# Classroom Value Chain and Where AI Fits

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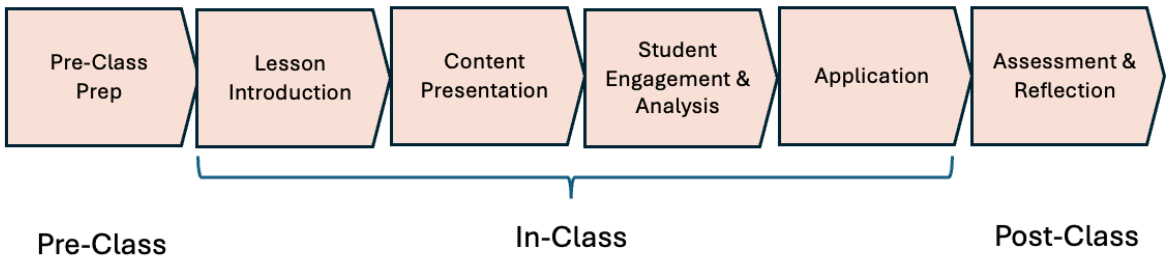
International schools compete on the promise of a holistic, globally minded education, yet much of the classroom practice remains unchanged. To meaningfully innovate, school leaders can turn to Michael Porter's Value Chain—analyzing where each activity creates or erodes value—and apply it to teaching. When we map classroom activities through the Value Chain lens, it becomes clear where Artificial Intelligence (AI) can elevate learning while strengthening, not diminishing, the uniquely human role of educators.

## Deconstructing the Educational Value Chain

In Porter's model, Primary Activities directly create value, while Support Activities enable them. In schooling, the Primary Activities mirror the learner's journey: Pre-Class, In-Class, and Post-Class. Each involves a mix of low- and high-cognitive tasks performed by both teachers and learners. See Graph 1.

**GRAPH 1: Class Activity Value Chain**



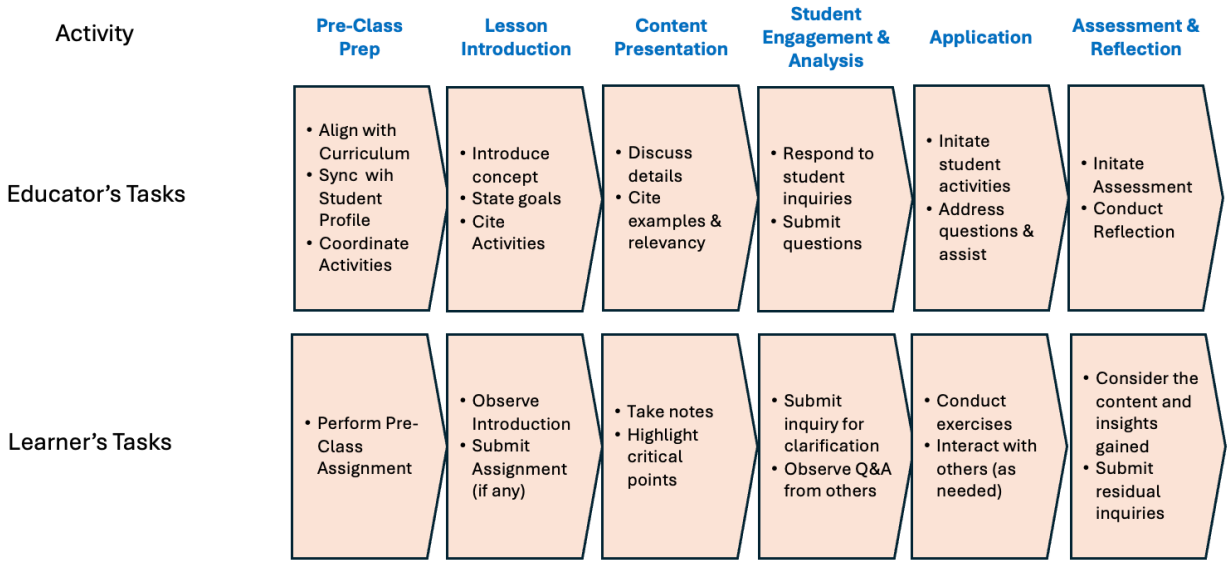

### 1. Primary Activity: Inbound Logistics (Pre-Class & Content Curation)

This phase involves preparing and organizing learning materials based on learners' prior knowledge, needs, and interests.

