The EdTech Impact Standard

A Comparative Framework for Evaluating EdTech Solutions

Co-authored by:
Professor Rose Luckin | Founder and CEO, Educate Ventures Research
Kristina Cordero | Deputy Director of Research & Consultancy, Educate Ventures Research
Amanda Drury | Education Researcher, Education Perfect
James Santure | Head of Product Impact, Education Perfect

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Executive Summary

The Challenge: Finding the Right Digital Solution

Following a decade of rapid growth in educational technology, schools are navigating an increasingly crowded digital landscape while responding to concerns about screen time, distraction, mental health, and the need for technology to serve a clear pedagogical purpose. While earlier debates focused on device access and connectivity, education stakeholders are now concerned with the quality and value of digital tools and how they may support or enhance existing best practices. Schools therefore need to distinguish between tools that generate visible activity and those that support evidence-informed teaching (OECD, 2023; OECD, 2024; UNESCO, 2023).

The Solution: The EdTech Impact Standard

This framework, developed in collaboration by Educate Ventures Research and Education Perfect, establishes a new benchmark for EdTech evaluation based on two essential pillars:

1. Enhancing Teacher Practice

Many EdTech products support only one part of the learning process, such as content delivery, practice, or assessment. When schools rely on multiple non-interoperable systems, teachers must endure the added burden of reconciling separate platforms and data streams to understand student learning. This makes it harder for them to gain holistic, practical insights on student learning. The OECD also cites this challenge, noting that when systems are fragmented, valuable data becomes less accessible, actionable, and useful for teachers (OECD, 2023).

> **The Standard:** True impact from an integrated cycle where Instruction, Practice, and Assessment exist in a continuous loop within one platform.

> **The Result:** Fewer hours of administrative work for teachers and more time for meaningful, data-informed practice.

2. Improving Student Self-Efficacy

Engagement is not the same as meaningful learning. Tasks that emphasise completion or passive consumption, like matching games or video tutorials, may generate activity without supporting real learning (Takacs, Swart & Bus, 2015). To drive real growth, technology must move away from passive activities and encourage active, generative learning experiences that trigger the cognitive processes required for long-term retention. To this end, research has long supported explicit instruction, guided practice, and structured opportunities for independent application (Rosenshine, 2012), as well as approaches that incorporate the gradual release of responsibility model, metacognitive exercises and self-regulated learning. These are the keys that strengthen students' confidence, agency, independence and self-efficacy — the belief in their ability to take the steps needed to achieve their goals (Bandura, 1977; Education Endowment Foundation, 2025; Fisher & Frey, 2013).

> **The Standard:** Products that support the full Gradual Release of Responsibility model and move students from simple recall to extended thinking.

> **The Result:** Student self-efficacy and autonomy through scaffolded mastery and productive struggle, rather than just digital consumption.

The Bottom Line

When pedagogical rigour and data insights are integrated across a cohesive learning platform, schools are better positioned to evaluate whether a digital product supports effective teaching and meaningful student learning. The EdTech Impact Standard provides schools with a comparative framework to evaluate digital products and ensure a solid return on investment for those who matter most: teachers and students.

Rosemary Luckin

Professor Rose Luckin | Founder and CEO, Educate Ventures Research

The EdTech Landscape Today

The era of largely experimental and weakly evidenced educational technology is giving way to a context in which tools are increasingly expected to demonstrate clear educational value. School leaders are faced with a plethora of EdTech options and must choose wisely, not only to meet ever-tightening budgetary constraints, but also to ensure that the platform or platforms they choose will actually help their teachers and students, rather than create noise and digital fatigue.

