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# ***Guided Competency-Based Education: Integrating Seat Time and Mastery Through the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™***

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**CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™ is a service mark of Tango Lima Professional Services, LLC (Lescarbeau, 2025b).**

## **Abstract**

Competency-based education (CBE) has emerged as a promising response to the widening gap between what traditional credentials signal and what employers actually need workers to do (Gervais, 2016; Inside Higher Ed, 2023). Over multiple sectors, employees arrive with transcripts full of completed courses and accumulated hours yet still require extensive on-the-job remediation before they can perform safely and independently (Lescarbeau, 2026a; Silva et al., 2014). This persistent misalignment has intensified calls for models that focus less on time spent in classrooms and more on demonstrated mastery of clearly defined, job-relevant skills (California Competes, 2021; Klein, 2024). At the same time, institutions remain bound to long-standing structures such as credit hours, term calendars, and financial aid regulations, making a wholesale shift to pure, time-free CBE unrealistic for most providers (Lumina Foundation, 2015; UMGC, 2014).

Guided Competency-Based Education (Guided CBE) is proposed in this article as a pragmatic bridge between these competing realities (Lescarbeau, 2025a, 2026a). Rather than discarding seat time, Guided CBE reframes it as a scaffold that supports—but does not define—learning, anchoring every instructional hour to explicit competencies and performance expectations (California Competes, 2021; Lescarbeau, 2025a). The organizing engine for this hybrid approach is the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™, a proprietary framework developed to support workforce-aligned competency-based instruction (Lescarbeau, 2025a, 2025b). In this cycle, structured time is used



intentionally to build knowledge, create meaningful opportunities for application, and gather defensible evidence of competence, ensuring that completion reflects skill, not just attendance (Guskey, 2010; Lescarbeau, 2025c).

Guided CBE, built on the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™, is inherently adaptable across workforce industries, from healthcare and advanced manufacturing to information technology, aviation, and the skilled trades (Lescarbeau, 2025a, 2025b, 2026a). Because the framework is content-agnostic, it can be layered onto existing curricula, regulatory requirements, and industry standards without requiring a complete institutional reset (; Silva et al., 2014). The purpose of this article is threefold: to situate Guided CBE within current debates about seat time and mastery; to articulate how the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™ operationalizes a hybrid model that leverages both credit structures and competency clarity; and to demonstrate how this approach can enhance skill mastery, employer confidence, and learner readiness across diverse workforce contexts (Inside Higher Ed, 2023; Klein, 2024).

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## *Literature Review*

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### **From Time-Based Instruction to Competency-Based Education**

For more than a century, formal education has been organized around the Carnegie Unit and the credit hour, using time in seat as a proxy for learning (Silva et al., 2014). This structure brought consistency to scheduling, funding, and transcript reporting, but research and employer feedback have repeatedly shown that time alone is a weak indicator of actual skill mastery (Gervais, 2016; Lescarbeau, 2026a).

Contemporary CBE emerged in response to this limitation, reframing progress as a function of demonstrated knowledge, skills, and professional behaviors rather than accumulated contact hours (California Competes, 2021; UMGC, 2014). In CBE models, competencies are explicitly defined, assessments are aligned with real-world tasks, and learners advance when they can show credible evidence of performance at a specified standard—not simply when the term ends (; Gervais, 2016).

Over the past two decades, CBE has been implemented in K–12, postsecondary, and workforce settings, often linked to mastery learning, outcomes-based education, and authentic assessment (Guskey, 2010; U.S. Department of Education, 2015). Health professions, advanced manufacturing, and information technology have been early adopters because of their clear performance standards and high stakes for error (Motshegwa et al., 2024; Zitter & Dagnone, 2023). At the same time, national and regional initiatives have promoted CBE as a mechanism to improve completion, accelerate reskilling, and make credentials more



transparent to employers (Klein, 2024; Lumina Foundation, 2015). Despite this momentum, most implementations still operate within the constraints of term calendars, credit-hour definitions, and financial aid regulations, creating a practical tension between mastery-based ideals and time-based infrastructures (California Competes, 2021; Silva et al., 2014).

