CogniQuest

Implementation Guide

Fostering Metacognitive Skills for Lifelong Learning

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CONTENT

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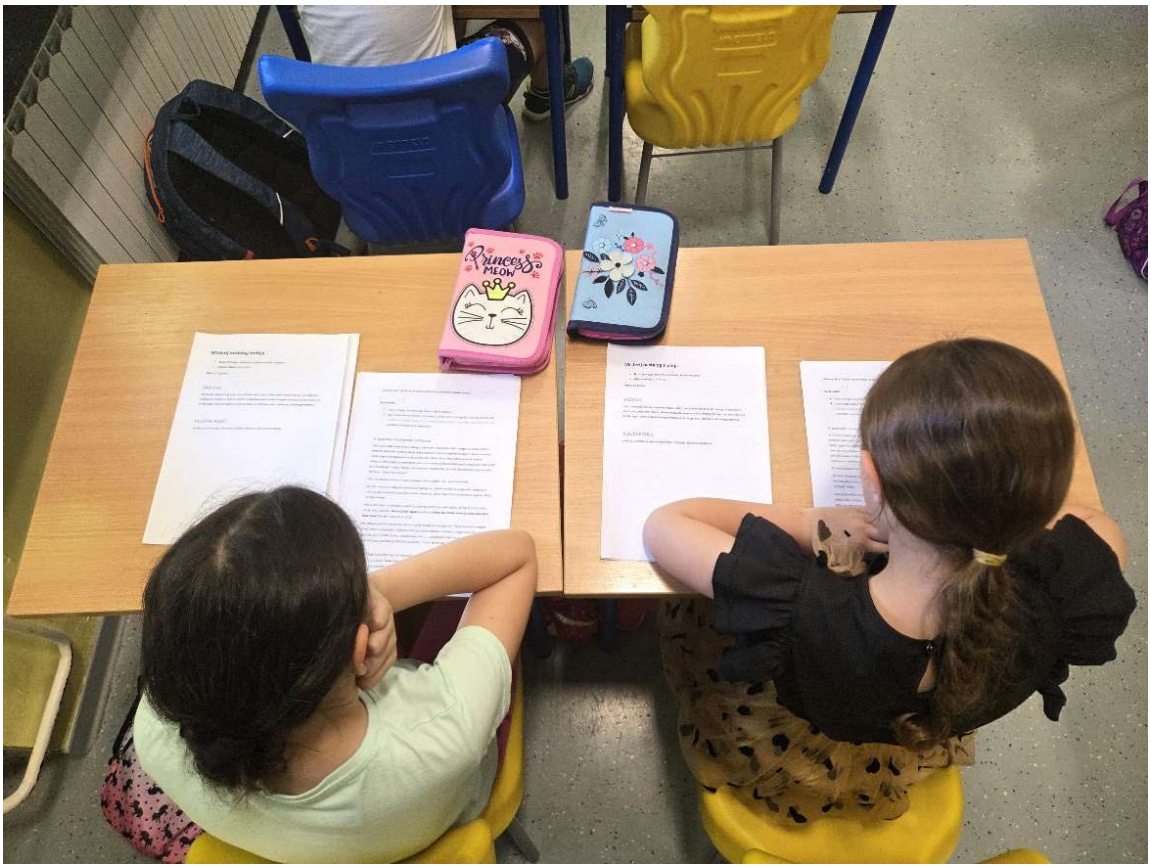
INTRODUCTION

This simple yet powerful reflection captures the heart of the **CogniQuest** project: creating stories and resources that encourage pupils to think, question, and become more aware of how they learn while still being meaningful and engaging.

> "I liked the stories because they helped me think about how to solve problems."
> 4th grade pupil, participant in the CogniQuest testing

In today's fast-changing educational landscape, helping young learners develop **metacognitive skills**—the ability to reflect on their own thinking—is more crucial than ever. Over the past two years[1], the CogniQuest project has reflected on the learning processes and how they can be enhanced with **storytelling and gamified learning** introduce metacognition in an accessible, playful and meaningful way.



[1] The project took place between November 2023 and October 2025.