**Traditional Model:**

Teachers spend significant time sourcing and adapting content, often settling for standardized materials suited to large groups. See Graph 2.

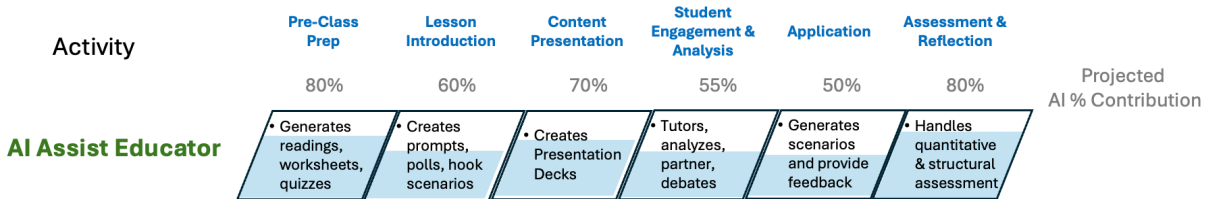
## GRAPH 2: Value Chain for Educator & Learner




**AI Enhancement:**

AI curates and personalizes pre-class resources by analyzing past performance, learning goals, and individual learner profiles. Instead of manually assembling materials, teachers become content architects—selecting and refining AI-generated options. Time saved can be reinvested into tailoring support for learners with specific needs. See Graph 3.

## GRAPH 3: AI Assistance in the Value Chain

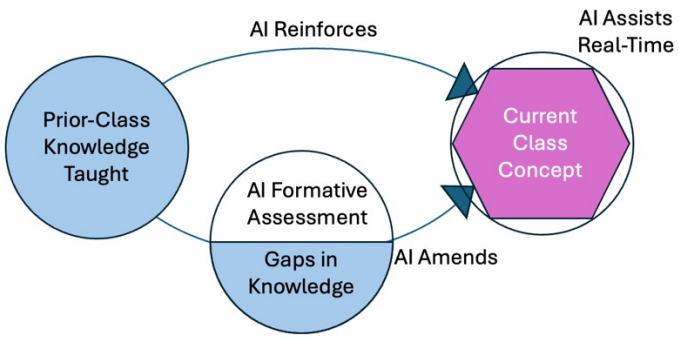


## 2. Primary Activity: Operations (The In-Class Experience)

This is the core teaching-and-learning process: presenting concepts, deepening understanding, and building meaningful connections.

**Traditional Model:**
Teachers deliver lessons to groups, judge comprehension through occasional questioning, and measure learning against preset standards. Learners who master content early often remain idle until others catch up.

### GRAPH 4: AI Reinforcement in Lesson



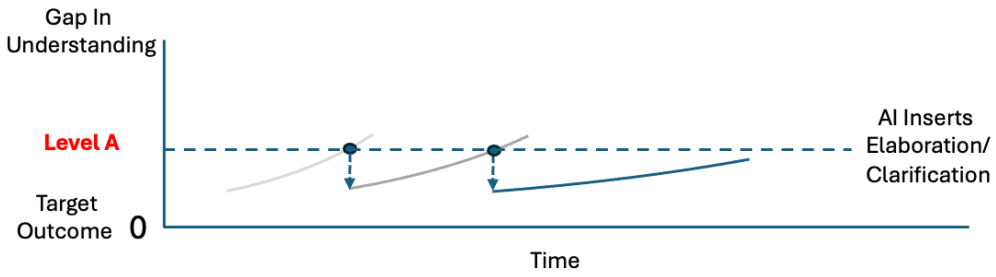

**AI Enhancement:**
AI acts as a real-time augmentation layer during instruction. It can retrieve examples tailored to learners' interests, recognize when learners show signs of confusion, and deliver just-in-time explanations or visuals. When AI detects gaps in knowledge during continuous Formative Assessments, it can amend the content in the current class as well as for a future lesson. See Graph 4.

Real-time analytics replace guesswork: instead of one learner answering, every learner responds on their device. If many answer incorrectly, AI highlights conceptual gaps immediately, enabling instant reteaching rather than delayed correction.

