Student Agency as an Educational Goal: A Comprehensive Research Synthesis

Student agency — the capacity to act intentionally, set goals, and shape one's own learning — has emerged as perhaps the single most important educational goal of the 21st century. Defined by the OECD as "the capacity to set a goal, reflect and act responsibly to effect change," (OECD +3) agency now sits at the center of major international frameworks, national curricula from Finland to Singapore, and a growing body of evidence linking it to lifelong economic success. As AI reshapes education, agency has become even more critical: students with strong agentic dispositions use AI as a cognitive tool, while those without it risk becoming dependent on systems that erode the very capacities education aims to build.

This report synthesizes academic literature, policy frameworks, longitudinal research, measurement instruments, and emerging evidence on AI to provide a comprehensive view of student agency across six dimensions.

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1. Defining agency: what Bandura, Ryan and Deci, and sociologists actually mean

The concept of student agency draws from three distinct intellectual traditions that converge on a shared insight — humans are not passive recipients of experience but active shapers of their lives — while disagreeing on the mechanisms and emphasis.

Albert Bandura's Social Cognitive Theory provides the most influential psychological framework. In his landmark 2001 paper "Social Cognitive Theory: An Agentic Perspective" (*Annual Review of Psychology*), Bandura defined agency as (Annual Reviews) **"the power to originate action"** and identified four core properties: **intentionality** (forming action plans), **forethought** (anticipating outcomes to guide effort), **self-reactiveness** (self-regulating behavior against personal standards), and **self-reflectiveness** (metacognitive evaluation of one's own adequacy). (Free) (nciea) He further distinguished three modes: direct personal agency, proxy agency (relying on others to act on one's behalf), and collective agency exercised through coordinated group effort. (Studocu) Self-efficacy — the belief in one's capability to succeed — occupies the central position in this framework, (nciea) as "the most distinctly human core property of agency" (Bandura, 2006, p. 165). (Frontiers)

Ryan and Deci's Self-Determination Theory (SDT) contributes a complementary but distinct lens. SDT posits three basic psychological needs — **autonomy, competence, and relatedness** — whose satisfaction enables intrinsic motivation (Self-Determination Theory) and well-being (Ryan & Deci, 2000, *American Psychologist*). (Self-Determination Theory) Crucially, autonomy in SDT does not mean independence; it means **volition and self-endorsement**, the experience that one's actions emanate from and are endorsed by the self. (Simply Psychology +2) A student can be autonomously dependent — choosing to follow a teacher's guidance because it aligns with personal values. SDT thus focuses on the *quality* of motivation (autonomous versus controlled) rather than the *capacity* for action that Bandura emphasizes. (Self-Determination Theory)

Sociological approaches add a third dimension. Emirbayer and Mische's influential 1998 paper in the *American Journal of Sociology* defined agency as a "temporally constructed engagement" (Sage Journals) comprising three elements: the **iterational** (habitual reactivation of past patterns), the **projective** (imagining alternative futures), and the **practical-evaluative** (making judgments within present contingencies). (Semantic Scholar) (PubMed Central) Biesta and Tedder (2007) extended this into an ecological model where agency is "something that is achieved, rather than possessed" — it emerges from the interplay of individual efforts, available resources, and contextual factors. (Taylor & Francis Online) Margaret Archer (2003) identified "the internal conversation" as the mechanism mediating between structure and agency, (Amazon) distinguishing four modes of reflexivity that correspond to different patterns of social mobility. (Ukdataservice)

The critical distinctions

These three constructs — agency, autonomy, and self-regulation — are related but analytically distinct. **Agency** is the broadest: the capacity to act intentionally and exercise influence over one's functioning (Albertbandura) (core question: *Can I make things happen?*). **Autonomy** concerns the motivational quality of action — whether it is volitional and self-endorsed (*Do I endorse what I'm doing?*). **Self-regulation** describes the specific processes of monitoring, controlling, and managing learning (*How do I manage my learning processes?*), (nciea) as defined by Pintrich (2000) and Zimmerman. Self-regulation is one component within agentic functioning; autonomy describes the motivational energy that powers agency; and agency itself is the emergent, holistic phenomenon. (nciea) As Jillianne Code (2020, *Frontiers in Education*) argued, agency is "an emergent capability" that is "irreducible" to its component parts. (frontiersin)

