Public Comment on Proposed Priority 2025-13650: Advancing Artificial Intelligence in Education

To: U.S. Department of Education
From: Dr. Cinder Zhang, Creator of the DRIVER Framework, Purdue University
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Re: Proposed Priority—Advancing Artificial Intelligence in Education (Docket ID ED-2025-OESE-0038)

Executive Summary

The Department's proposed priority represents a critical inflection point in American education. While the vision to "revolutionize education" through AI is commendable, without the right framework, we risk creating a generation of AI-dependent learners who lack fundamental cognitive capabilities. The DRIVER framework offers a proven solution that not only meets but exceeds the Department's objectives by solving the deeper challenge: maintaining human cognitive development while harnessing AI's power.

The Urgent Challenge We Face

Secretary McMahon correctly identifies AI's transformative potential, but we must confront an uncomfortable truth: **This may be the last generation that can learn both with and without AI.** The students entering our classrooms today stand at a unique crossroads—they can either become the architects of our AI-augmented future or its passive consumers.

The DRIVER framework (Discover, Represent, Implement, Verify, Evolve, Reflect) addresses this challenge head-on by creating what cognitive scientists call the "productive struggle sweet spot"—the optimal zone where learners engage deeply enough to build neural pathways while leveraging AI to extend their capabilities.

The DRIVER Philosophy: Structure That Enables Freedom

DRIVER operates on what we call the "Jazz Principle"—like jazz musicians who master scales and chord progressions to eventually improvise brilliantly, students learn structured thinking patterns that ultimately enable creative freedom. This framework is **descriptive, not prescriptive**—it names the natural stages of effective learning that good thinkers stumble through unconsciously, making them explicit to accelerate mastery without forcing conformity.

Most importantly, DRIVER works WITH human nature, not against it. Students naturally adapt the framework to their own learning styles, and this adaptation is not a bug—it's a feature. Success is measured not by compliance with DRIVER, but by transcendence of it. When students internalize the principles so deeply they no longer need the explicit framework, we've succeeded.

How DRIVER Exceeds the Department's Goals

1. **A Systematic Approach Through Six Natural Learning Stages**

DRIVER's six stages mirror how humans naturally learn when functioning at their best:

- **Discover**: Students explore problems WITHOUT immediate AI assistance, building intuition first

- **Represent**: Creating mental models and multiple representations (visual, verbal, mathematical) to deepen understanding
- **Implement**: Practical application where AI serves as a pair programmer, not a ghost writer
- **Verify**: Building professional skepticism through systematic validation of both their work and AI outputs
- **Evolve**: Recognizing patterns across contexts and extending solutions creatively
- **Reflect**: Extracting transferable principles that apply to future challenges

This isn't a rigid sequence—learning is often spiral, not linear. DRIVER embraces this natural flow while ensuring each stage builds genuine capability.

2. **Personalized Learning That Builds, Not Bypasses, Cognition**

While the priority emphasizes personalized learning paths, DRIVER goes further by ensuring each path maintains cognitive rigor. In our "cognitive gymnasium," AI acts as a spotter—providing support to prevent injury (frustration) while ensuring students lift the weights (do the thinking) themselves.

Evidence: In our finance education implementations at the University of Arkansas, students using DRIVER demonstrated:

- > 90% success rate in building functional financial tools from scratch
- > 80% could explain complex financial concepts to peers without AI assistance -improvement in identifying and correcting errors in AI-generated financial analyses

3. **Critical Thinking Through the "Question First" Protocol**

The Department seeks to enhance critical thinking and problem-solving. DRIVER ensures this through what we call "productive friction":

- **The 3-minute rule**: Students must think about a problem for at least 3 minutes before engaging AI
- **Hypothesis before help**: Learners articulate their approach before seeking AI validation
- **Disagree to understand**: Students are trained to challenge AI outputs, not accept them blindly

Real-world impact: In our Financial Management courses, students trained to "argue with AI" showed remarkable growth:

- over 80% could identify flaws in AI-generated financial advice
- over 90% demonstrated improved ability to spot hidden assumptions
- over 80% reported feeling MORE confident in their own judgment, not less

4. **Parent and Teacher Empowerment Through Transparency**

DRIVER addresses the priority's emphasis on stakeholder engagement by making the learning process visible:

- **The "Show Your Thinking" principle**: All student work includes their reasoning process, not just outputs
- **Weekly reflection videos**: Students explain what they learned and how AI helped (or hindered)
- **Parent dashboards--If needed**: Clear visualizations of cognitive development, not just task completion