Based on the observation that teachers still lack metacognitive teaching resources, CogniQuest offers a set of practical, ready-to-use resources that aim to foster curiosity, self-awareness, and deeper learning amongst **pupils aged 8 to 12**. These tools are grounded in classroom experience, developed and tested across **five European countries**—France, Belgium, Greece, Croatia, and Poland.

This implementation guide is the result of that collaborative journey. It is intended for educators—particularly those new to metacognition—who wish to bring this approach into their classrooms. Drawing on classroom trials, teacher feedback, and pupil responses, this guide will help you understand the resources, see how they have been used in context, and feel confident adapting them to your own teaching practices.

We invite you to explore CogniQuest not just as a set of materials, but as an opportunity to **nurture reflective, empowered learners**, one small adventure at a time.

All the project resources are available on the website of the project: www.cogniquest.eu

Part 1

HOW TO BRING METACOGNITION IN THE CLASSROOM THROUGH GAMIFICATION?

Gamification, also known as game-based learning, involves using elements of game mechanics in areas outside of entertainment itself. The main goal is to engage participants and support them in developing positive habits and consistently striving to achieve set goals. The benefits of applying gamification positively impact many areas of life. This technique is used in commerce, human resource management, marketing, and personal development. Gamification also works perfectly in education, both to interest students in activities and engage them, and to strengthen their internal motivation to improve results or consistently implement planned objectives[2].

Introducing metacognition into the classroom through gamification is not only an innovative but, above all, an effective method of supporting student development. Engaging narratives, well-thought-out tools, and visual support make learning a captivating adventure for students, and awareness of their own learning process becomes a natural part of everyday life. Gamification is a powerful tool that, through game elements, engages pupils and motivates them to actively participate. Combining metacognition and gamification can bring significant results in the classroom, transforming learning into fun and contributing to better memorisation, understanding, and acquisition of new knowledge and skills.

Gamification naturally supports the development of metacognition because it:

- encourages self-reflection.
- supports independent goal setting.
- promotes conscious choices.
- provides immediate feedback.

[2] **Agnieszka Jóźwicka.** Wykorzystanie grywalizacji w procesie edukacji – zwiększenie motywacji i efektywności nauczania. STEAMowe ABC. https://steamabc.edu.pl/wykorzystanie-gamifikacji-w-procesie-edukacji-zwiekszenie-motywacji-i-efektywnosci-nauczania/ **[accessed: 25.06.2025]**

- teaches perseverance.

Step-by-Step: How to implement gamification in the classroom?

Introducing gamification into the classroom is a process that requires thoughtful planning and gradual implementation. Below is a step-by-step guide on how to effectively apply game elements in education, engaging pupils and supporting the development of metacognition.

Step 1: Define the goal and timeframe.
The goal should be clear, understandable, and expressed in child-friendly language. Determine the timeframe for the gamification (e.g., will it cover an entire lesson, a thematic module, or take another form?).

Step 2: Design gamification elements and rules.
Establish: What will pupils earn points for? What achievements will be rewarded with special badges? Will pupils advance to higher levels? Design challenges/missions and prepare visual materials needed for the game (board, tokens, pawns).

Step 3: Create a game story or narrative.
Design an attractive game environment (i.e., come up with a theme, introduce characters, and design a space where pupils can record their progress, badges, points, and reflections).

Step 4: Incorporate metacognitive reflection elements.
This is the "heart" of gamification. For example, use a set of questions that encourage pupils to think:

- Why did they make certain decisions during the game?
- How did these decisions affect the further course of the game?
- How can they make better decisions in the future?

- What did they learn about their own learning process?

Step 5: Introduce gamification into the classroom.

Explain to pupils what learning through play is all about and why you'll be using it. Show them that achieving learning goals can be a satisfying experience, which will make the learning process more engaging and rewarding. This method also helps build internal motivation for acquiring knowledge. When a teacher chooses an educational game for a lesson, they should consider several key aspects. The game must be adapted to the students' age and abilities, have a clear educational objective, and be visually appealing. It's also important to ensure the rules are simple and easy to understand, and that the game is engaging and motivating for learning.

Step 6: Monitor and evaluate the implemented gamification.

Remember that gamification is a dynamic process.