### **The Credit Hour and Seat Time in a CBE Era**

The credit hour remains the primary currency of formal education, linking instructional activity to funding, accreditation, and student financial aid eligibility (Silva et al., 2014; Lumina Foundation, 2015). Federal and state regulations define minimum clock hours per credit and distinguish among lecture, lab, clinical, and experiential hours for reporting and compliance purposes (Lumina Foundation, 2015; U.S. Department of Education, 2024). In this environment, even well-designed CBE programs must often translate competencies and assessments back into credit-hour equivalents to fit existing systems (California Competes, 2021; UMGC, 2014). This has produced a spectrum of models: from traditional courses that simply embed clearer outcomes, to hybrid or course-based CBE that retains terms and credits but uses mastery thresholds, to fully direct-assessment programs that abandon seat time altogether and measure only demonstrated competence (Inside Higher Ed, 2023; Lumina Foundation, 2015).

Scholars and practitioners have debated whether CBE can or should replace the credit hour. Critics argue that decoupling learning from time risks undermining shared intellectual experiences and the developmental value of structured engagement with instructors and peers (Neem, 2013; Silva et al., 2014). Proponents counter that clinging to seat time perpetuates inequities, rewards persistence over performance, and obscures what graduates can actually do (California Competes, 2021; Gervais, 2016). In practice, many institutions have converged on middle-ground solutions that preserve the operational usefulness of time-based measures while increasing the emphasis on competencies, performance tasks, and transparent standards (Inside Higher Ed, 2019; PNPI, 2023). Guided CBE is intentionally situated within this hybrid space, seeking to harness the strengths of both paradigms rather than treating them as mutually exclusive (Lescarbeau, 2025a, 2026a).

### **Hybrid and Modified CBE Models**

A growing body of literature describes programs that integrate CBE principles into traditional course and program structures (Inside Higher Ed, 2019; UMGC, 2014). These hybrid or modified CBE models typically maintain credit-bearing courses, scheduled terms, and cohort structures, but redesign curriculum and assessment so that competencies, not weeks, govern progression within those structures (California Competes, 2020; PNPI, 2023). Learners may work at varied paces within modules, receive individualized feedback on performance, and be required to meet clear mastery thresholds before earning credit, even



though the program still reports standard contact hours for regulatory purposes (Lescarbeau, 2025a; Zitter & Dagnone, 2023). Instructors, in turn, shift from primarily delivering content to coaching, observing performance, and validating competence against shared rubrics (; Lescarbeau, 2025d).

Such models have been documented in undergraduate and graduate health programs, industry-responsive career pathways, and adult-focused degree-completion initiatives (Motshegwa et al., 2024; Zitter & Dagnone, 2023). Common themes include explicit mapping of competencies to assignments, use of authentic assessments that mirror workplace tasks, and creation of program-level policies that allow for remediation, reassessment, and flexible pacing within defined time windows (California Competes, 2021; Lescarbeau, 2025a, 2025c). Challenges reported in the literature include the administrative burden of tracking individual competency attainment, ensuring consistency across multiple instructors, and communicating hybrid structures clearly to accreditors and financial aid auditors (Lumina Foundation, 2015; UMGC, 2014). These experiences underscore the need for a coherent, easily communicated framework that can guide hybrid design across contexts—precisely the role envisioned for Guided CBE (; Lescarbeau, 2026b).

### **The Cycle of Learning™ and Mastery-Oriented Frameworks**

Frameworks that sequence instruction, practice, and assessment play a critical role in making CBE operational. Mastery learning models emphasize clear learning targets, high-quality initial instruction, frequent formative assessment, corrective feedback, and opportunities for additional practice until mastery is reached (Guskey, 2010; McGaghie et al., 2022). Experiential learning theories highlight the importance of cycling between conceptual understanding and concrete application, while constructive alignment insists that outcomes, teaching activities, and assessments must all point in the same direction (Biggs & Tang, 2011; Lescarbeau, 2025a). Together, these strands support the idea that competence is built through intentional cycles rather than single exposures or one-time tests (McGaghie et al., 2022; UMGC, 2014).

The CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™ is situated within this family of mastery-oriented frameworks but is specifically designed for competency-based workforce and technical education (Lescarbeau, 2025a, 2025b). It formalizes three phases—Educate (build foundational understanding), Demonstrate (apply knowledge in authentic tasks), and Validate (confirm reliable performance)—and makes them the organizing logic for both curriculum design and day-to-day instructional practice (Lescarbeau, 2025a, 2025d). Because the cycle is content-agnostic, it can be mapped onto existing competency frameworks, apprenticeship standards, and industry certifications across sectors (Lescarbeau, 2026a; PNPI, 2023). In the Guided CBE model advanced in this article, the cycle provides the mechanism through which seat time and CBE are married: structured time is used intentionally within each



phase, while advancement and credentialing are ultimately governed by what learners can demonstrate and what instructors can confidently validate (Lescarbeau, 2025a, 2025c).

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### ***Defining Guided Competency-Based Education***

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Guided CBE is a hybrid instructional model that deliberately marries the structural advantages of traditional course and credit systems with the rigor and transparency of CBE (Lescarbeau, 2025a, 2026a). Guided CBE accepts that most institutions and workforce programs must continue to operate within credit hours, term calendars, and scheduled contact time, yet insists that true progression and completion be governed by demonstrated mastery rather than mere attendance (California Competes, 2021; Lumina Foundation, 2015). In this model, seat time becomes a framework, not the goal: hours are allocated intentionally to the phases of the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™, and learners earn recognition only when there is credible evidence of performance at the required competency level (Lescarbeau, 2025a, 2025c).

Whereas pure direct-assessment CBE programs often detach entirely from courses and clock hours, Guided CBE works inside familiar structures: courses still have codes, credits, and schedules; syllabi still define weeks and modules; and institutions can still report contact hours for compliance and funding (Inside Higher Ed, 2023; Lumina Foundation, 2015). The critical difference lies in what those structures are organized around. Instead of being anchored to topics and time, Guided CBE designs each unit around clearly defined competencies, uses the Educate phase to build knowledge, the Demonstrate phase to support coached performance, and the Validate phase to decide whether a learner truly advances (Lescarbeau, 2025a, 2025d). In this way, the model provides a practical bridge between legacy systems and mastery-driven practice, making it accessible to organizations that cannot or should not pursue a fully time-free design (Gervais, 2016; PNPI, 2023).

#### **Distinguishing Guided CBE from Traditional and Direct-Assessment Models**

Traditional time-based programs typically define success as completing a course with a passing grade by the end of a term. Learning outcomes may be listed on the syllabus, but grading often blends attendance, participation, homework, tests, and sometimes behavior into a single composite mark (UMGC, 2014). A learner who scores 72% and attends most sessions may pass, even if their performance on critical skills is inconsistent. Direct-assessment CBE models flip this logic completely, ignoring seat time and focusing solely on what learners can demonstrate on performance tasks and assessments; there may be no fixed



schedule, and learners progress as quickly or slowly as mastery allows (Lumina Foundation, 2015; U.S. Department of Education, 2015).

Guided CBE sits between these extremes. Like traditional programs, it retains predictable schedules, defined cohorts, and transcript-friendly courses (Silva et al., 2014). Like direct-assessment models, it insists that competencies be explicit, assessments be criterion-referenced, and mastery—not time—be the basis for advancement (California Competes, 2021; Lescarbeau, 2025a). A key design principle is that every credit-bearing course can be decomposed into specific competencies and mapped onto the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™ at the assignment and activity level (Lescarbeau, 2025a, 2025d). This means a learner might attend the same number of hours as before, but their ability to progress is tied to validated performance on clearly defined skills, not simply to surviving the calendar (Gervais, 2016).

