

Beyond AI Adoption

Building an AI Instructional Ecosystem Through Instructional Coaching

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Summary

Generative artificial intelligence (AI) is rapidly reshaping teaching and learning. Schools increasingly recognize AI's potential to improve lesson planning, differentiation, assessment, and student engagement. However, many professional learning initiatives emphasize learning AI tools rather than developing educators' instructional decision making. As a result, teachers often leave training with technical knowledge but **limited guidance on how to integrate AI in ways that strengthen learning**, preserve critical thinking, and promote responsible use.

This Research Practice Brief presents the **AI Instructional Ecosystem**, a coaching-supported professional learning framework designed to move schools from **AI adoption** toward **intentional AI implementation**. Rather than centering technology, the framework positions instructional coaching as the mechanism through which teachers develop AI literacy, design meaningful AI-supported instruction, implement AI purposefully, and cultivate responsible AI literacy among students.

The framework is intentionally adaptable to future technologies because it emphasizes instructional principles rather than specific AI platforms.

The Problem of Practice

Although AI technologies continue to evolve rapidly, teachers consistently report uncertainty about instructional implementation. Surveys and coaching conversations conducted in Roselle Public Schools revealed several recurring questions:

- When should AI be used during instruction?
- How can AI improve student learning rather than simply increase efficiency?
- How can teachers prevent students from becoming overly dependent on AI?
- How can AI support creativity, inquiry, and critical thinking instead of replacing them?
- How should teachers address ethical issues surrounding AI?

Teachers did not primarily request additional technology training. Instead, they sought practical classroom examples, collaborative instructional planning, coaching support, and guidance for making sound instructional decisions.

These findings suggest that sustainable AI implementation requires more than introducing new technologies. Schools need systems that help teachers evaluate AI through the lens of pedagogy, learning, ethics, and professional judgment.

A Practice-Based Solution: The AI Instructional Ecosystem

The AI Instructional Ecosystem is organized into four interconnected phases supported by continuous instructional coaching.

Each phase builds on the previous one, creating a sustainable cycle of professional growth.

1. Teacher learning
2. Intentional instructional design
3. Classroom implementation
4. Student AI literacy

Instructional coaching serves as the connecting element across all phases through collaborative planning, classroom implementation, reflection, and continuous improvement.

Phase 1: Teacher Learning: Building Foundational AI Literacy

The first phase establishes a common understanding of artificial intelligence while addressing teachers' beliefs, confidence, and concerns.

Professional learning begins with two complementary definitions:

Artificial Intelligence in General

Teachers explore AI as computer systems capable of performing tasks that typically require human intelligence, including language processing, pattern recognition, prediction, reasoning, and content generation.

Artificial Intelligence in Everyday Life

Participants examine familiar examples, including these:

- Text prediction
- GPS navigation
- Recommendation systems
- Banking fraud detection
- Translation services
- Voice assistants
- Customer service chatbots

Connecting AI to everyday experiences helps demystify the technology before discussing classroom applications.

The discussion then shifts toward education by examining examples of AI-supported instructional practice, including lesson planning, assessment development, rubric creation, differentiation, multilingual supports, and formative feedback.

To foster balanced perspectives, teachers engage in hands-on activities using MagicSchool AI to generate instructional materials. Rather than accepting AI outputs uncritically, participants reflect on where teacher expertise remains essential.

Reflection questions include these:

- What surprised you?
- What required professional judgment?
- What would you revise?
- When should AI support instruction, and when should teachers make independent decisions?

The goal is not technology proficiency alone but the development of informed, balanced, and responsible instructional judgment.

Phase 2: Intentional Instructional Design

After developing foundational AI literacy, teachers begin intentionally designing instruction with AI. This phase emphasizes thoughtful instructional planning rather than technological efficiency.

Teachers first explore the instructional tools available within MagicSchool AI, including these:

- Lesson planning
- Assessment generation
- Rubric development
- Differentiated instruction
- Project-based learning
- Student feedback
- Multilingual supports

Following this exploration, teachers apply these tools to design an authentic classroom project.

Working collaboratively, participants develop **one project at two levels of complexity**:

- **Version 1:** Designed for learners who require additional instructional support.
- **Version 2:** Designed for learners who are ready for greater independence or advanced challenge.