As part of the CogniQuest project, a series of materials have been prepared to help teachers introduce gamification into their daily practice. These include:

- an educational game.
- 10 adventure books enriched with reflective questions and exercises.
- educational tools (e.g., brainstorming, working with checkpoints, pair work, learning journal, reflection wheel).
- reflective exercises (e.g., peer assessment, group work reflection, exit tickets, cognitive questions.
- educational posters.

In addition to this guide, teachers can find further support in three other project guides, also created as part of the project CogniQuest, with the following titles: 1. Teaching Guide. An Introduction to Metacognition, its Origins and Potentials; 2. Practical Guide. Integrating metacognition into the classroom; 3. Creation Guide Crafting Stories with Metacognitive Principles.

Part 2

HOW TO USE THE COGNIQUEST RESOURCES

As part of this project, we have developed a comprehensive collection of resources designed to support both children aged 8 to 12 and educational professionals in strengthening metacognitive skills, promoting inclusion, and encouraging independent learning. These resources include four professional guides, a game, a series of posters, a collection of reflection exercises, a series of adventure books, and a set of ready-to-use tools. Together, they provide practical methods, engaging activities, and accessible materials designed to make learning more reflective, personalised, and inclusive for all learners, particularly those with diverse learning needs.

How to Use the Adventure Books

The adventure books created in this project are ready-to-use tools designed for children aged 8 to 12, with the aim of developing their metacognitive skills and supporting more independent learning. They take the form of interactive stories with challenges and choices, using a gamified approach that encourages children to explore how they learn actively.

Teachers, youth workers, and other educational professionals can use these books directly with their groups, either as part of a structured lesson or as a flexible tool for individual or small group work. The stories encourage children to reflect on their learning habits, identify effective strategies, and try out new approaches to tackling challenges. They are especially useful in supporting learners with diverse needs, including those with specific learning difficulties (SLDs), and help promote inclusive and reflective classroom environments.

The adventure books can also serve as inspiration for creating your own stories. Whether you want to tailor content to a particular theme or respond to your group's specific interests, the books offer a helpful model. They demonstrate how to weave

metacognitive strategies into a compelling narrative, showing children how characters reflect, plan, monitor, and adapt their learning to overcome obstacles. Tested across different countries and contexts, the books are classroom-ready and easily adaptable. They're designed to be flexible, engaging, and supportive of deeper learning for all.

How to Use the Educational Game

The educational game provides a playful introduction to metacognition, inviting pupils aged 8 to 12 to reflect on how they learn. Through interactive gameplay, children explore different learning strategies while questioning common "neuromyths" about learning. The game encourages students to think about their own learning habits and choices in an engaging, non-threatening environment. This gamified approach makes abstract metacognitive concepts accessible and enjoyable for young learners.

How to Use the Posters

The colourful, accessible posters serve as visual reminders displayed throughout the classroom to reinforce metacognitive awareness. These educational displays help maintain constant visibility of key learning strategies and concepts, supporting ongoing reflection about the learning process. Teachers can reference these posters during lessons to prompt discussions about different approaches to learning. The posters create a supportive visual environment that normalises conversations about how we learn.

How to Use the Reflection Exercises

The collection of 30 reflection exercises supports children aged 8 to 12 in becoming independent and self-aware learners. These activities encourage pupils to reflect on their learning styles, identify what works for them, and explore new strategies to enhance their learning process. The exercises cover cross-curricular themes such as time management and learning planning, identifying and naming emotions linked to

learning, and practising peer review by giving and receiving constructive feedback. Children can complete these activities independently or with minimal guidance from a teacher, youth worker, or parent. This collection offers practical exercises that help pupils reflect on their habits, build essential skills, and feel more in control of their learning.

How to Use the Ready-to-Use Tools

This collection of 30 ready-to-use tools offers practical ways to help children strengthen and develop these skills. These tools are designed for pupils to use independently or with minimal guidance from teachers, youth workers, or parents. The collection includes simple, accessible resources that support learners in organising their study routines, improving focus, managing emotions while learning, and selecting the most effective strategies for different tasks. These tools help children take an active role in their learning process, making them more confident, motivated, and independent learners.