A higher standard of care is now being demanded of EdTech products, shaped by pressures that have been slowly mounting, both inside educational circles and within the broader community:

- **Back to basics movement and policy shifts:** Across a number of jurisdictions in Australia, New Zealand, Canada and in other parts of the world, there has been renewed interest in explicit, teacher-led instruction, alongside growing concern about distraction, screen-time quality, and the role of personal devices in schools. There are also those who advocate for a return to "old school" basics of pen and paper, oral exams, and other forms of "analogue" assessment. This push has also been shaped by academic integrity concerns associated with the widespread use of generative AI and restrictions on personal device use in schools in many countries. In Australia this broader public concern about young people's digital environments has also been reflected in the new age restrictions on certain social media platforms for under-16s. Together, these shifts point to a growing expectation for screen use in education to be purposeful, transparent, and demonstrably beneficial to learning, rather than passive or weakly connected to cognitive effort.
- **Scrutiny of low-value interactivity and engagement:** Many current EdTech products continue to rely heavily on gamified drills and video-centered content libraries that provide "empty calories": they sustain participation without facilitating the productive struggle required for sustained mastery, deep understanding, transfer, and long-term retention. In such cases, educational value can be overshadowed by engagement metrics, leaving students with a sense of accomplishment and progress that dissolves when they are asked to apply their learning in a new context. A stronger standard, therefore, is to ask not only whether students are active, but whether their activity demands thinking, retrieval, explanation, and application (Karpicke & Roediger, 2007a; Rosenshine, 2012).
- **AI distrust and data concerns:** While generative AI certainly holds promise for supporting learners, educators are becoming increasingly critical users of AI-powered pedagogical tools, and able to distinguish between those that strengthen and those that erode students' reflection, metacognition, and iterative improvement. This has created a trust gap among educators who are seeking tools that use technology to amplify, rather than circumvent, the rigorous process of learning. Moreover, these concerns about AI's potential interference with instructional quality are coupled with a growing and legitimate preoccupation about data governance, privacy, transparency, and the handling of student information in AI-enabled systems (UNESCO, 2023; OECD, 2023). This widens the trust gap with fears that the digital tools meant to support students are instead compromising their privacy.
- **Onerous data demands:** The ability to capture more and more data on students' learning processes is one of the advantages of educational technology. But it also places an additional burden on teachers, adding data demands, relating to both collection and usage, to an already stretched workday. EdTech products that focus on only one aspect of the teaching and learning cycle (e.g., content delivery, skill drills, or assessment), unwittingly add to this burden. Teachers end up spending their limited planning time exporting and cross-referencing spreadsheets just to understand where a student sits in their learning journey. Where platforms are not interoperable, data analysis and instructional decision-making become more difficult, creating more work for teachers during planning and assessment cycles (OECD, 2023).
- **The differentiation dilemma:** One of the greatest challenges facing educators today is the increasing expectation and need for differentiation, the time-consuming and complicated task of meeting diverse

student needs across a wide range of attainment levels within a single class or cohort of students. While promising much, many EdTech products have failed to assist teachers with differentiation because they only solve part of the problem, rather than providing support throughout the entire learning journey, from instruction to practice to assessment. Supporting differentiation requires more than adapted lesson plans, or adaptive tasks, or accommodation for assessment, or UDL features; it requires coherent content, aligned instructional pathways, and usable insights into different learners' background knowledge, capabilities and skills, and "next step" needs (Tomlinson, 2014; OECD, 2023).