For each version, teachers use MagicSchool AI to generate and refine the following:

- A detailed project description

- Learning objectives
- Assessment criteria
- A standards-aligned rubric

Teachers critically evaluate and revise all AI-generated content to ensure alignment with instructional goals, student needs, and classroom expectations.

Throughout this design process, instructional coaches facilitate collaborative planning conversations centered on four guiding questions:

- What learning challenge are we trying to solve?
- Does AI improve learning in this lesson?
- Will students still engage in meaningful thinking?
- How will we know learning has improved?

These coaching conversations reinforce that AI serves as an instructional design partner rather than an instructional substitute.

Phase 3: Development of the Classroom Implementation Through AI Learning Spaces

The third phase moves teachers from planning to implementation through the creation of AI-supported student learning environments called student rooms in MagicSchool.

Using MagicSchool Student Rooms, teachers design authentic project experiences that demonstrate how AI can scaffold learning while preserving student ownership.

Participants complete several design tasks.

First, teachers develop a classroom writing project in phase 2.

Next, they create two versions of the same assignment:

- one designed for students requiring additional support
- another designed for students prepared for greater independence and challenge

Teachers then use AI to generate instructional resources, including project plans, assessments, and scoring rubrics in phase 2.

Finally, participants in this phase 3 configure a MagicSchool Student Room for each level by defining the following:

- instructional purpose

- expected AI behaviors
- feedback strategies
- student interaction guidelines
- limitations that prevent AI from completing students' work

It will be helpful to discuss with the teachers what behavior limitations and guardrails their rooms need to have before the development of the activity.

However, as overall rules, rather than providing answers, the AI environment will be intentionally designed to encourage questioning, revision, reflection, and independent thinking.

This hands-on experience allows teachers to experience AI implementation from both teacher and student perspectives.

Phase 4: Developing Student AI Literacy

Responsible AI implementation extends beyond teacher practice. Students also require explicit instruction in understanding, evaluating, and responsibly using AI. During the workshop, teachers engage in structured discussions that they can later facilitate in their own classrooms. Five core discussion areas guide student AI literacy.

AI Safety

- Teachers examine privacy, misinformation, disinformation, harmful outputs, and strategies for verifying AI-generated information.

Environmental Impact

- Participants discuss the computational demands of AI systems, energy consumption, and sustainable technology use.

Societal Impact

- Teachers explore bias, fairness, accessibility, equity, workforce changes, and job displacement associated with AI technologies.

Benefits and Costs for Learning

- Teachers consider how AI can promote creativity, brainstorming, and personalized learning while also recognizing risks such as overreliance, reduced productive struggle, and diminished critical thinking when students simply copy AI-generated responses.

Rules and Policy

- Participants review school and district policies regarding appropriate AI use, citation practices, academic honesty, and responsible digital citizenship so they can communicate clear expectations to students.

The Role of Instructional Coaching

Instructional coaching is the foundation of the AI Instructional Ecosystem. Rather than serving as technology trainers, instructional coaches facilitate professional inquiry that connects AI use to instructional goals. Coaches collaborate with teachers to design lessons, observe implementation, analyze student learning, and refine instructional practices through ongoing reflection.

This coaching model helps ensure that AI integration remains grounded in evidence-based pedagogy rather than emerging technology trends.

Implications for Practice

Schools seeking sustainable AI implementation should consider developing systems that include the following:

- Ongoing instructional coaching
- Teacher AI literacy
- Purposeful instructional design
- Hands-on classroom implementation
- Student AI literacy
- Ethical AI discussions
- Shared instructional resources
- Continuous cycles of reflection and improvement

Professional learning should extend beyond demonstrations of AI tools to include opportunities for teachers to apply, evaluate, revise, and reflect on AI-supported instruction within authentic classroom contexts.

Conclusion

The AI Instructional Ecosystem reframes AI implementation as a process of instructional transformation rather than technology adoption. By combining foundational AI literacy, intentional instructional design, authentic classroom implementation, and student AI literacy within a coaching-supported model, schools can create sustainable systems that evolve alongside emerging technologies.