5. **Ethical AI Use Through "Cognitive Ownership"**

Rather than adding ethics as an afterthought, DRIVER builds ethical AI use into its foundation:

- **The Attribution Habit**: Students naturally cite when and how AI contributed to their work
- **"Break the AI" exercises**: Students deliberately find AI limitations and biases
- **The Human Touch requirement**: Every project must include uniquely human elements AI cannot replicate

The Scalability Advantage: AI + X

DRIVER's true power lies in its domain-agnostic architecture. Our "AI + X" approach means:

- **AI + Mathematics**: Building numerical intuition while leveraging computational power
- **AI + Writing**: Maintaining authentic voice while enhancing expression
- **AI + Science**: Preserving experimental thinking while accelerating analysis
- **AI + History**: Developing critical source analysis while accessing vast databases

Each domain module maintains discipline-specific cognitive requirements while integrating AI capabilities.

Implementation Readiness

Unlike theoretical frameworks, DRIVER offers:

1. **Proven deployment models** from pilot programs to institution-wide adoption
2. **Measurable outcome metrics** aligned with federal education standards
3. **Professional development curricula** for educators at all comfort levels with AI
4. **Open-source components** enabling rapid, cost-effective scaling

The Window of Opportunity

The Department's recognition that AI can prepare students for "tomorrow's challenges" is prescient. However, tomorrow's challenges will require humans who can think with, through, and beyond AI—not merely alongside it.

DRIVER represents more than a framework; it's a pedagogical philosophy that preserves human cognitive sovereignty while embracing technological augmentation. By adopting DRIVER principles in grant programs, the Department can ensure that American students don't just use AI—they master it.

Specific Recommendations for Grant Implementation

We urgently recommend that the Department incorporate these DRIVER-aligned criteria into grant evaluations:

1. **Require "Cognitive Load Documentation"**: Proposals must show how they maintain productive struggle while leveraging AI
2. **Mandate "Transcendence Metrics"**: Success measured by students' ability to work independently of the framework
3. **Prioritize "Show Your Thinking" Assessments**: Video presentations and peer teaching over traditional testing
4. **Fund "AI + X" Innovations**: Support domain-specific adaptations that maintain cognitive rigor

5. **Create "DRIVER Certification"**: Recognize programs that demonstrably build cognitive strength alongside AI skills

The Path Forward: Implementation Support

We offer concrete resources to support immediate implementation:

- **Open-source DRIVER materials**: Freely available session templates and assessment rubrics
- **Future Professional development programs**: Training educators to become "cognitive coaches"
- **Community of practice**: Network of DRIVER practitioners sharing innovations

Conclusion: The Choice That Defines a Generation

Secretary McMahon's vision of AI revolutionizing education is not just possible—it's imperative. But we stand at a crossroads that will define human potential for generations.

Path One: We rush to adopt AI without frameworks like DRIVER, creating a generation that mistakes AI's answers for their own understanding. These students will be replaced by the very tools they depend on.

Path Two: We implement DRIVER's approach, creating a generation that uses AI as a cognitive amplifier while maintaining the uniquely human abilities of creativity, judgment, and wisdom. These students will lead the AI revolution, not be consumed by it.

The framework exists. The evidence is clear. The need is urgent.

As an educator who has witnessed both the promise and peril of AI in education, I can say with certainty: DRIVER is not just another educational framework. It's a safeguard for human cognitive sovereignty in an age where that sovereignty is under unprecedented threat.

The students entering our classrooms today are counting on us to make the right choice. With DRIVER, we can ensure they graduate not just with knowledge, but with the cognitive strength to create knowledge. Not just with answers, but with the ability to ask questions AI hasn't learned to ask.

This is our moment. This is our responsibility. This is our opportunity to shape not just education, but the future of human potential itself.

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Supporting Materials Available:

- Open-Source DRIVER Textbooks: Financial Management, Investment, Financial Modeling
- Implementation Case Studies from University Courses
- Student Success Metrics and Longitudinal Data
- Open-Source DRIVER Materials: https://cinderzhang.github.io/

- Testimonials from Students

Awards and Recognition:

- Financial Management Association (FMA) Teaching Innovation Award
- University of Arkansas Teaching Innovation Award

"In the cognitive gymnasium of the future, AI is your spotter, not the weight machine. DRIVER ensures students build the strength to lift ideas AI hasn't learned to carry."