Together, these resources offer a clear and practical way to help children aged 8 to 12 develop their metacognitive skills. By combining theory, interactive stories, reflection activities, and ready-to-use tools, the CogniQuest collection supports educators and learners in creating more independent, motivated, and inclusive learning spaces. We encourage you to explore, adapt, and use these materials to help children become confident learners who understand and take control of their own learning.

Part 3

GOOD PRACTICES

Context of the testing

Adventure Books testing process proved to be an interesting and fun challenge for both teachers and students who participated. 10 adventure books were created as a ready-to-use tool for students 8-12 years old, to support them in their individual learning process by developing their metacognitive skills. The books provide support for primary school teachers and other educational professionals to implement metacognitive strategies into their practice. To get a clear picture of how well they will serve the needs to implement metacognitive strategies in teachers' everyday work with students, a testing phase was implemented with students and teachers in five partner countries. Testing was done with the target group, 8 to 12-year-old pupils and with teachers who teach the target group. The testing process was divided into three phases: the pre-testing phase, the adventure books testing phase, and the post-testing phase.

Case study: Croatia

How we prepared teachers

Before the start of the testing, all teachers were familiar with the metacognition and metacognitive skills through the CogniQuest's guides. In the pre-testing phase, teachers were given a questionnaire to complete. 5 teachers from the Primary school Glina took part in the initial questionnaire survey. They have implemented metacognitive strategies in their classrooms and encouraged students to reflect on their thinking during the lessons. Teachers feel that students are mostly open to learning new approaches to learning. Problems that teachers identify as most challenging for students are **defining strategies, goal setting and planning, problem- solving and developing thinking processes.**

How we prepared students

In the pre-testing phase, students were given a questionnaire to complete. 55 students from Primary school Glina took part in the initial questionnaire survey. The students participating in the survey were between 9 and 11 years old. The majority of them had never heard the term “metacognition”, and those who had couldn't explain the meaning. Students stated they study best after they return from school, but some of them say in the morning or after lunch. From the learning methods they mostly read out loud, but also read from the books, memorise, and make notes. Some of them say these methods are effective for them but others say they don't know if they are effective or not.

Adventure books testing phase

In the adventure books testing phase, there were 83 students from 5 different classes participating, along with 5 teachers. Primary school Glina tested all 10 adventure books. The adventure books were divided between the students so that each class tested 2 adventure books. At the beginning of the testing, adventure books were given to the students. Older students (11-12 years old) read them by themselves, but for the younger students (8-10), the adventure books were read out loud. It was clear that both younger and older students needed more time to read the books than was initially planned (10 minutes). Students could follow the flow of the adventure books and participate in the tasks that came along. The most interesting part for the students was the final part of the adventure book that contained different questions, quizzes or other tasks to complete. Students were very eager to participate in discussions and to express their opinions. Also, they liked a lot and enjoyed the many tools that were featured at the end of the adventure books. Each adventure book testing lasted around 90 minutes, keeping in mind that younger students needed more time. That was mostly related to their reading abilities and how much time they spent on discussion and reflection at the end.

"Students were thinking about some situations that they have already experienced and tried to approach the problem in different ways. They saw that many solutions exist and that the same problem in different situations can be solved differently." (5th grade teacher)

"I learned that sometimes we need to stop, think and find the best solution."
(5th grade student)

Post-testing phase

After the adventure books testing phase ended, all students and teachers were given a questionnaire to complete. In this phase, they gave their honest opinion about the adventure books. Students liked all the adventure books and found them easy to understand. They liked the story heroes and felt that they thought about their choices in the story. In the discussion part, students stated that the story helped them think about how to solve problems and find steps to the solutions. The majority of them said that they learned something new from the story and that they would follow the steps the heroes took in the story. Students would like to read more stories like these. Teachers felt that activities from the tested books helped students become even more aware of their thinking and learning strategies. Story analysis was the part that most effectively encouraged metacognition. Teachers noticed that students approached the activities differently. They used different methods of expression while analysing the story. Additionally, teachers will continue to use similar storytelling activities in the future to encourage thinking, imagination, and creativity.