Although this framework uses MagicSchool as the primary instructional platform during professional learning, its principles are platform-independent. As AI technologies continue to develop, teachers should not need to redesign their instructional philosophy with each new innovation. Instead, they need

a sustainable ecosystem that strengthens professional judgment, supports meaningful student learning, and prepares learners to become thoughtful, ethical, and responsible users of artificial intelligence.

AI INSTRUCTIONAL ECOSYSTEM

FROM AI ADOPTION TO INTENTIONAL AI IMPLEMENTATION
THROUGH INSTRUCTIONAL COACHING



OUR GOAL

Empower teachers to make intentional instructional decisions about AI that enhance teaching, deepen learning, and promote responsible and ethical use.



1

TEACHER LEARNING

Build AI Literacy



Understand AI and develop balanced, informed, and responsible perspectives.

KEY ACTIVITIES

- ✓ What is AI? (General definition)
- ✓ AI in everyday life (real-world examples)
- ✓ AI in our school context (teaching & learning examples)
- ✓ Explore beliefs, opportunities, and concerns
- ✓ Hands-on: Use MagicSchool AI to create lesson plans, assessments, and rubrics
- ✓ Reflect, discuss, and build confidence

OUTCOME

Teachers develop foundational AI knowledge and a balanced view of AI for education.

2

INTENTIONAL INSTRUCTIONAL DESIGN

Plan with Purpose



Use AI tools to design instruction that improves learning, not just efficiency.

KEY ACTIVITIES

- ✓ Design lessons with clear learning goals
- ✓ Create assessments
- ✓ Develop rubrics
- ✓ Differentiate instruction
- ✓ Plan project-based learning
- ✓ Leverage multilingual supports
- ✓ Plan for student feedback
- ✓ Use MagicSchool tools to enhance instructional design

OUTCOME

Teachers design meaningful, AI-supported learning experiences.

3

CLASSROOM IMPLEMENTATION

MagicSchool Student Rooms



Implement AI with intentional goals and create supportive AI learning environments.

KEY ACTIVITIES

- ✓ Design a writing project
- ✓ Create two versions:
 - Lower-level students
 - Advanced students
- ✓ Use MagicSchool AI to generate:
 - Project plan
 - Assessment
 - Rubric
- ✓ Build a MagicSchool Student Room
- ✓ Define AI behaviors, limitations, feedback style, and learning supports

OUTCOME

Teachers implement AI strategically to support student learning and growth.

4

STUDENT AI LITERACY

Prepare Responsible AI Users



Help students understand, evaluate, and use AI responsibly and ethically.

DISCUSSION TOPICS



SAFETY

Misinformation, disinformation, harm, privacy, data protection



ENVIRONMENTAL IMPACT

Energy use, carbon footprint, sustainable AI use



SOCIETAL IMPACT

Bias, fairness, job displacement, equity, access



BENEFITS & COSTS

Creativity, problem solving, critical thinking vs. overreliance, reduced learning



POLICY & INTEGRITY

Appropriate use, citation, academic honesty, possible consequences

OUTCOME

Teachers are prepared to guide students in becoming ethical, critical, and responsible AI users.



THE ROLE OF INSTRUCTIONAL COACHING

Coaching connects all phases.



COLLABORATE

What learning challenge are we trying to solve?



EVALUATE

Does AI improve this lesson?



ENSURE STUDENT THINKING

Will students still engage in meaningful thinking?



MEASURE IMPACT

How will we know learning has improved?

THE PROCESS AT A GLANCE



Learn AI Literacy



Design with Purpose



Implement with Intention



Build Student AI Literacy



Reflect, Improve, and Repeat

WHY THIS MATTERS

The AI Instructional Ecosystem shifts the focus from technology adoption to instructional transformation—centered on learning, teacher expertise, and student growth.



IMPLICATIONS FOR SCHOOLS

- ✓ Ongoing instructional coaching
- ✓ Teacher AI literacy
- ✓ Classroom implementation support
- ✓ Student AI literacy
- ✓ Shared resources
- ✓ Continuous reflection and improvement



A SUSTAINABLE ECOSYSTEM FOR TODAY AND TOMORROW

Technology will continue to evolve. Our practices, guided by good instruction and responsible use, will endure.





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