

**Mobile AI Use and the AAEL Workflow: Connecting Practice, Ethics, and Policy in  
Modern Learning**

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## **Abstract**

Mobile artificial intelligence tools are increasingly used by students outside structured coursework, yet institutional policies often overlook these informal learning moments. Research shows that learners rely on mobile AI to clarify instructions, explore concepts, and regulate their thinking during moments of uncertainty. This paper examines how such practices align with the Ask–Adapt–Analyze (AAEL) workflow and how this lens can inform ethical and policy considerations. Drawing on thirteen studies related to mobile learning, prompting, teacher readiness, ethics, and workforce preparation, the analysis shows that AAEL provides a practical bridge between authentic learning behavior and institutional expectations. The paper concludes by identifying implications for aligning policy, instruction, and student autonomy in environments where mobile AI is a routine part of learning.

## **Introduction**

Students increasingly integrate mobile AI tools into their everyday learning practices, especially during brief, unstructured moments when they encounter confusion or uncertainty. These mobile interactions allow learners to clarify instructions, explore ideas, and build early understanding before engaging in more formal learning tasks. Because these moments occur outside the learning management system or designated coursework, they usually go unrecognized in institutional conversations about academic integrity or pedagogical design. This gap between actual learning behavior and policy assumptions creates a challenge for institutions attempting to support responsible AI use. Understanding how students naturally engage with AI is essential to developing policies that reflect real learning rather than idealized models.

The Ask–Adapt–Analyze (AAEL) workflow provides a useful lens for interpreting these patterns because it describes learning as an iterative process driven by exploration, feedback, and judgment. AAEL is grounded in core principles such as learning through real-world tasks, treating AI as a coach and co-creator, and relying on layered scaffolding from peers, instructors, and structured reflection. The cycle begins with guided exploration, moves into AI-supported brainstorming or problem solving, and culminates in refinement through human judgment before beginning again. These stages reinforce habits of adaptability, prompting skill, and metacognition, which are essential for navigating unfamiliar tasks in mobile environments. As a result, the framework aligns naturally with the ways learners already use mobile AI tools to manage uncertainty and build understanding spontaneously.

AAEL offers a clear process for interpreting mobile AI use. The framework centers on three actions: asking questions, adapting prompts or strategies as understanding evolves, and analyzing AI-generated information through verification and reflection. These stages align closely with how learners instinctively use mobile AI tools during informal learning episodes. This paper synthesizes research on mobile learning, AI-supported inquiry, teacher readiness, ethics, and organizational factors to show how this framework can serve as a bridge between authentic learning behavior and institutional expectations. By connecting practice, ethics, and policy,

AAEL provides a way for institutions to encourage responsible exploration while maintaining academic standards.

## **Literature Review**

### **Mobile Learning and Informal Study Behaviors**

Boz (2025) found that doctoral students routinely relied on mobile chat systems to support self-regulated learning, using them for immediate clarification, motivation, and peer comparison during informal study moments. These brief interactions often occur between classes or during commutes, showing that mobile tools play a crucial role in managing uncertainty and maintaining momentum. The study also highlights that these learning behaviors are unstructured and student-driven, which makes them invisible to traditional policy frameworks. Boz's findings suggest that mobile AI tools fill a meaningful cognitive support function that institutions must acknowledge. These behaviors connect naturally to the AAEL Ask stage by illustrating how learners seek quick micro-clarifications.

Law et al. (2025) similarly found that participants in a four-week hackathon used generative AI most intensively during moments of unfamiliarity or conceptual difficulty. Nearly half of their documented digital competence actions involved AI querying, refinement, or verification, showing how AI becomes a vital component of exploratory problem solving. These mobile or rapid-access interactions occurred as learners evaluated, compared, and refined ideas. Lobo-Quintero (2025) showed that AI-enhanced Think–Pair–Share routines increased creativity, engagement, and reflective thinking, particularly when learners used AI briefly to generate or clarify early ideas. Together, these studies show that informal, mobile AI use is a legitimate and frequent part of authentic learning behavior.

