

# Ednius: AI-Enhanced Short Answer Assessments



## Introduction: The Grading Challenge in Higher Education

### Core Problem

- **Time Constraint:** Professors and TAs have limited bandwidth for grading
- **Assessment Dilemma:** Short-answer questions (SAQs) offer deeper learning but consume extensive grading time
- **Skills Gap:** Reducing open-ended assessments limits students' critical thinking development

### Employer Perspective

- Highly value skills like:
  - Critical thinking
  - Analytical problem-solving
  - Effective communication

### Ednius Solution

- **AI-Powered Grading Platform**
  - Automates short-answer evaluation
  - Enables more frequent open-ended assessments
  - Provides prompt, personalized feedback
  - Seamless integration with Learning Management Systems

# Core Technology: Multi-Agent AI Design

## Innovative Grading Approach

### 1. Generative Module

- Interprets student content freely
- Parses nuanced responses

### 2. Verification Module

- Checks generative output against rubric
- Flags potential inaccuracies

### 3. Orchestrator

- Manages interaction between modules
- Ensures feedback accuracy

# Competitive Landscape

## Competing Platforms

Platform	Focus	Strengths	Weaknesses
Edexia	Subject-specific modules	Domain-specific logic	Limited creative feedback
CoGrader	Essay analytics	Detailed writing metrics	Less suitable for short responses
GradeWiz	Multi-assignment support	Broad LMS integration	Lacks depth in complex assessments
Gradescope	Submission organization	Pattern recognition	Rudimentary text feedback

## Use Cases

### Academic Scenario

- **Before Ednius**
  - Limited short-answer questions
  - Minimal writing practice
  - Delayed, superficial feedback

- **After Ednius**

- More frequent assessments
- Near-instant personalized feedback
- Improved student engagement

## **Professional Certification Context**

- Scenario-based questions
- Consistent evaluation criteria
- Scalable assessment across large candidate pools

## **Strategic Challenges**

### **Key Considerations**

- Maintaining core focus vs. feature expansion
- Balancing privacy with advanced analytics
- Navigating evolving AI regulations

### **Potential Risks**

- AI error reputation
- Regulatory uncertainty
- Maintaining technological edge

## **Conclusion**

### **Unique Value Proposition**

- Personalized, context-rich feedback
- No Personally Identifiable Information (PII)
- Empowers educators to design meaningful assessments

## Future Outlook

- Balancing technological innovation
- Meeting institutional demands
- Preserving user trust and privacy

## Key Discussion Points

1. Strategic specialization vs. horizontal expansion
2. Marketing approach (bottom-up vs. enterprise)
3. Data privacy strategies
4. Competitive differentiation

How would they work

Temp non-invasive(privacy, differentiation, reputation): Each students work that's uploaded would get a unique non-invasive identifier where the students work can be stored and identified by the AI for future AI federated learning, improved feedback, and promise of user privacy so that the AI can see all the work a specific user has handed in but not any of their personal info. This also means if user data is shared through any API's or partners for whatever purpose user data would stay anonymous through an identifier that was made securely through Ednius. This could be achieved through an agreement with MIT CSAIL which already researches privacy first AI models. The temp non-invasive identifier would highlight privacy, keep Ednius following their competitive differentiation, and build up their brand name as a privacy respecting company.

Federated learning(supports bottom up, expansion, and differentiation): All work that is shared to Ednius would be raw data and help Ednius AI learn grading patterns, feedback preferences, and common mistakes students make. Federated learning would also help Ednius adapt to different teachers/learning styles. Some teachers may prefer detailed explanations, while others prefer concise. Federated learning would help spread the word from bottom up by attracting teachers looking for well made feedback written how they prefer it. This would also support Ednius' competitive differentiation of detailed feedback. Federated AI learning could be implemented through an **iterative waterfall** model to gain feedback on each step of the process before full implementation. This could be implemented over the course of 20 months.

Purchase of TurnItIn API(top down, expansion, reputation):  
(estimate \$5000 per year to use) The TurnItIn API would give Ednius access to many features needed for expansion such as available analytics dashboards for users and would allow Ednius to access TurnItIn's math and coding assignments to allow Ednius to expand into providing feedback for math and computer science in addition to the business, healthcare, sciences, and humanities they already provide. Using TurnItIn's API would also help promote Ednius' small brand name by advertising TurnItIn's API (a big brand name) as something they use which will increase reputation and also give a slight boost in top down integration.

MIT CSAIL collaboration(reputation, differentiation, privacy):  
A partnership with MIT's CSAIL will greatly increase privacy and reputation by having a trusted and tested anonymous user identifier as someone they work with. This collaboration will also help them with maintain competitive differentiation in privacy.

Problem 4 Solution competitive differentiation (privacy and detailed feedback)

2 temp identifier

1 federated learning

Two of our solutions federated learning and temporary non-invasive identifiers would help solve the problem of competitive differentiation. First, federated learning can be utilized by being specifically trained on local responses based on who's using it. A university professor would train it using work from past and current students in the course using a specialized non-invasive temporary identifier for each student to ensure both privacy and highly trained feedback on student work.

Expansion:

Main problems:

- Limited grading capabilities (only MCQs and short answers)
- Privacy restrictions prevent storing or learning from real data
- Lack of reputation
- Difficulty improving their Ai without centralized data (because they cannot store data)

Solution (how can they expand from main problems)

-Federated learning: allows Ednius or any organizations to train the AI model locally without storing any information. The Ai gets smarter overtime and it can learn to handle longform questions, essays and case studies, not just MCQs and short answers

-Temporary ID can help the AI track patterns and performance without real student data.

-Federated learning is also customizable for different organizations.

-Several large clients have expressed interest in a more integrated platform that not only automates grading but also ensures test security and provides detailed analytics on student progress. The proposed solutions, including federated learning and the use of temporary IDs, allow Ednius to expand its feature set responsibly. This approach enables Ednius to scale while maintaining its core values of privacy, academic integrity, and instructor control.

-Only model updates are shared

-Partnership with MIT CSAIL will increase the reputation and the ethical for Ednius.

<https://www.edweek.org/technology/personalized-learning-what-does-the-research-say/2016/10>

<https://springsapps.com/knowledge/main-ai-trends-in-education-2024>

<https://www.finrofca.com/news/edtech-revenue-multiples-2025>

<https://www.ednius.com/privacy>

[https://tracxn.com/d/companies/gradescope/\\_zLnpUdg7sj3fzc3cEXt6D9WBJ499algOgQ74xzW6ijA/funding-and-investors](https://tracxn.com/d/companies/gradescope/_zLnpUdg7sj3fzc3cEXt6D9WBJ499algOgQ74xzW6ijA/funding-and-investors)

<https://www.turnitin.com/press/turnitin-celebrates-25-years-in-global-academic-integrity>

[https://www.ibm.com/watsonx?utm\\_content=SRCWW&p1=Search&p4=43700078324160207&p5=b&p9=58700008525346376&qad\\_source=1&qclid=CjwKCAjwnPS-BhBxEiwAZjMF0vOtmSgbu2FGgRcg97H5WfivfdS3od4PBuphZIfUL2GyyJssZL0-8xoCgGoQAvD\\_BwE&qclsrc=aw.ds](https://www.ibm.com/watsonx?utm_content=SRCWW&p1=Search&p4=43700078324160207&p5=b&p9=58700008525346376&qad_source=1&qclid=CjwKCAjwnPS-BhBxEiwAZjMF0vOtmSgbu2FGgRcg97H5WfivfdS3od4PBuphZIfUL2GyyJssZL0-8xoCgGoQAvD_BwE&qclsrc=aw.ds)