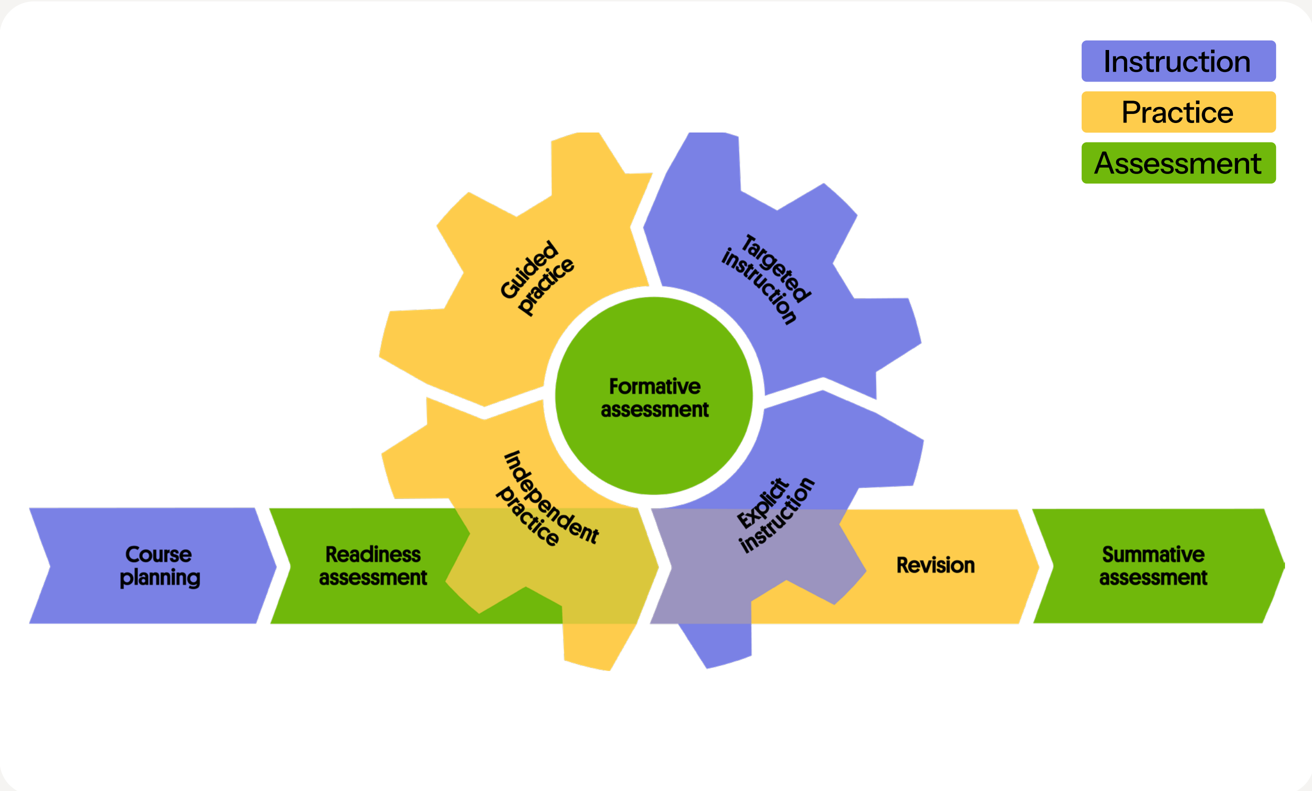
The EdTech landscape is changing rapidly and the bar is being constantly raised. EdTech must act as a meaningful support for teacher practice, while helping students become more reflective, autonomous and critical learners. It must move beyond narrow claims of "time-saving", which are not always realistic in the short-term (Glass, 1999), toward evidence of long-term educational impact and change. In this high-stakes, high scrutiny environment, digital tools need to draw on established principles of instruction and learning so that they may build strong, lasting foundations of knowledge and understanding for every student. For school leaders and decision-makers, products that don't meet this standard will become increasingly difficult to justify (Dunlosky et al., 2013). This paper will highlight how the EdTech Impact Standard can be used by schools to compare and evaluate digital products against these contemporary expectations.

Enhancing Teacher Practice

In the current EdTech landscape, a paradox has emerged: while schools have access to more digital tools than ever before, teacher workload and administrative burden have not changed; in many contexts the “data windfall” has actually increased stress and workload. One reason is that many EdTech products do not provide an integrated system throughout all essential phases of the learning journey: instruction, practice, and assessment. When a school’s teaching and learning cycle is fragmented across multiple platforms (for example, a multimedia library for instruction, a gamified app for practice, and a separate tool for assessment), teachers often need to manually connect information from one system to another to plan instruction, monitor progress, and respond to students’ needs. In this environment, data does not always serve its most valuable purpose, which is to inform effective instruction and can instead add to administrative burden (Bambrick-Santoyo, 2019; OECD, 2023; OECD, 2024). Dashboards that foreground participation, activity, and grades without clear instructional next steps may document what students have done, but still leave teachers without an actionable roadmap for targeted instruction, differentiation, and/or support (OECD, 2023; Tomlinson, 2014).