"Students approached the activities differently. They summarised the story at the beginning and then started analysing details one by one. It helped them solve problems easily. I hope they will use it in everyday life."
(3rd grade teacher)

"Adventure stories are very interesting, and I would like to have them as book reports."
(6th grade student)

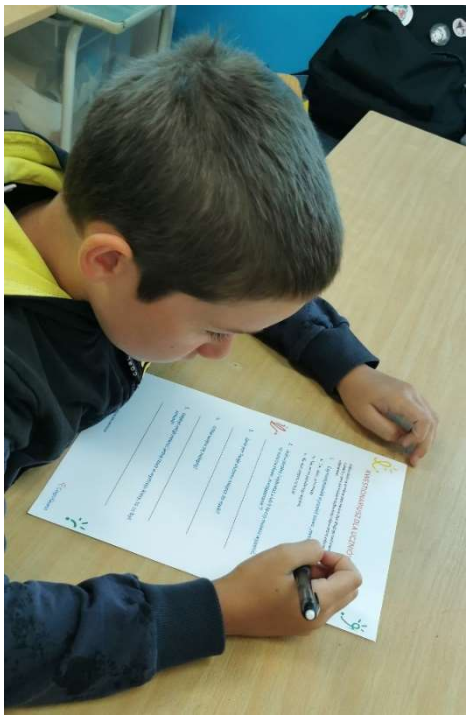
Case study: Greece

Pre-testing phase

Teachers in Arsakeio Primary School, who teach students aged 9-12, were asked to complete a questionnaire on metacognition (how familiar they are with the term, whether they apply relevant strategies in the classroom, etc.). They had previously been informed about the subject through the **Guide for Teachers** so that they would be prepared to participate in the testing phase. A similar questionnaire was also given to the students with particular emphasis on their study habits both at home and at school. The results were recorded in a relevant report.

Testing phase

After declaring in writing their participation in the **Adventure Books testing process**, teachers selected a story from a list based on **a)** the age group of their class and **b)** the metacognitive skill they wanted to strengthen. After carefully studying and organising the way it would be presented in class, they distributed the Book to the students, gave instructions and began working on it together. They chose to read "aloud" with teacher and students alternating. At the same time, the content was also displayed on the classroom's interactive whiteboard to facilitate all learning profiles (e.g. concentration difficulty, audiovisual types). Emphasis was placed on the conclusions (**What did we learn today and what is good to remember**) favouring group discussion. They answered the questions that accompany each story while also commenting on the advice or comments in each case. What caught the students' interest, and they saw as the fun and relaxing part of the process was the use of the suggested **tools** that follow after the end of each **Adventure Book**. The entire story testing process lasted **1 to 2 teaching hours (45 – 90 minutes)** and this was determined by the length of the story under development, the students' reading and comprehension pace, and the type of suggested tools for each story.



"The discussion that followed after reading the story helped students understand strategies to enhance their metacognitive skills. In the end, they were able to more accurately identify what was negatively affecting their concentration. It was a process that was both meaningful and enjoyable for the children."
(5th grade teacher)

"I liked that the hero didn't give up." (5th grade student)

Post-testing phase

After the completion of the above process, teachers and students were asked again to fill out questionnaires recording their experience. This gave them the opportunity to compare before and after, to make comments and observations, to suggest improvements, but also to evaluate in practice the educational material that was produced. In this case, too, a report of the results was prepared.

Case study: Poland

The course of the testing

The testing was conducted with students from two primary schools in Słupsk: Primary School No. 5 and Primary School No. 9. Six teachers and 121 students from the 3rd and 4th grades took part. Prior to the study, a meeting was held with the school principals, during which they gave their consent to the study.
The schools tested three adventure books: *Morpheus mirror*, *The wings of Icarus*, and *The puzzle of the lost key*. It was carried out in two phases. In the first phase, two surveys were conducted before introducing teachers and students to the concept of metacognitive skills. In the second phase, after the children had been introduced to the content of the adventure books, participants were asked to comment on the stories they had read.

Summary of the opinions of the teachers

The teachers shared their thoughts on the limitations and challenges of implementing metacognitive strategies in their everyday teaching practice. Selected responses are presented below:

Fear of making mistakes, students' lack of a habit of reflection, and an educational culture focused on grading…

At this age, children are only beginning to learn how to recognise and name their emotions, thoughts, and strategies. They need many examples, support, and repetition in order to start using metacognitive skills. Children are mainly focused on simply completing the task, rather than reflecting on how they learn and why they succeed or fail. That is why I often ask them questions such as: 'What helped you complete this task?' or 'What will you do differently next time?'—to guide their attention toward their thought processes. The main limitation is the time available during lessons. Children also often struggle to verbalise their reflections, which is why it is important to create a friendly, safe environment and to show that thinking about thinking is both interesting and valuable.