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2. The OECD Learning Compass 2030 places agency at the center

The OECD Learning Compass 2030, developed through the Future of Education and Skills 2030 project (The GRAD Partnership) (OECD) with stakeholders from over **100 countries**, (OECD) represents the most influential international framework to position student agency as a central educational goal. The compass metaphor was deliberately chosen to "emphasise the need for students to learn to navigate by themselves through unfamiliar contexts, and find their direction in a meaningful and responsible way, instead of simply receiving fixed instructions" (Springer) (OECD, 2019).

The framework's formal definition is precise: **"Student agency is the capacity to set a goal, reflect and act responsibly to effect change. It is about acting rather than being acted upon; shaping rather than being shaped; and making responsible decisions and choices rather than accepting those determined by others."** (ERIC +2) The OECD explicitly warns that the term "is often mistakenly used as a synonym for 'student autonomy,' 'student voice' and 'student choice'; but it is much more than these concepts." (Springer) Agency implies responsibility, purposeful action, and identity development — not merely the ability to speak up or select from options. Importantly, the OECD states that **student agency is not a personality trait but something**

malleable and learnable, Springer developed through motivation, hope, self-efficacy, and a growth mindset. Frontiers

The visual structure of the compass places student agency at the very center, surrounded by a ring of **co-agency** — defined as "when teachers and students become co-creators in the teaching-and-learning process." Co-agency recognizes that students, teachers, parents, and communities work together OECD in "interactive, mutually supportive relationships" Frontiers Education Review Office that create "a virtuous circle that positively affects children's development and well-being." Beyond this co-agency ring, the compass encompasses knowledge (disciplinary, interdisciplinary, epistemic, procedural), skills (cognitive/metacognitive, social/emotional, practical/physical), and attitudes and values. Springer

Three **transformative competencies** form the outer ring: creating new value, reconciling tensions and dilemmas, and taking responsibility. Springer +2 These are developed through the **Anticipation-Action-Reflection (AAR) cycle** — an iterative learning process where learners anticipate consequences, take action toward well-being, and reflect to deepen understanding. The entire framework points toward a single destination: **individual and collective well-being by 2030**. OECD As Andreas Schleicher stated: "Education is no longer about teaching students something alone; it is more important to be teaching them to develop a reliable compass and the navigation tools to find their own way in a world that is increasingly complex, volatile and uncertain." gettingsmart

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3. Finland, New Zealand, and Singapore embed agency in national curricula

Three education systems exemplify distinct approaches to implementing agency as a central goal, each shaped by its cultural context.

Finland: transversal competences and phenomenon-based learning

Finland's 2014 National Core Curriculum (implemented 2016–2019) represents perhaps the most explicit embrace of student agency in a national framework. The curriculum "emphasises the active role of the pupil" Eurydice and defines **seven transversal competences** that cross all subject boundaries: Eurydice thinking and learning to learn; cultural competence and self-expression; self-care and managing everyday life; multiliteracy; ICT competence; working life skills and entrepreneurship; CCE Finland and participation, involvement, and building a sustainable future. Students are expected to "take more responsibility for their schoolwork," "set goals, solve problems and assess their learning based on set targets," Opetushallitus while teachers act as facilitators who "instruct and guide the pupils into becoming lifelong learners." Opetushallitus

The curriculum mandates **at least one extended period of multidisciplinary, phenomenon-based learning (PhBL) per school year** for all students, with Helsinki requiring two. Students must participate in planning these periods and in assessing their learning. Eurydice PhBL's explicit aim is "to relate learning topics to students' neighbouring environments and

experiences, thus liberating their agency" (Tian & Risku, 2019). Implementation was supported by **€100 million** in funding and 2,000 new tutor-teacher positions. NCEE