### **Iteration, Prompting, and Metacognition**

Research also shows that iterative prompting strengthens metacognition and understanding. De Santiago et al. (2025) found that prompt engineering produced higher-quality thinking than custom GPTs because learners revised their questions, adapted their approaches, and evaluated AI output more closely. This iterative cycle mirrors AAEL's Adapt phase, where learners refine their strategies in response to ongoing feedback. The study also highlights how prompt quality directly influences learning depth, suggesting that iterative engagement with AI is academically meaningful. These insights support the argument that mobile interactions, even when brief, can contribute to metacognitive growth.

Qin (2025) reported that structured AI use increased self-directed learning and innovative thinking in undergraduate programs. Students who repeatedly revised prompts and evaluated AI-generated information demonstrated more confidence and stronger conceptual understanding. The iterative nature of this work allowed learners to assess different approaches and refine their understanding through comparison and adjustment. Zhu et al. (2024) found similar patterns

among UX designers, who regularly brainstormed, revised, and evaluated AI-generated drafts in their creative workflows. These findings collectively show that effective AI-assisted learning is driven by ongoing refinement rather than single-query interactions.

### **Teacher Readiness and Institutional Capacity**

Teacher readiness is a critical factor in how AI tools are implemented in classrooms. Iddrisu and Iddrisu (2025) found that many educators lacked training and confidence in AI, which led to inconsistent use and uncertainty about how to guide students. Without clear frameworks, teachers often defaulted to restrictive interpretations that discouraged exploratory or informal AI use. This limited capacity creates a mismatch between actual student behavior and classroom expectations. The study suggests that institutions must provide training and support systems to help educators adopt responsible, flexible AI practices.

Siraj et al. (2025) examined how AI influences teacher identity and professional autonomy, finding that AI tools can either support or undermine teacher confidence depending on institutional guidance. Teachers who felt unsupported or unclear about acceptable AI use often responded by limiting or prohibiting tools they could not confidently evaluate. Conversely, teachers with structured frameworks reported feeling more empowered to integrate AI productively. These findings show that teacher preparation must include explicit guidance on how to evaluate and manage informal, mobile AI use in student learning.

### **Ethics, Verification, and Autonomy**

Ethical considerations are central to mobile AI use. Johnson (2025) identified risks such as inaccuracy, bias, and dependency, emphasizing that learners must verify AI-generated content rather than accept it uncritically. This aligns directly with the Analyze stage of AAEL, where verification and reflection prevent misuse. The study highlights that AI can amplify misinformation or reinforce bias if left unchecked. Ethical AI use therefore requires explicit instruction in evaluation and critical thinking.

Kotsis (2025) compared dialogic AI tools with structured AI systems, finding that different modes of AI support diverse levels of autonomy, inquiry, and cognitive load. Dialogic tools encourage questioning and conceptual exploration, while structured tools provide more direct scaffolding with less flexibility. Lobo-Quintero (2025) also noted that learners remain responsible for checking AI-generated content, even when using AI for brief ideation. These studies show that institutions must differentiate between exploratory mobile AI use and high-stakes academic tasks when designing ethical guidelines.

### **Policy, Workforce Preparation, and Organizational Alignment**

Studies on policy and workforce preparation provide a broader context for mobile AI use. Emesiobi and John (2025) argued that modern learners need autonomy, ethical awareness, and digital literacy to participate effectively in an AI-enabled workforce. Policies that restrict

exploratory AI use may prevent students from developing the competencies required for real-world environments. Their work emphasizes the importance of aligning academic policy with societal and technological realities. Strong process-based policies therefore help prepare learners for emerging fields.

Challapally et al. (2025) found that organizations adopt AI most effectively when they use frameworks that encourage iteration and continuous improvement. These findings parallel AAEL's emphasis on refining and verifying information, suggesting that learning environments should mirror professional practice. Mandic et al. (2025) showed that AI-driven educational avatars can scaffold exploratory learning while still supporting autonomy and responsibility. Their findings illustrate how AI can guide learners without undermining their decision-making authority. Collectively, these studies suggest that policy must prioritize learning processes rather than rigidly policing AI outputs.