### **Structured Time as Guardrails, Not the Finish Line**

A defining feature of Guided CBE is the use of structured time as guardrails rather than as an end in itself. Schedules, clock hours, and terms provide necessary boundaries: they help institutions allocate resources, coordinate instructors, and meet regulatory requirements; they also help learners plan their lives and maintain momentum (Silva et al., 2014; UMG, 2014). However, in Guided CBE these boundaries are treated as containers for a mastery process, not as the measure of achievement. The essential question shifts from “Did the learner complete 45 contact hours?” to “Did the learner, within those 45 hours, reach demonstrable competence in the targeted outcomes?” (California Competes, 2021).

Within each course or module, time is intentionally distributed across the three phases of the cycle. The Educate phase uses scheduled time to build a solid knowledge base and shared conceptual language. The Demonstrate phase dedicates protected time for practice, feedback, and error correction, often through labs, simulations, or applied projects (Lescarbeau, 2025a, 2025d). The Validate phase reserves time for structured assessments where learners must show reliable, repeatable performance (). If a learner does not meet the standard during validation, the schedule flexes within its boundaries: remediation loops are activated, and additional Educate and Demonstrate activities are prioritized until the standard is met or a decision is made about the need for extended support (Lescarbeau, 2025c, 2025e). In this way, seat time is subordinated to learning quality and outcome integrity, even as compliance needs are met.

### **The Role of the Cycle in Guided CBE**

The CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™ is the operational engine of Guided CBE (Lescarbeau, 2025a, 2025b). It provides a simple, repeatable pattern that curriculum



designers, instructors, and industry partners can use to align expectations and coordinate their efforts. At the design level, the cycle prompts course developers to ask what knowledge and concepts learners must have before they can perform a competency safely and effectively (Educate), what authentic tasks will allow practice in realistic ways (Demonstrate), and what evidence will convince educators and employers that performance is reliable (Validate) (Lescarbeau, 2025a, 2025d).

At the instructional level, the cycle shapes day-to-day decisions: an instructor can see whether a learner’s difficulty stems from an Educate problem (misunderstanding), a Demonstrate problem (insufficient practice or poor habits), or a Validate problem (assessment design or performance under pressure) (Lescarbeau, 2025c, 2025e). This clarity makes remediation systematic rather than ad hoc and ensures that every learner’s path through the course is anchored in the same three-phase logic, even if individual pacing and support differ (McGaghie et al., 2022).

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### ***The Cycle of Learning: Educate. Demonstrate. Validate.™ in Practice***

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The cycle offers not only a way to build competence, but also a built-in structure for remediation when performance falls short of the required standard (Lescarbeau, 2025c, 2025e). In aviation—where safety margins are unforgiving—the ability to diagnose gaps and route learners back through targeted instruction and practice is as important as the initial training itself (Lescarbeau, 2025b). Each phase of the cycle has a distinct role in both primary learning and remediation.

#### **Educate: Building and Rebuilding Knowledge Architecture**

In the Educate phase, learners acquire the conceptual and procedural understanding needed to perform a task correctly and safely. This includes system knowledge, underlying principles, and the “why” behind each step (Guskey, 2010; Lescarbeau, 2025a). For remediation, Educate becomes the place where misunderstandings are surfaced and corrected (Lescarbeau, 2025c, 2025e).

For example, in a Cirrus SR22 preflight inspection, the instructor introduces the competency (“Conduct a complete, systematic preflight inspection that identifies and addresses airworthiness concerns before engine start”), walks through aircraft systems using diagrams and manufacturer documentation, and clarifies performance standards (Lescarbeau, 2025b). When a learner later struggles—perhaps repeatedly missing fuel cap security or failing to notice control surface play—remediation returns them to Educate in a targeted way through focused mini-lessons on specific systems, visual exemplars of acceptable and unacceptable conditions, and guided error analysis to realign mental models (Lescarbeau, 2025b, 2025e).