New Zealand: key competencies and the power of mana

New Zealand's curriculum framework embeds agency across two landmark documents. The **New Zealand Curriculum (2007)** Education Review Office envisions young people who are confident, connected, actively involved, and lifelong learners, organized around **five key competencies**: Education thinking, using language and symbols, managing self, relating to others, and participating and contributing. Academic research explicitly identifies learner agency as "a dynamic element" embedded within these competencies (Charteris, 2013; Hipkins, 2010). Aut

More distinctively, **Te Whāriki** — the early childhood curriculum (1996, refreshed 2017) — centers on the Māori concept of **mana** (spiritual power, authority, control). Helpful Professor Its five strands all incorporate mana: Well-being (Mana Atua), Belonging (Mana Whenua), Contribution (Mana Tangata), Communication (Mana Reo), and Exploration (Mana Aotūroa). The foundational principle of **Whakamana (Empowerment)** states that the curriculum "empowers the child to learn and grow," THE EDUCATION HUB Debsearlylearning with children explicitly recognized as having "agency (choice and control)" within their learning environment. Helpful Professor This indigenous framing offers a culturally grounded alternative to Western psychological constructs of agency.

Singapore: from "Teach Less, Learn More" to self-directed learners

Singapore's approach is distinctive for its systematic, phased transformation from an exam-driven system toward agency. The **"Teach Less, Learn More" (TLLM) initiative** (2005) NLB reduced curriculum content by **10–20%** Medium to create "white space" for deeper learning, shifting emphasis from "teaching more, for tests and examinations" to "teaching better, to engage our learners and prepare them for life." TLLM.SG The **21st Century Competencies Framework** (2010) — visualized as concentric rings — places core values at the center, social-emotional competencies in the middle ring, and three emerging competency domains (civic literacy and global awareness, critical and inventive thinking, communication and collaboration) in the outer ring.

Singapore's **Desired Outcomes of Education** explicitly include the **"self-directed learner"** — one who takes responsibility for their own learning, questions, reflects, and perseveres. Harvard The 2011 "Student-Centric, Values-Driven" philosophy marked Singapore's fourth educational phase, Oxford Academic introducing programs like Values in Action and Applied Learning that prioritize holistic, agency-oriented development. Asia Society Yet tensions persist: deeply entrenched exam culture (PSLE, O-levels) and parental expectations continue to create friction with agency-oriented reforms. Medium

Beyond these three: a global movement

Scotland's Curriculum for Excellence (2004/2010) develops "successful learners, confident individuals, responsible citizens, and effective contributors." Education Scotland British Columbia's

curriculum redesign (British Columbia Curriculum) (2013–2016) requires students to self-assess their own growth in core competencies. (British Columbia Curriculum) The **International Baccalaureate PYP** states that "the central principle of agency underpins the three pillars of school life," explicitly linking agency to self-efficacy. (International Baccalaureate®) The World Economic Forum's Education 4.0 framework (World Economic Forum) calls for "lifelong and student-driven learning" as one of four essential learning experiences. All share a trajectory: from knowledge transmission toward agentic, competency-driven education.

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4. Agency predicts earnings, entrepreneurship, and career success — with causal evidence

The economic case for student agency rests on a remarkably convergent evidence base spanning meta-analyses, longitudinal panels, and randomized controlled trials. Agency-related skills are not merely nice-to-have; they are **economically significant predictors of adult outcomes**, with effect sizes rivaling or exceeding cognitive ability.

