

Systems Thinking in ID

Challenge: Apply Systems Thinking

Summary:

Origin: Ask Pete (Capstone Project). This artifact is the Systems Thinking Strategy Brief. This strategy brief resolves the tension between Cognitive Load Theory (CLT) and Vygotsky's Sociocultural Theory by identifying 'Psychological Safety' as the system's hinge. It maps a sequential flow of data and psychological states?from private AI reflection to social human mentorship?modeling the learning environment as a complex, interdependent ecosystem.

Reflection:

I addressed the challenge to Apply Systems Thinking by resolving a fundamental tension between two opposing pedagogical theories: Cognitive Load Theory (CLT) and Vygotsky's Sociocultural Theory. In isolation, CLT suggests minimizing social interaction to reduce 'extraneous load,' while Vygotsky argues that learning requires social interaction (the 'More Knowledgeable Other'). A linear design approach would view these as contradictory; however, using a systems approach, I identified Psychological Safety (Edmondson) as the 'hinge' variable that connects them into a unified whole. I mapped this system as a sequential flow of data and psychological states. The system begins with the 'AI as a Mirror' (Phase 1), which functions as a 'Safety Generator' by using the privacy of the AI to reduce extraneous load and build confidence. Only once this system state is achieved does the learner opt-in to the 'Mentor-in-the-Loop' (Phase 2), activating the Vygotskian social scaffold. By modeling the learning environment as a complex system of feedback loops?using Hattie & Timperley's model of 'Feed-Up, Feed-Back, and Feed-Forward'?I defined the specific data packets (e.g., reflection_summary.json) that must flow between the Learner, the AI, and the Mentor. This proves that effective instructional design requires looking beyond individual learning activities to engineer the holistic ecosystem in which those activities reside, ensuring that technical, psychological, and social subsystems function in harmony.

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