AI simultaneously personalizes upward. Learners who achieve mastery can continue exploring at a level that is challenging but achievable—the "Goldilocks zone"—maximizing growth during class time.

Continuous micro-assessments allow learners to avoid accumulating misunderstandings. When persistent gaps appear, teachers can intervene at the right moment, supported by AI-generated insights. See Graph 5. AI would be able to monitor all the individual student's progress at the same time. When it detects a quantifiable gap of say "Level A", AI would intervene by introducing a pop-up window or notice that could suggest a short video, supplemental information, visual graphic or some other device to enhance or clarify the learning.

### Graph 5: AI Amends Learning



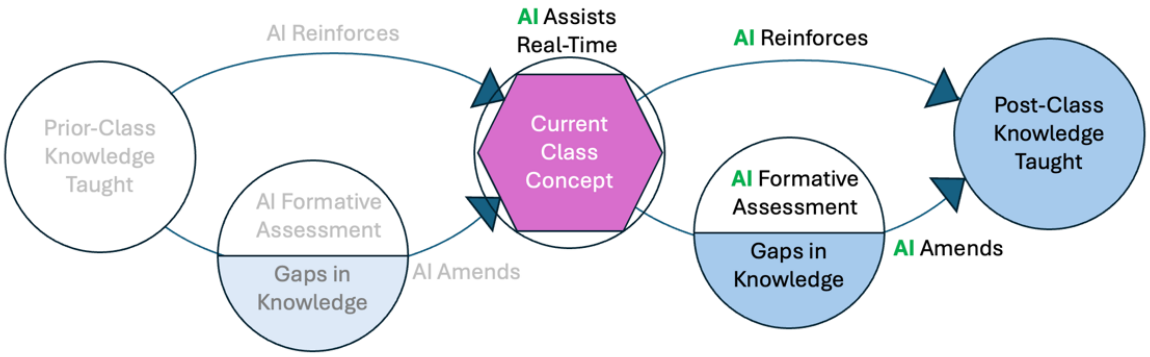

### 3. Primary Activity: Outbound Logistics & Communications (Post-Class & Assessment)

This phase covers how learning is demonstrated, assessed, and communicated to learners and parents.

**Traditional Model:**
Homework is graded days later, report cards offer summative snapshots, and parent-teacher meetings reflect past rather than current performance. This lag limits timely intervention.

**AI Enhancement:**
AI turns assessment into a continuous, dynamic feedback loop. It diagnoses patterns invisible to human grading—for example, consistent errors with negative numbers only when enclosed in brackets. AI can draft feedback, summarize learning progress for parents, and provide teachers with real-time dashboards showing growth trends, misconceptions, and areas requiring reinforcement. See Graph 6.

### Graph 6: AI Post Class Assistance




**4. Primary Activity: Service (Ongoing Learner Support)**

This concerns support systems that sustain long-term learning and well-being.

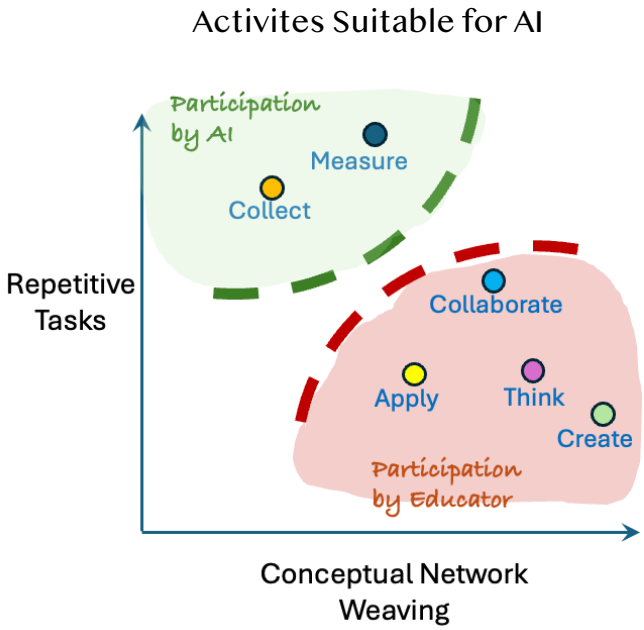
**Traditional Model:**
Support is largely reactive—office hours, learning support departments, and counselors address issues after they emerge.