Self-efficacy and locus of control carry measurable wage premiums

Stajkovic and Luthans' (1998) meta-analysis of **114 studies (N = 21,616)** found self-efficacy correlates with work performance at **r = .38** — a strong effect by psychological standards. (ResearchGate) (Ovid) Abele and Spurk (2009) tracked **734 professionals** over seven years and found that occupational self-efficacy at career entry predicted higher salary, hierarchical status, and career satisfaction even after controlling for gender, GPA, and discipline. (Scribd) (ERIC)

For entrepreneurship, Glosenberg et al.'s (2022) meta-analysis of **159 samples across 81 countries (N = 46,577)** found entrepreneurial self-efficacy correlates with firm financial performance at **ρ = .44**. (Wiley Online Library +2) Internal locus of control carries a **26.1% wage increase per standard deviation** (Schnitzlein & Stephani, using NLSY79 data with instrumental variable approaches), with effects reaching a **60% wage premium** for lower-wage workers. (ResearchGate)

Heckman's work shows non-cognitive skills equal cognitive skills in economic impact

James Heckman, Stixrud, and Urzua (2006, *Journal of Labor Economics*) demonstrated using the National Longitudinal Survey of Youth that **non-cognitive skills — including self-efficacy and self-regulation — are equally important as cognitive skills** for labor market outcomes. Non-cognitive skills strongly influence schooling decisions, affect wages, and predict employment and occupational choice. (IDEAS/RePEc) (SSRN) The Hamilton Project (2016) documented that labor market demand for these skills has been rising: (The Hamilton Project) social skill tasks grew **16%** and service tasks **17%** since 1980, while routine tasks declined 10%. (hamiltonproject)

Randomized experiments prove causation, not just correlation

The **Perry Preschool Project** — a randomized controlled trial beginning in 1962 with 123

disadvantaged children (Uchicago) followed through age 40+ (NBER) — provides perhaps the strongest causal evidence. The program increased high school graduation by **20 percentage points**, (NBER) substantially increased adult earnings, and decreased arrest rates by **18 percentage points**. (NBER) The estimated social return: **$7–$12 saved for every $1 invested**. (Wikipedia) Critically, the mechanism was not IQ gains (which faded) but enhancement of non-cognitive skills — perseverance, self-regulation, problem-solving. (PubMed Central) Intergenerational effects were also documented: children of Perry participants showed better outcomes. (Uchicago)

Most striking is the work of Campos, Frese et al. (2017, published in *Science*): a randomized trial with **1,500 microenterprise owners in Togo** found that personal initiative training — teaching self-starting, proactive, persistent behavior (Innovations for Poverty Act…) — increased firm profits by **30%**, compared to a statistically insignificant 11% for traditional business training. (Science) A seven-year follow-up (2025, *American Economic Review: Insights*) found the effects were **long-lasting and growing**: **$91 higher monthly profits**, larger than the two-year impacts. (American Economic Associ…)

Proactive personality — another agency-related trait — shows similarly robust effects. Fuller and Marler's (2009) meta-analysis of **107 studies** found it predicts job performance **more strongly than any of the Big Five personality factors**. (ScienceDirect) Zhang et al. (2022) confirmed these findings with **N = 101,131 employees**. (ResearchGate)

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5. Measuring agency remains an unsolved challenge

Despite its centrality to policy frameworks, student agency lacks a gold-standard measurement instrument. A December 2024 review by Brandt (NCIEA/International Baccalaureate) concluded that **"few measures of student agency currently exist"** as a standalone construct — most available instruments target subcomponents. (nciea) This creates a significant gap between aspiration and assessment.

Self-efficacy instruments are the most mature

The **General Self-Efficacy Scale** (Schwarzer & Jerusalem, 1995) — 10 items on a 4-point Likert scale, validated across **25+ countries** with Cronbach's α of .76–.90 — remains the most widely used measure, (Psychopen) though Bandura (2006) argued domain-specific scales are superior. His *Guide for Constructing Self-Efficacy Scales* provides methodology for creating tailored instruments using "can do" (capability) rather than "will do" (intention) language, with 0–100 response scales and graduated task difficulty.