Education Perfect’s Cohesive Learning Ecosystem

The EdTech Impact Standard is a framework that allows testing of the breadth and depth of true instructional transformation within any EdTech product. Education Perfect (EP) operationalises this through the **EP Learning Cycle,** a continuous loop that ensures data captured in one phase immediately informs the next, showing the platform’s ability to function as a force multiplier that enriches teacher practice.



The Education Perfect Learning Cycle

EP’s systematic yet flexible ecosystem transforms data into actionable instruction. By utilising a backward design framework, the platform ensures that every lesson is purposefully aligned with specific success criteria, while explicit instruction manages cognitive load through strategic scaffolding. This approach empowers educators to move beyond simple progress monitoring toward a mastery-based model, where real-time insights from formative and readiness assessments pinpoint exact learning gaps. Instead of static content delivery, teachers can facilitate a dynamic cycle of deliberate practice and spaced repetition, leveraging automated feedback to foster student autonomy. Ultimately, EP provides the support needed for meaningful differentiation and long-term knowledge retention.

EdTech Comparisons

To ascertain the effectiveness of the current EdTech solutions in the market, products should be evaluated by their ability to enhance teacher practice, improve student self-efficacy and ultimately support a full-cycle learning loop. The following table benchmarks the five dominant categories of EdTech products against the 9 phases of the EP Learning Cycle, which align with a full cycle of explicit instruction from course planning through to summative assessment.

Table 1: EdTech Benchmarking

✓ Full support ○ Partial support ✕ No support

		Education Perfect	Digital textbooks	Multimedia-led platforms	Gamified skill builders	Revisions/exam prep tools	Assessment and reporting platforms
Instruction	Course planning	✓	○	○	✕	✕	✕
	Explicit instruction	✓	✓	○	✕	✕	✕
	Targeted instruction	✓	✕	○	○	○	✕
Assessment	Readiness assessment	✓	✕	○	✓	○	✕
	Formative assessment	✓	○	✓	✓	✓	✕
	Summative assessment	✓	○	○	✓	✓	✕
Practice	Guided practice	✓	✕	○	✕	✓	✓
	Independent practice	✓	✕	○	✓	✓	✓
	Revision & exam prep	✓	✕	✕	✕	✕	✓