## **Demonstrate: Practicing and Repairing Performance**

In the Demonstrate phase, learners translate knowledge into observable action under supervision. This is where performance gaps become visible—and where remediation takes the form of structured, coached practice (McGaghie et al., 2022; Lescarbeau, 2025b).

Continuing the preflight example, the learner conducts supervised walk-arounds, verbalizing each checklist item, while instructors “seed” discrepancies (e.g., a loose fuel cap, a covered static port) to test detection and decision-making (Lescarbeau, 2025b). If the learner misses key items, remediation within Demonstrate involves slowing the pace, using talk-through techniques to pinpoint breakdowns, isolating sub-tasks, and repeating tasks under varying conditions (Lescarbeau, 2025b, 2025c). Here, time is used flexibly to allow enough high-quality repetition, rather than being fixed at one pass and done (Guskey, 2010).

## **Validate: Confirming Mastery and Triggering Targeted Remediation**

The Validate phase confirms that the learner can perform to the required standard consistently and independently. It is also the critical checkpoint where the need for remediation is formally identified (; Lescarbeau, 2025a). When a learner does not meet the criteria during validation, the outcome should trigger a diagnostic loop back into Educate and Demonstrate with a clear plan (Lescarbeau, 2025c, 2025e).

For preflight inspection, a formal evaluation might use a standardized rubric to rate completeness, accuracy, checklist discipline, and ramp safety (Lescarbeau, 2025b). If the learner misses critical issues or demonstrates unsafe habits, the validation outcome produces concrete data about which items were missed and whether errors are conceptual or procedural. Conceptual errors route back to Educate; procedural errors route back to Demonstrate. Only after targeted re-engagement do learners return to a new Validate opportunity. Advancement is contingent on successfully closing this loop, not on the mere passage of time between attempts (Lescarbeau, 2025c, 2025e).

The same iterative pattern applies to more complex tasks, such as instrument approaches, where learners repeatedly cycle through Educate (ground lessons), Demonstrate (dual instruction and simulator practice), and Validate (checks within defined tolerances), with remediation built in at each stage (Lescarbeau, 2025b).

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### ***Adaptability Across Workforce Industries***

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Guided CBE, organized around the cycle, is content-agnostic and therefore adaptable to any workforce sector where safety, quality, and reliability matter (; Lescarbeau, 2026a).



## Healthcare

In healthcare, Guided CBE can structure competencies such as medication administration or patient assessment. Educate builds conceptual understanding of pharmacology and protocols; Demonstrate uses simulation labs for coached practice; and Validate uses structured checklists and performance rubrics before learners are allowed to perform tasks in clinical settings (McGaghie et al., 2022; Motshegwa et al., 2024). Remediation loops use the same phases, ensuring clinical hours represent genuine skill development, not just time on the floor (Lescarbeau, 2025c).

## Advanced Manufacturing

In advanced manufacturing, Guided CBE can anchor training in competencies like machine setup or quality control. Educate addresses technical drawings and tolerances; Demonstrate involves supervised practice on equipment; Validate requires consistent production within tolerance and correct documentation before operators assume greater responsibility (Advance CTE, 2025; NERDIC, 2024). Shift hours and production time are still tracked, but advancement is tied to validated competence (Lescarbeau, 2026a).

## Information Technology, Skilled Trades, and Aviation

In information technology, the cycle can structure competencies such as network configuration and cybersecurity, using lab environments for Demonstrate and performance-based exams for Validate (UMGC, 2014; Lescarbeau, 2026b). In skilled trades and aviation, it naturally aligns with apprenticeship-style training and regulatory standards (Lescarbeau, 2025a, 2025b). Whether the task is wiring a commercial panel or executing an instrument approach, Guided CBE uses the cycle to turn scheduled hours into a disciplined sequence of knowledge building, applied practice, and validated performance (Lescarbeau, 2025b, 2026a).