SDT-based instruments capture motivational quality

The **Academic Self-Regulation Questionnaire (SRQ-A)** by Ryan and Connell (1989) measures why children do their schoolwork across four regulation types (external, introjected, identified, intrinsic), (PubMed Central) yielding a Relative Autonomy Index. The **Basic Psychological Needs Satisfaction Scale** (various versions, 9–24 items) assesses autonomy, competence, and

relatedness satisfaction. The **Intrinsic Motivation Inventory** (modular, 22–45 items) captures subjective motivational experience including perceived choice and competence. The **Motivated Strategies for Learning Questionnaire (MSLQ)** by Pintrich et al. (1991) — 81 items across 15 subscales — is the most comprehensive self-regulated learning instrument, ERIC with its Self-Efficacy for Learning subscale achieving α = .93.

Purpose-built agency instruments are emerging but limited

The **Student Agency Profile (StAP)** by Vaughn et al. (2020) is the most direct purpose-built measure, assessing five dimensions (intentionality, self-perceptions, choice-making, persistence, interactiveness) Taylor & Francis Online validated with **1,726 elementary students** ResearchGate across four countries ResearchGate — but it is limited to literacy contexts and ages 8–12. The **Agentic Engagement Scale** (Reeve & Tseng, 2011; enlarged by Mameli & Passini, 2019) captures students' "constructive contribution into the flow of instruction" with strong psychometrics (α = .85–.86) but focuses on engagement rather than holistic agency. The American Institutes for Research developed **composite agency measures** (Zeiser et al., 2018) spanning self-efficacy, locus of control, mastery orientation, and metacognitive self-regulation for high school students, though the authors found measures "did not perform equally well across academic subjects, socioeconomic backgrounds, or gender." American Institutes for Res...

At the international level, the **OECD Survey on Social and Emotional Skills (SSES)** — administered to 10- and 15-year-olds OECD across multiple countries — measures agency-adjacent constructs (self-control, persistence, achievement motivation, self-efficacy) OECD without measuring agency as a unified construct. **PISA** has progressively incorporated self-efficacy, perseverance, metacognition, and (as of 2025) self-regulated learning in digital environments.

Critical gaps persist: no validated developmental continuum describes how agency emerges across K–12; nearly all instruments are self-report; nciea domain-specificity versus generalizability remains unresolved; and the OECD (2019) found that "student agency" does not directly translate in some languages, with cultural interpretations varying significantly. nciea

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6. Agency determines whether AI helps or harms students

The relationship between student agency and AI in education is **bidirectional and paradoxical**: agency determines how effectively students use AI tools, while AI simultaneously threatens to erode the very agency students need.

High agency enables effective AI use — empirical evidence

A 2025 study of **425 Slovenian secondary students** found that student agency profiles — ranging from "fully empowered" to "largely disempowered" — explained significant additional variance in AI literacy scores. Self-efficacy, mastery-oriented motivation, and metacognitive self-regulation each contributed uniquely. MDPI Research with **257 Chinese university students** (2025) found both AI literacy (β = 0.153) and self-regulated learning (β = 0.237) predicted writing

performance in generative AI environments, with SRL being the stronger predictor. PubMed Central MDPI A study developing a **Plan-Iterate-Evaluate framework** showed AI literacy self-efficacy increased from **M = 4.68 to M = 8.39** ($p < .001$) when students learned to plan their AI interactions, iterate through multi-step workflows, and evaluate outputs critically. ScienceDirect

Teaching prompt engineering appears to build agency: a study with **157 engineering students** found prompt-trained groups outperformed both control and untrained AI-use groups across all Bloom's taxonomy levels (mean scores: **6.60 vs. 4.94 vs. 4.28**). ScienceDirect Effective prompting requires the same metacognitive capacities that define agency — articulating goals, activating domain knowledge, critically evaluating outputs, and iterating. Frontiers

