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Augmented Reality in the classroom: The Kurrichi App – A creative tool for interactive learning

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Abstract. This article explores the integration of augmented reality (AR) into primary education through the use of the Kurrichi app, an innovative digital tool designed to enhance active learning and student engagement. The study highlights how AR technology transforms traditional lessons into immersive, visual, and interactive experiences that promote curiosity, creativity, and critical thinking. The Kurrichi app enables the creation and manipulation of 3D objects in real time, allowing students to explore abstract concepts in science, geography, mathematics, and art with increased clarity and motivation.

A case study was conducted with Year 4 students during a Natural Sciences lesson on the Solar System, employing the Kurrichi app as a key learning resource. Students interacted with a 3D model of the solar system, engaged in guided exploration of each planet, completed worksheets, and participated in reflective discussions and assessment activities. Observations revealed heightened engagement, improved understanding of scientific content, and enthusiastic student responses to the use of AR.

The findings suggest that AR tools such as Kurrichi not only enhance conceptual understanding and retention but also encourage the development of essential 21st-century skills, including digital literacy, collaboration, and problem-solving. The article concludes that augmented reality is a powerful pedagogical tool capable of transforming the classroom into a dynamic and learner-centred environment, fostering both academic and creative growth.

Keywords: Augmented reality; Kurrichi app; Interactive learning; Primary education; Digital pedagogy.

1. Introduction

Technology is profoundly transforming education, providing students with more engaging and interactive learning experiences (Bălănescu, 2020). Among the most promising innovations is augmented reality (AR), which blends the real world with visual or auditory digital elements (Cojocariu & Boghian 2019). In this context, the Kurrichi app stands out as an innovative educational tool designed to support active learning and creative exploration.

Kurrichi is an AR app that allows teachers and students to create, view, and interact with 3D objects in real-time using mobile devices or tablets (Kurrichi, 2025). Specially created for educational settings, the platform encourages learning through discovery, collaboration, and interactive visualisation of complex concepts in science, geography, mathematics, art, and other

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subjects. It is specifically designed for classroom use, both by teachers and students, as a tool for creative teaching and learning (Istrate, 2018).

The educational apps help to transform traditional lessons into visual and interactive experiences (Bratu, 2022), spark students' curiosity and engagement, and promote learning through discovery and active exploration.

1.1 Benefits of using Kurrichi in education

The integration of the Kurrichi app into educational activities offers multiple advantages that enhance both teaching and learning experiences, as outlined below:

- Visual and hands-on learning. Students can interact with 3D models (e.g., atomic structure, the human body, historical monuments) directly in the classroom, supporting deep understanding of abstract concepts.
- Active engagement. AR boosts student motivation by offering an immersive and playful experience. Through Kurrichi, lessons become more appealing and memorable.
- Development of critical thinking and creativity. The app allows students to create their own augmented educational materials, encouraging original thinking and analytical skills.
- Accessibility and adaptability. Kurrichi is user-friendly, compatible with most mobile devices, and easily integrated into various types of lessons and school projects.

1.2 Examples of classroom use

The Kurrichi app can be applied across various subjects to create immersive and interactive learning experiences, as illustrated by the following examples.

- In Biology, it allows for the 3D visualisation of cells or human organs, making complex structures more accessible and engaging.
- In Geography, digital maps can be overlaid onto physical models, or students can explore augmented landscapes to deepen their spatial awareness.
- History lessons can benefit from the reconstruction of historical scenes or monuments, offering learners a vivid connection to the past.
- In Mathematics, the app supports the graphical representation of geometric shapes and spatial relationships, facilitating a clearer comprehension of abstract concepts.

Building on these applications and benefits, the following section outlines the methodology used to integrate the Kurrichi app into classroom activities and evaluate its impact on student learning.

2. Research methodology

This study employed a case-based approach to integrate the Kurrichi augmented reality (AR) app into a Year 4 Natural Sciences lesson on the Solar System (Ministry of Education, 2012). The activity combined traditional instruction with AR technology, enabling students to visualise and interact with 3D models of the planets using tablets and printed markers. The teaching process included an introductory dialogue to activate prior knowledge, guided exploration of planetary features through the app, and reflective tasks such as worksheets and group discussions. Data on student engagement and understanding were gathered through direct observation, task

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completion, and interactive recap activities, highlighting the impact of AR on motivation and conceptual learning (Moldoveanu & Traian 2016).