### **Analysis**

The research reveals clear patterns in mobile AI use that align with AAEL's three stages. Learners use mobile AI during moments of uncertainty to ask clarifying questions, directly reflecting the Ask phase described in multiple studies (Boz, 2025; Law et al., 2025). The Adapt stage appears in the iterative refining of prompts documented by de Santiago et al. (2025), Qin (2025), and Zhu et al. (2024), demonstrating that learning deepens as students revise questions and explore alternatives. Ethical evaluation, which aligns with AAEL's Analyze stage, is highlighted by Johnson (2025), Kotsis (2025), and Lobo-Quintero (2025), who stress the need to verify AI information and maintain autonomy. Together, these findings show that mobile AI use is not random but follows clear cognitive patterns consistent with structured workflows.

The research also exposes a mismatch between real learning behavior and institutional policy. Policies often assume that AI use happens only during formal, desktop-based assignments, yet learners regularly engage with AI tools in short, mobile interactions. Teacher readiness studies (Iddrisu & Iddrisu, 2025; Siraj et al., 2025) suggest that educators need clear frameworks like AAEL to guide students effectively in these settings. When institutions overlook how students naturally use AI, they risk creating policies that either restrict beneficial learning or fail to address genuine ethical concerns.

### **Discussion**

The findings support the view that mobile AI interactions should be treated as legitimate components of the learning process rather than as peripheral or suspect behaviors. Using AAEL as a lens helps clarify how these interactions can remain responsible and ethically grounded. By focusing on asking clear questions, iterating prompts, and analyzing outputs, AAEL supports both autonomy and accountability. Learners are encouraged to verify information, understand limitations, and rely on AI as a thinking partner rather than an answer generator. This process-

oriented perspective is more aligned with authentic learning than policies that focus solely on detecting misuse.

For educators, the AAEL workflow offers stable expectations that can guide instructional decisions regardless of individual comfort with AI tools. The framework ensures that AI use is transparent and verifiable, which helps educators supervise learning without suppressing student exploration. For institutions, AAEL provides an alternative to punitive or restrictive policies, offering a more practical and supportive approach. Instead of assuming that mobile AI use undermines integrity, institutions can recognize it as a natural extension of modern learning and guide it responsibly.

## **Implications**

Several implications emerge from this study. First, institutions should adopt process-focused AI policies that encourage transparency, iterative reasoning, and verification, such as documenting prompt evolution or reflection steps. These practices teach students to approach AI as a tool for inquiry and analysis rather than as a shortcut. Second, teacher preparation programs must include training on mobile AI use and informal learning behaviors to reduce the readiness gap. Without such support, educators may continue to rely on restrictive interpretations that limit meaningful student use of AI tools.

Third, ethics instruction should emphasize critical evaluation, bias detection, and reflection rather than focusing solely on academic misconduct. Verification skills are essential for responsible AI use, especially in mobile environments where interactions are rapid and less structured. Finally, institutions should recognize that mobile AI use is central to many students' learning routines. Policies that reflect this reality will better support student development, autonomy, and critical judgment while aligning with the skills required in modern AI-enabled workplaces. These implications reflect the need to move from product-focused oversight to process-oriented guidance.

## **Conclusion**

Mobile AI tools have become embedded in everyday learning through informal, exploratory interactions that shape how students ask questions, refine understanding, and verify information. These behaviors align closely with the Ask–Adapt–Analyze workflow, which offers a clear lens for guiding responsible AI engagement. By understanding how learners naturally use AI tools, institutions can develop policies that support transparent, iterative reasoning rather than focusing solely on output or detection. This process-centered approach encourages autonomy, ethical responsibility, and deeper engagement with course material.

As mobile AI continues to evolve, educational institutions must create policies that align with actual learning behaviors. Frameworks like AAEL provide a foundation for integrating ethical guidance, student autonomy, and responsible exploration into AI-supported learning. Institutions that adopt such frameworks will be better positioned to address emerging challenges while supporting student success. Aligning policy with practice ensures that learners are prepared for the complexities of modern technological environments.

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