Design & Creative Thinking for Innovative Teaching – Leveraging AI in Teaching & Learning

TEAM # 2

Problem Context:

The school management mandated timely syllabus completion with expectations of high academic results. Despite completing the syllabus within deadlines, the class exhibited poor performance. This highlighted a critical gap between syllabus coverage and actual learning outcomes.

Part A: Teaching–Learning WITHOUT Design Thinking

Approach:

- Fixed yearly and weekly lesson plans
- Lecture-dominated classroom
- Uniform pace for all learners
- Summative, memory-based assessments

Improvements Possible WITHOUT Design Thinking

- Faster syllabus coverage
- Administrative compliance
- Short-term exam preparedness

Limitations & Impact on Learning

- Learning restricted mostly to Bloom's lower levels (Remember, Understand)
- Minimal focus on Apply, Analyze, Evaluate, Create
- learner diversity may not be addressed (violates NEP 2020 learner-centric vision)
- No personalization or competency-based progression
- AI tools underutilized or used only for content delivery
- Results remain inconsistent despite effort

Part B: Teaching–Learning WITH Design Thinking

Design Thinking Goal:

Understand the Problem Space → Explore the Solution Space

Phases Applied:

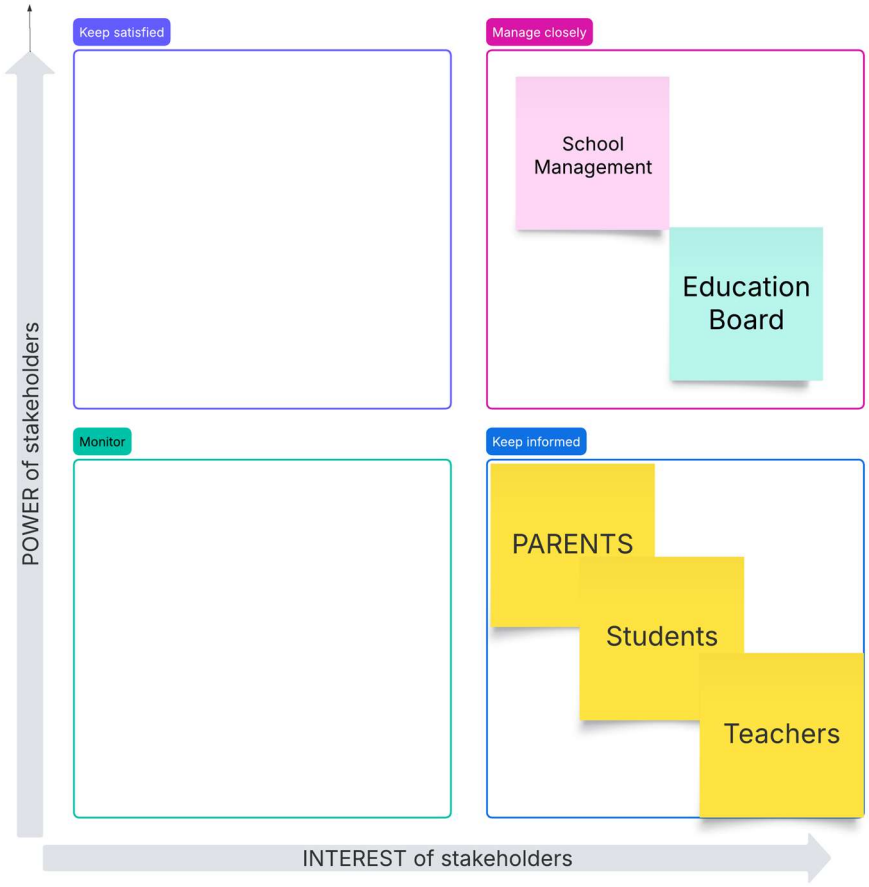
Scope → Empathize → Define → Ideate → Prototype → Test → Implement

Empathy & Stakeholder Alignment (SIP)

- Primary Stakeholder: Students (learning needs, stress, motivation)
- Secondary Stakeholders: Parents, Teachers
- High Power Stakeholders: Management, Education Board

Insight: High-interest stakeholders (students) needed greater voice in planning.

Stakeholder Power–Interest Grid (Design Thinking – Empathy Stage)



Insight:
High-interest stakeholders (students) have limited decision-making power, indicating the need to amplify student voice through Design Thinking.

Improvements WITH Design Thinking

<u>1. Alignment with NEP 2020:</u>

- Shift from rote learning to competency-based education
- Learner-centric and flexible pedagogy
- Continuous formative assessment
- Focus on critical thinking, creativity, and well-being

<u>2. Alignment with Bloom's Taxonomy:</u>

- Remember & Understand: AI-powered micro-content
- Apply & Analyze: Case studies, simulations, problem-based tasks
- Evaluate: Peer

assessment, reflective questioning
- Create: Projects, presentations, AI-supported content creation

3. Use of AI Tools:
- AI lesson planners for outcome-based teaching
- Adaptive quizzes to identify learning gaps
- AI analytics for tracking progress
- Chatbots and tutors for personalized support

Prototype & Validation
- Concept-wise micro lesson plans
- AI-based formative assessments
- Student feedback and reflection journals
- Comparison of pre-test and post-test performance

Observed Improvements (With Design Thinking)
- Improved conceptual clarity and retention
- Enhanced student engagement and confidence
- Movement towards higher-order thinking skills
- Reduced stress and better classroom inclusivity
- Improved academic performance without compromising syllabus timelines

Comparative Summary: With vs Without Design Thinking

Aspect	Without Design Thinking	With Design Thinking
Focus	Syllabus completion	Learning outcomes & competencies
Bloom's Levels	Lower levels	All levels incl. Create
NEP 2020 Alignment	Low	High
Role of AI	Content delivery	Personalization & analytics
Student Engagement	Low to moderate	High
Performance Outcome	Inconsistent	Improved & sustainable

Conclusion

Design Thinking transformed the teaching–learning process from a coverage-driven model to a learner-centric, outcome-oriented system. When integrated with NEP 2020 principles, Bloom's Taxonomy, and AI tools, it ensured both syllabus completion and meaningful learning, leading to sustainable academic improvement.

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