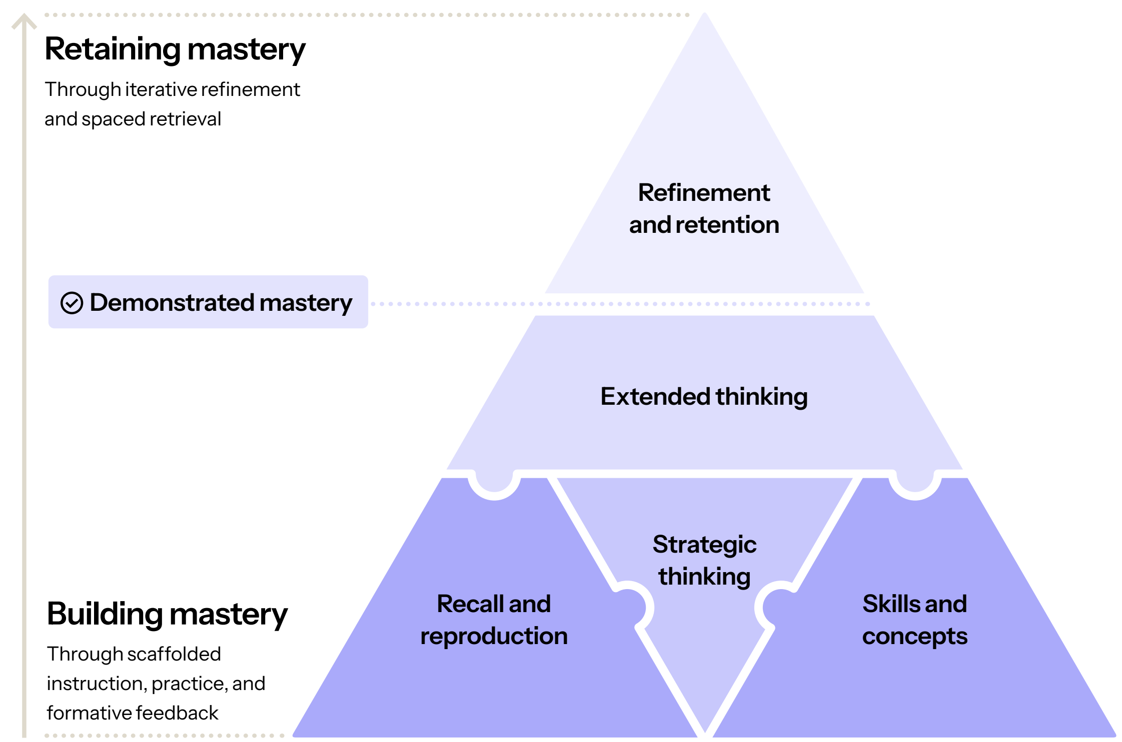
This comparison exposes the limitations of platforms that rely on a "set and forget" model and highlights the gaps where teacher practice remains unsupported. The goal of an integrated EdTech product should not be to replace the teacher, but to remove the administrative obstacles that prevent them from doing their most impactful work and provide them the necessary tools throughout the entire teaching and learning journey to enhance their practice. EP stands above its competitors in providing actionable feedback and insights across all activities (instruction, practice, assessment) and integrating data from the entire learning cycle for a more holistic view of student performance and progress.

This comprehensive data stream enables EP to easily assign differentiated content and activities based on insights from various learning activities, supporting differentiation beyond just adaptive practice pathways. While many other platforms offer targeted practice, it is often done in isolation from the broader instructional context. EP's comparative data analysis capability ensures that teachers are aware of and able to track student progress throughout the entire learning journey, continually identifying student knowledge gaps and areas of strength and adjusting their practice in real-time. In ever more crowded educational settings, the most valuable EdTech solution is not the one that keeps students most busy, but the one that makes the teacher most effective.

Improving Student Self-Efficacy

Beyond its capacity to support teachers, EdTech serves as a critical scaffold for student self-efficacy, a student's belief in their own capacity to successfully complete a given task (Bandura, 1977). When a product is designed effectively, it provides sufficient challenge along with the timely and specific feedback that allows students to experience a genuine sense of achievement, which in turn is likely to increase their confidence and motivation and contribute to improved outcomes. Students with high levels of self-efficacy are more likely to put in more effort and persist when work becomes difficult, leading them to master the new concept or skill (Gee, 2007). However, in the current landscape, session time is frequently cited as an indicator of engagement with the subject matter. Many products prioritise an uncomplicated user experience which inflates session metrics and completion rates but does not provide a learning experience that sits in the student's Zone of Proximal Development (ZPD), namely the sweet spot in which tasks or concepts are neither too easy nor too difficult (Vygotsky, 1978). By creating challenges, or desirable difficulty, within the student's ZPD, a platform can support lasting learning and the ability to transfer that learning (Bjork & Bjork, 2011). It is therefore imperative to distinguish between mere session time, which can create an illusion of competence, and cognitive growth, which occurs when students grapple with the complexity and difficulty inherent to learning. It is this cognitive growth that, sustained over time, will lead to durable, long-term mastery of skills.