## Addressing Persistent Challenges

Guided CBE is designed to tackle persistent problems in traditional time-based programs and in some implementations of pure CBE.

**Multi-instructor consistency.** Shared competency statements, common rubrics, and agreed validation processes improve reliability and perceived fairness across instructors and cohorts (; Lescarbeau, 2025a).

**Learner self-regulation and motivation.** Structured time offers guardrails, while mastery gates and frequent Demonstrate opportunities provide meaningful goals and feedback, particularly for adult learners balancing work and study (Lescarbeau, 2025a, 2025e; UMG, 2014).



**Employer confidence.** By tying course completion to validated competencies often co-developed with industry, Guided CBE produces credentials that communicate genuine capabilities and support skills-based hiring (Klein, 2024; Lescarbeau, 2026a).

**Regulatory and financial aid compliance.** Programs remain credit-based and schedule-driven for reporting purposes, but internally center mastery as the criterion for progression and completion (California Competes, 2021; Lumina Foundation, 2015). Documented remediation activities in Educate and Demonstrate can be made administratively traceable, which is important for regulators and accreditors (U.S. Department of Education, 2024).

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### *Implications for Practice and Learners*

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Guided CBE has distinct implications for curriculum designers, institutional leaders, industry partners, policymakers, and learners.

Curriculum designers and faculty can use backward design from competencies, rebuild assignments as performance tasks aligned to phases of the cycle, and embed explicit remediation routes in syllabi (Lescarbeau, 2025a, 2025c). Institutional administrators can align policies, scheduling, and quality-assurance processes with the cycle, tracking not only completion but also patterns of competency attainment (; Lescarbeau, 2026a). Industry partners can help define competencies, shape authentic tasks, and participate in validation processes, increasing the labor-market value of credentials (Advance CTE, 2025; NERDIC, 2024). Policymakers and regulators can incentivize mastery within existing frameworks and clarify guidance for hybrid models like Guided CBE (Lumina Foundation, 2015; U.S. Department of Education, 2015).

For learners, Guided CBE increases transparency about expectations, provides structured and predictable remediation when they struggle, and links credentials to clearly articulated, validated capabilities (Lescarbeau, 2025e; Motshegwa et al., 2024).

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### *Conclusion*

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Guided CBE offers a pragmatic, scalable way to reconcile the enduring logic of the credit hour with the reality that only demonstrated performance creates workforce-ready graduates (California Competes, 2021;



Lescarbeau, 2026a). By organizing instruction around the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™, the model ensures that time remains a useful planning and compliance construct while mastery remains the true standard for progression and completion (Lescarbeau, 2025a, 2025b). Across workforce sectors, traditional, time-based credentials do not reliably signal day-one readiness; Guided CBE responds by making competencies explicit, embedding authentic practice into the Demonstrate phase, and requiring robust, criterion-referenced confirmation of skill in the Validate phase before learners move on (Klein, 2024; Lescarbeau, 2025c).

Because the CYCLE OF LEARNING: EDUCATE. DEMONSTRATE. VALIDATE.™ is content-agnostic, it can be mapped onto existing industry standards, regulatory frameworks, and apprenticeship models without demanding a complete institutional reset (; Lescarbeau, 2026a). For educators and curriculum designers, Guided CBE provides a concrete method for converting legacy courses into mastery-focused experiences without abandoning familiar structures such as credits, terms, and course shells (Lescarbeau, 2025a). For institutions, regulators, and policymakers, it offers a middle path between incremental reforms and disruptive overhauls (Silva et al., 2014; Lumina Foundation, 2015). Ultimately, Guided CBE should be understood not as a single program format, but as a design philosophy that any workforce-oriented learning system can adopt. When educators intentionally cycle learners through Educate, Demonstrate, and Validate with transparent standards, rich practice opportunities, and rigorous evidence of mastery, they move beyond the shallow metric of time served and toward a more honest measure of readiness—one that aligns the visible structures of education with the real skills required in the workplace (Gervais, 2016; Lescarbeau, 2026b).

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