Low agency creates a dependency cycle with real neurological effects

The risks are equally well-documented. A randomized experiment by Darvishi et al. (2024, *Computers & Education*) found that AI assistance can undermine students' capacity for independent action when scaffolding is absent. ScienceDirect Students exhibited **automation bias** — accepting AI recommendations without critical evaluation — with an experimental study finding that the "very features that make AI appealing (consistency, availability, and authoritative presentation) actively reinforce overreliant behavior patterns, creating a feedback loop." arXiv A study of **580 Chinese university students** found greater AI dependence associated with lower critical thinking, with cognitive fatigue as a mediating mechanism. ScienceDirect Most strikingly, an **EEG study** (Kosmyna et al., 2025) provided direct neurological evidence that brain connectivity declined with increased reliance on AI assistance. Springer

Gerlich (2026) introduced the **Cognitive Offloading Ladder** concept, describing how AI use shifts from "cognitive support" to "cognitive substitution," identifying a "performance paradox" — a growing disconnect between observable academic output and actual learning. ResearchGate A 2025 integrative framework identified a reinforcing cycle: cognitive offloading reduces effortful reasoning → diminished effort contributes to illusory learning and overtrust → overtrust weakens learner agency → reduced agency exacerbates dependency. arXiv

The design imperative: augmentation, not automation

Whether students follow a virtuous cycle (AI as cognitive tool → deeper learning → stronger agency) or a dependency cycle (AI as cognitive crutch → offloading → weakened agency) depends on three factors. **Instructional design** must scaffold AI use with explicit self-regulated learning strategies. **AI system design** must be human-centered, keeping students in control of goals, strategies, and evaluation. **Assessment design** must measure process and thinking, not just outputs.

The **Brookings Institution's 2026 report** — synthesizing 400+ research articles — concluded bluntly that **"AI's risks currently overshadow its benefits"** for students, with AI tools "prioritizing speed and engagement over learning and well-being." Brookings brookings The **OECD-EC AI Literacy Framework** (May 2025) structures AI literacy around four domains: engage with AI, create with AI, manage AI, and design AI — all requiring agentic capacities. Learn & Work Ecosystem Li… **UNESCO** warns against "cognitive dependency that might emerge from

overreliance on AI systems, emphasizing the need for learners to cultivate agency, reflection and critical thinking." UNESCO

The emerging consensus is clear: **in an AI-saturated world, student agency is not merely an educational ideal — it is the prerequisite for students remaining the authors of their own learning rather than consumers of machine-generated outputs.**

Conclusion: agency as the meta-competency of the 21st century

Student agency has moved from a niche academic construct to the organizing principle of international education reform within two decades. The theoretical foundations are robust, drawing on Bandura's social cognitive theory, Sage Journals Ryan and Deci's self-determination theory, Self-Determination Theory Self-Determination Theory and sociological perspectives from Emirbayer, Mische, Semantic Scholar and Biesta that understand agency as both a capacity and an achievement. The OECD Learning Compass 2030 has codified this into a framework OECD +2 adopted by over 100 countries, while Finland, New Zealand, and Singapore demonstrate that agency can be embedded in national curricula — though the gap between policy aspiration and classroom reality remains significant.

The economic evidence is particularly compelling and actionable. Agency-related skills predict wages, career advancement, and entrepreneurial success with effect sizes comparable to cognitive ability. Randomized experiments — from Perry Preschool to Frese's personal initiative training Innovations for Poverty Act... in Togo Science — demonstrate these are causal effects, not mere correlations. The labor market is increasingly rewarding these skills while penalizing their absence. hamiltonproject Education Review Office

Two challenges define the frontier. First, **measurement lags behind theory**: the field needs validated, developmentally sensitive instruments that capture agency as a unified construct rather than a collection of subcomponents. Second, **AI has transformed the stakes**: student agency is no longer just about learning outcomes — it is about whether humans retain cognitive sovereignty in an age of increasingly capable machines. The research suggests that investing in agency before and alongside AI exposure may be the single most important educational design decision of the coming decade.

The students who will thrive are not those who learn to use AI most efficiently, but those who develop the agency to decide when to use it, how to evaluate its outputs, and when to set it aside and think for themselves.