At the same time, the teachers evaluated the educational materials - the adventure books accompanied by a set of tools and exercises- very positively. They emphasised that these tools made their work with children easier and that the students were eager to engage with the new methods of learning. The teachers observed that skilful implementation of metacognitive strategies enhanced students' ability to absorb learning content and supported the development of new skills, thereby making learning easier. They also expressed their willingness to incorporate these educational materials into their everyday practice.

Summary of the opinion of the students

Most of the surveyed students had no prior knowledge of the concept of metacognition before reading the adventure books. They were also unable to explain the metacognitive strategies that support the learning process.
Only the introductory classes conducted before working with the adventure books introduced them to this topic.
The survey questions answered by the pupils were focusing on the story and its metacognitive approach. The children responded to these questions by choosing a suitable emoticon to express their feelings.
As many as 80% of the students answered that they would love or like to read more similar stories. The vast majority gave the highest ratings to all questions, indicating that the adventure stories and the accompanying tasks were received very positively.
Below are some selected responses from third-grade students:

I really liked the story about the keys: it was interesting, and it was awesome to listen to.

I would like a series of books about the adventures of Sara, Max, and Olivia.

I really like it because I enjoy puzzles. I want more stories like that.

I want more stories like this because they are cool.

Do's and don'ts

- Take time to both choose the right story (Adventure Book) for your students and prepare it,
- Do not feel pressured to complete the process in the time suggested for each story. Each class is different and has its own needs. Times are indicative,
- Suggest to students to read the adventure book out loud. This will give more opportunities for more frequent discussions along the way for students to express their opinion or problem solutions,
- Involve SLD students and give them tasks that they can accomplish,
- Study the guide(s) that accompany the project. This will help you feel more confident on what you will be working on with your students,
- Don't dismiss your students' ideas. There is no right or wrong answer or idea. Have a discussion with them.

Let's share our experiences!

"I learned how to deal with various problems." (6th grade student)

"Everything was perfect!" (6th grade student

"It could have more pictures." (5th grade student)

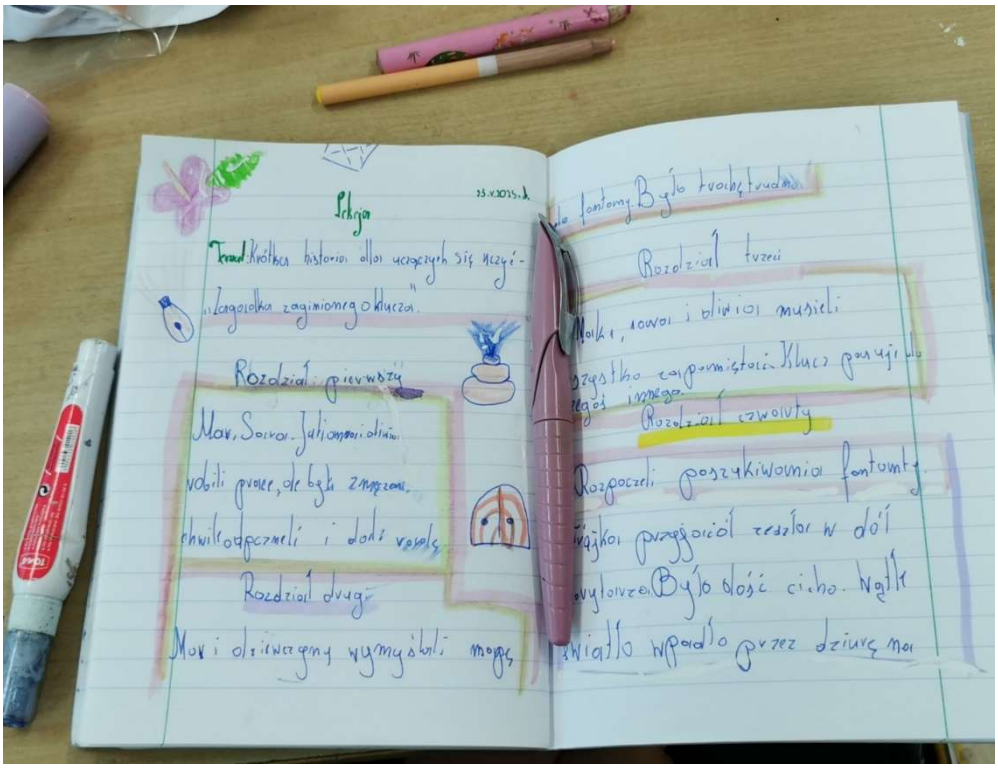
"It was a nice and interesting story" (4th grade student)