The EP Mastery Model is built on the premise that mastery of a topic or skill is a journey from initial exposure to long-term retention. This requires a transition through increasingly more sophisticated levels of knowledge (Webb, 1997). It is this step-by-step learning process that builds the foundations for long-term retention and application. This mastery journey builds a student's belief in their own capacity to succeed by assisting them to overcome challenges through productive struggle (Bjork & Bjork, 2020) and scaffolded support (Rosenshine, 2012).



The Education Perfect Mastery Model

In contrast, the approach of other EdTech products often lacks this alignment with learning science and evidence-based pedagogy, as highlighted below.

- **Digital textbooks:** The digital environment offers an opportunity for pedagogical tools to make learning active and dialogic, which is simply impossible in the print format. Yet, many digital textbooks continue to be essentially analogue content in a digital form and do not effectively utilise the multimodal and AI affordances of the digital environment. Even those digital textbooks that offer online exercises are largely static in their delivery, and they function as a one-way transmission of information rather than a dynamic pedagogical tool that can facilitate the Gradual Release of Responsibility (Pearson & Gallagher, 1983; Pearson et al., 2019) at each learner's ability level. Without the interactive architecture to transition from teacher-led modeling to collaborative and then independent application, these resources stall the learning process at the "I do" phase, leaving students without the scaffolded support and feedback necessary for guiding and supporting students toward mastery.

  EP's Guided Practice helps students move from "I Do" to "You Do" by supporting teachers to work through problems with students at the same time, step-by-step, while checking for understanding ("We Do"). This deliberate practice (Ericsson et al., 1993; Hattie, 2023) allows teachers to focus on new content or weaknesses and is a critical step in consolidating learning.

  In addition, to make learning meaningful and improve transferability of skills and knowledge, learners must undertake generative learning activities during the learning process (Mayer, 2021). There are a variety of proven activities, such as summarising, explaining and practice tests, but ultimately the key is "not only to present information, but also to guide the learner's cognitive processing of the presented information" (Mayer, 2021). As static repositories, digital textbooks primarily facilitate passive consumption and fail to provide the generative learning activities necessary to channel that information into durable, long-term memory. Nor do they provide the immediate, personalised feedback which corrects misconceptions and reinforces correct understanding (Rosenshine, 2012).

  EP's feedback capability empowers students to refine their work in real-time, aligning with formative assessment principles that drive deeper engagement and long-term academic success (Black & Wiliam, 1998; Hattie & Timperley, 2007; Zhai & Ma, 2022).

- **Multimedia-led platforms:** These platforms, especially video-centric models, are designed like entertainment: students watch a video and then answer a few simple questions. While this might be enjoyable for students and feel worthwhile, it can often create an illusion of learning as information enters the brain but the lack of generative learning activities may hamper students' ability to retain what they've learned (Mayer, 2021). In the same way that digital textbooks tend to promote passive reading, multimedia platforms can promote passive viewing.

  In contrast, EP not only presents material in a variety of formats but combines it with those essential generative learning activities that prompt students to:

  - create answers rather than just picking from a list,
  - apply new concepts immediately after they are introduced, and
  - produce work that requires genuine thought.

- Active learning continues with spaced review of learning material at a variety of intervals, in alignment with Rosenshine's well-cited principles of instruction; (2012). Spaced retrieval practice, in which learners are tested on material at intervals rather than immediately after study, helps overcome natural forgetting by making each recall attempt effortful. Repeated review sessions, spaced across days and weeks, progressively strengthen long-term retention and reduce reliance on short-term memory (Karpicke & Roediger, 2007a).

- **Gamified skill-builders:** Gamified platforms often function as procedural fluency tools to build speed in basic recall. Without a link back to explicit instruction or forward to summative assessment, they can become digital distractions rather than instructional aids. When students can move to the next level or maintain a streak, even if they don't fully understand the material, learning gaps are created that make learning future content even harder. As with video-centric platforms, an illusion of learning can be created. Performing well in a game is simply not the same as knowing or understanding content well enough to be able to use it effectively later.

