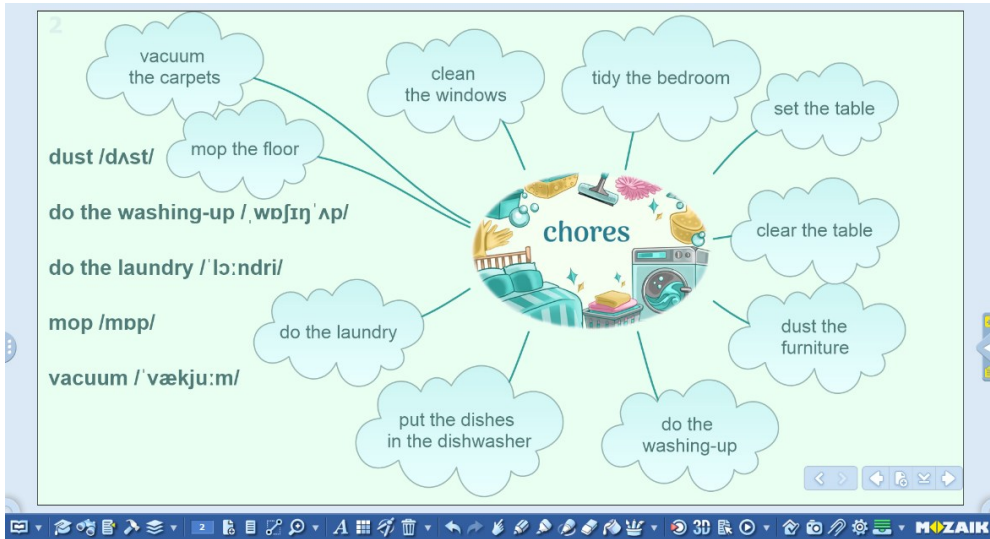


Fig. 3

Wizer.me is an online educational platform, which allows teachers to create interactive digital worksheets and activities. They can use it to develop engaging resources for improving students' reading skills by incorporating multimedia elements such as audio clips, videos, and interactive questions. For example, in a lesson on the topic of "Sports," students might be asked to listen to typical sounds of different sports and guess which sport they are hearing (Fig. 4). This activity helps activate their background knowledge. Additionally, the platform allows for the creation of word-grid exercises, which are an efficient way to revise and introduce new vocabulary (Fig. 5). Another advantage of Wizer.me is that teachers can assign the created worksheets to students. The system offers instant feedback and grading, helping teachers to efficiently assess and support their students' progress.



Fig. 4

Fig. 5

3D scenes and animations can also serve as an engaging introduction to a certain topic. The following two-minute 3D animation from the mozaBook 3D gallery about the giant panda serves as an excellent introduction to the topic of "Endangered species". As students watch the animation, they build background knowledge about the panda's size, anatomy, life cycle, habitat, diet, and the threats it faces. The teacher can show the audio script to highlight specific vocabulary items or even use it as a reading lesson main text

(Fig. 6). Additionally, various interactive exercises can be generated out of the 3D scene, with instant feedback available. An example for such an exercise is the labelling activity in Fig. 7, which can help introduce or revise vocabulary related to animal body parts.



Fig. 6

Fig. 7

## Conclusion

The integration of digital tools in the process of activating students' background knowledge appears to be a promising direction for modernizing reading instruction in both L1 and L2 contexts. As shown in the examples above, this approach can enhance the pre-reading stage, fostering better comprehension and engagement. By applying schema theory and focusing on the pre-reading phase, educators can create more dynamic and effective reading lessons that address the demands of the 21<sup>st</sup> century educational landscape. This should not only improve traditional reading comprehension skills but also help students develop the digital literacy necessary for navigating and interacting with digital content. The transformation of reading instruction through digital approaches holds potential for better preparing students for future academic and professional challenges.

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