3. Results and findings

The implementation of the Kurrichi app in classroom activities demonstrated its versatility and effectiveness in enhancing both teaching and learning. By enabling the creation of custom 3D educational content, interactive visual exploration, and collaborative projects, the app provided opportunities for students to engage with complex concepts in a hands-on and immersive manner (European Schoolnet, 2018). The following examples and case study illustrate how Kurrichi was applied across different subjects and highlight the positive impact it had on student motivation, understanding, and creativity.

3.1 Using Kurrichi in teaching activities

3.1.1 Creating custom educational content

Teachers can create their own materials (3D models, animations, or AR presentations) or use the existing resource library within the app. For example:

- A virtual solar system for astronomy lessons;
- A 3D human skeleton for anatomy;
- Geometric figures for maths.

3.1.2 Visual exploration of content

Students use the app to scan a marker (such as an image, QR code, or printed sheet) that triggers the appearance of the 3D object on their screens. They can rotate, zoom in/out, analyse from different angles, and interact with the object, as follows:

- In biology: explore the structure of a plant;
- In geography: analyse a 3D volcano erupting in a simulated scenario;
- In arts: create or view augmented reality compositions.

3.1.3 Interactive activities and assessment

Teachers can integrate:

- Interactive quizzes based on AR objects;
- Group projects where students create their own augmented content;
- Formative assessments through interactive presentations.

3.1.4 Encouraging student creativity

Students can be challenged to create their own materials in Kurrichi:

- Model a historical scene and present it to the class;
- Create an augmented mini-tourist guide for a geographical area;
- Explain a scientific experiment using 3D objects they've designed.

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Kurrichi is a modern and effective tool that brings technology closer to education, supporting active learning, enhancing visual thinking, promoting peer collaboration, and supporting the development of essential digital skills.

3.2 Case Study: Using the Kurrichi App in a lesson about the solar system – year 4

This case study presents a lesson conducted in a Year 4 class, on the topic "The Solar System", as part of the Natural Sciences curriculum. The activity was organised as an exploratory journey using the Kurrichi augmented reality app – a modern tool that brings scientific content closer to pupils' understanding.

Lesson Introduction

The lesson began with a simple dialogue, asking questions such as: "Have you ever looked at the night sky? What celestial bodies did you see?" These questions aimed to spark curiosity and prepare students for a different kind of learning experience. The students were informed that the session would embark them on an imaginary space journey to discover the planets of the solar system.

Using the Kurrichi App

The Kurrichi app was introduced by the teacher, explaining that it is a digital tool that uses augmented reality to visualise 3D objects – in this case, the model of the solar system.

Using a special image (marker), pupils opened the app on their tablets and scanned the image, triggering the 3D model of the solar system to appear on their screens.

Their reaction was one of amazement and excitement: they could see the planets orbiting the Sun in real-time, zoom in, rotate, and explore them more closely.

Interactive activity

While exploring each planet, the teacher provided key information:

- Mercury – small and closest to the Sun;
- Venus – bright but extremely hot;
- Earth – our living planet;
- Mars – known as the Red Planet;
- Jupiter, Saturn, Uranus, and Neptune – the giant gas planets.

As individual work, pupils completed a worksheet where they:

- Listed the 8 planets in order;
- Noted visual characteristics (colour, size);
- Made a personal choice: "Which planet would you visit and why?"

Reflection and assessment

To consolidate knowledge, a short recap game was organized: teacher described a planet, and pupils had to identify which one it was. The activity was engaging, and their answers showed a solid understanding of the content.

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The session concluded with an open discussion guided by the question: "What did you enjoy most about today's lesson?" Many pupils said they loved "seeing" the planets up close and wanted to use the app at home too.

Students demonstrated active participation, improved visual comprehension, and the ability to apply newly acquired knowledge through interactive tasks such as quizzes, worksheets, and group projects. The case study on the Solar System lesson revealed that the use of 3D models facilitated a deeper understanding of planetary characteristics and fostered curiosity-driven exploration.

4. Conclusions

This lesson demonstrated how effective modern technology can be when integrated into the educational process. The Kurrichi app transformed a regular lesson into an engaging, visual, and interactive experience. Students remained curious, involved, and active throughout the entire session. Using augmented reality in the classroom not only supports visual learning but also stimulates creativity, critical thinking, and student motivation. The integration of the Kurrichi app into teaching illustrates the potential of AR to transform the classroom into a dynamic, creative, and learner-centred environment. When used correctly, AR not only enhances interest in learning but also contributes to the development of essential skills required in today's digital society.

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