**AI Enhancement:**
AI enables proactive, always-available assistance. Basic chatbots answer routine questions; more sophisticated tutors provide step-by-step guidance in moments of cognitive inflection—when a learner needs one final piece of insight to attaiin that “Ah-ha” moment. AI can also flag well-being concerns by analyzing participation patterns, submission timing, or sentiment in digital interactions. Human counselors then intervene earlier and more effectively.

## The Strategic Shift: AI's Strengths vs. the Human Advantage

AI's role is not replacement but *reallocation*. It absorbs systematic, data-heavy, repetitive tasks so teachers can focus on high-impact human work. Many repetitive tasks in learning are unavoidable, while other tasks are that require a complex mix of observations, experience, training, standardization, and intuition. Graph 7 shows a representative model of what types of tasks that we can reallocate to AI as it has a clear advantage in speed, and the ability to attend to each student simultaneously. The educator has the superior advantage of being able to observe, process and intuit information and circumstances online and offline in the appropriate context to suit the interaction with the learner. From the neurological perspective, it is the conceptual network weaving inside the brain where the educator can orchestrate the critical pieces (content, delivery vehicle, supplemental evidence, train of thought, engagement, etc.) In designing the learner engagement, the competitive advantages from the educator and AI can be incorporated so that the whole learning experience can be optimized.

### Graph 7: AI Competitive Advantage



**Where AI Excels**

- **Pattern Recognition:** Identifying collective misconceptions and individual learning trends.
- **Hyper-Personalization at Scale:** Delivering tailored pathways for every learner, simultaneously.
- **24/7 Basic Support:** Offering instant procedural guidance anytime, anywhere.
- **Continuous Data Aggregation:** Providing holistic, real-time views of learner progress to inform timely intervention.

**Where Humans Excel**

- **Relationship Building:** Creating trust, motivation, and emotional safety.
- **Creativity & Inspiration:** Using storytelling, passion, and lived experience to spark curiosity.
- **Socratic Dialogue:** Navigating nuance, ambiguity, and ethical reasoning.
- **Cultural Intelligence & Empathy:** Modeling global-mindedness—an essential element of international education.
- **Mentorship & Care:** Guiding learners' personal development and resilience.

The competitive advantage emerges when each—AI and educator—is deployed where it adds the most value.

## Conclusion: A Symbiotic Future for Global Learning

Porter's Value Chain reframes AI not as a classroom gadget but as a strategic catalyst capable of redefining educational delivery. It enables international schools to offer responsive, efficient, deeply personalized learning experiences without diminishing human connection.

The future classroom is an *AI-augmented ecosystem*, where machines handle data, diagnostics, and routine tasks, empowering educators to do what only humans

can—ignite curiosity, cultivate empathy, and nurture the next generation of global citizens.

Challenges remain—costs, privacy, professional development, and equity—but the speed of AI, robotics, and emerging technologies will demand faster adaptation than the education sector's historically slow pace. These changes will touch core capabilities of classroom educators. How schools prepare—strategically, ethically, and at scale—will define their competitiveness and their learners' success in an era of tectonic technological shifts.

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*For over two decades, Peter Yeung has dedicated his career to enhancing educational experiences across K-12, higher education, and executive training. He leverages a unique expertise at the intersection of pedagogy, technological innovation, cognitive science, and AI.*

*His consulting work with international institutions like the* ***Western Academy of Beijing****, the* ***British School of Beijing****, and* ***China's Central Academy of Fine Arts*** *has helped administrators and educators redesign learning environments with measurable metrics. Peter lectures at various conferences, including most recently at the SENIA 2025 in Beijing, and CAFA 2025 Design with AI. This educational focus is underpinned by a previous career in corporate strategy, where he guided multinational companies through periods of significant restructuring.*

*Peter's practical insights are backed by a formidable academic portfolio, including an MBA from New York University, a BS in Aeronautical Science from Embry-Riddle Aeronautical University, US Certified Flight Instructor Certificates, certifications for K-12 Instruction, Differentiated Teaching – Vanderbilt University, Digital Teaching – Cambridge University, Special Education, and Artificial Intelligence. He is also a US patented inventor, having developed various technologies to facilitate individualized learning. Peter collaborates with top education institutions like the* ***Central Academy of Fine Arts*** *(Beijing), and* ***New York University****.*

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