“I liked the stories because they helped me think about how to solve problems” (4th grade student)

“I like the heroes and how they helped each other.” (3rd grade student)

Impact on our target audience

Adventure books are great tools that can help both students and teachers to work on metacognition and development of metacognitive skills. They empower students to understand and regulate their own thinking processes and become more effective and independent learners. Metacognitive skills are essential for students to become resilient learners to effectively navigate challenges, setbacks and failures, viewing them as opportunities for growth and development. To conclude, we would like to point out, through the experience of our school's teachers, that Adventure Books as a tool to enhance students' imagination, linguistic expression and metacognitive thinking offer teachers practical and creative ideas for their use. Through activities based on the plot and the characters' choices, teachers can cultivate children's active participation, self-regulation, and critical thinking. For students, reading acquires another dynamic as, in an experiential and enjoyable way, they cultivate and consolidate their metacognitive skills, strengthen their imagination and their thinking becomes more mature and conscious.



Part 4

NEW HORIZONS

The CogniQuest project has laid a strong foundation for integrating metacognition into the primary classroom in a playful and sustainable way. Developed over two years through this European collaboration —each partner contributing their local insights and pedagogical strengths—this initiative represents a significant step forward in creating **accessible, high-quality resources** that place **pupils at the centre of their own learning**.

One of CogniQuest's greatest strengths lies in its ability to **bridge the gap** between theory and classroom practice. By offering free, adaptable tools directly aimed at pupils, the project fills a notable gap in primary education: the **lack of engaging, age-appropriate materials** for developing metacognitive awareness.

What's more, the results speak for themselves. In classrooms across Europe, pupils began showing real shifts in behaviour and mindset:

> "After the activity, several students showed a noticeable change in the way they approached problem solving. Some began to express their thoughts more clearly when answering questions, while there was also an improvement in their willingness to pause, reflect on their mistakes and then attempt solutions. This attitude was accompanied by greater concentration and focused thinking in the process."
>
> 6th grade teacher, Arsakeio Primary School, Patras

These words confirm that even short interventions can spark **deep and lasting cognitive change** when metacognitive tools are well-designed and meaningfully implemented.

But this is just the beginning.

Already, teachers and education professionals—such as those in Saint-Nazaire (France)—are building on CogniQuest's foundations. They are developing new materials, following on from the **CogniQuest game**, and leading regional workshops to embed metacognitive strategies across curricula. This local expansion is a

testament to the project's adaptability and its capacity to inspire wider educational innovation.

Indeed, implementing metacognition cannot be viewed as a stand-alone workshop. It is a **long-term journey** for both pupils and educators. It requires time, practice, and a supportive environment. The two-month testing period confirmed this: introducing reflective learning habits is just the first step toward transforming how pupils **think, learn, and grow**.

Looking ahead, we envision CogniQuest as a **living project**—one that continues to evolve, supported by the creativity and insight of passionate teachers. With the right conditions, we believe this approach can **change the learning culture** of classrooms across Europe and beyond.

We hope this guide not only equips you to implement CogniQuest tools but also encourages **you to take them further**, adapt them to your context, and co-create the next chapter of this shared journey toward reflective, empowered learning.

CogniQuest

CogniQuest is a project led by five European organisations aiming to support pupils in developing their metacognitive skills, learning-to-learn skills and lifelong learning competencies to adapt to the changing tendencies of the labour market.

Discover more ressources on metacognition on the website of the project:

www.cogniquest.eu

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