  Recognising the need for genuine skill development, the EP focus on mastery ensures that students engage in activities that foster learning on the EP platform rather than just game play. Lessons are broken into small chunks with worked examples and frequent questioning and checks for understanding interspersed with instructional material (Sherrington, 2019). Scaffolding provides targeted, responsive support that helps students progress beyond what they could achieve independently, gradually building competence toward working without support (Maybin, Mercer & Stierer, 1992). If a student answers a question incorrectly, then the question and feedback cycle continues until mastery is established. Essentially, the platform identifies exactly what a student knows and, more importantly, what they don't, and then creates a personalised path that provides extra practice on the tricky parts until independent mastery is achieved.

- **Revision and exam prep tools:** Platforms dedicated to revision and examination preparation often provide strong support for independent study and diagnostic testing, but frequently lack any instructional support. Without explicit instruction capabilities, students who require additional assistance or differentiation are left unsupported. Learning gaps can be created or exacerbated when students are presented with practice materials without the necessary scaffolded modelling or systematic explanations required to build new knowledge (Hattie, 2009; Rosenshine, 2012). Platforms designed for exam cramming can also ignore the repeated retrieval practice which has been found to enhance long-term retention and consolidate learning (Karpicke & Roediger, 2007b; 2008). Retrieval practice can create desirable difficulties (Bjork, 1994a; 1994b) and when spaced over time, long-term retention is promoted (Karpicke & Roediger, 2007a).

  EP integrates spaced retrieval and deliberate practice into the everyday flow of learning. By prompting students to recall information over increasing intervals of time, neural pathways are strengthened and knowledge can be retained rather than just demonstrated for a one-off quiz (Karpicke & Roediger, 2007a; Roediger & Abel, 2015). The integration of comprehensive explicit instruction, guided practice, revision and assessment, supports students from initial concept introduction through to final mastery.

- **Assessment and reporting platforms:** Specialised assessment and reporting platforms are designed to measure outcomes rather than facilitate the learning journey itself; to grade rather than grow. These tools excel at readiness, formative, and summative assessment, providing data-heavy reports on student performance for teachers. However, they almost entirely neglect the instructional and practice phases of the learning cycle, offering no support for students by way of explicit instruction or active learning.

  EP uses assessment as the starting point for instruction to identify students' ability levels, personalise learning experiences and support truly differentiated learning aligned with student needs (Wiggins & McTighe, 2005). By housing the entire learning journey within a single platform, EP ensures that a student's diagnostic data is never a dead end, but a bridge to their next breakthrough. Instead of receiving a score and being left to find their own way, students are immediately met with the exact modelling, guided practice, and instructional support required to master the concepts they find challenging (Hattie & Timperley, 2007). This unified approach removes the frustration of testing without teaching and provides a seamless transition from identifying a gap to closing it through active learning. Ultimately, EP empowers students to move beyond procedural compliance toward genuine self-efficacy, as an active partner in their learning journey rather than just a digital gradebook.

EP is far more than a digital resource. It is a product built on the science of how the brain acquires and retains information. EP's cohesive learning ecosystem allows students to develop true mastery by utilising the principles of instruction, supporting students with sequencing and chunking; modelling and worked examples; questioning and checks for understanding; and scaffolding (Maybin, Mercer & Stierer, 1992; Wood, Bruner & Ross, 1976; Rosenshine, 2012). Learning is personalised so that students work within their ZPD, enhancing motivation and metacognition and ultimately improving student outcomes (Zheng et al., 2022; Flavell, 1979; Vygotsky, 1978). Students are able to track their progress, providing them the autonomy over their learning which leads to more goal-directed behaviours and enhances student enjoyment of learning success (Hattie & Donoghue, 2016). By shifting the focus from session time to cognitive depth, students become confident, autonomous masters of their own education, rather than passive consumers of content, leading ultimately to improved student outcomes.

The EdTech Impact Scorecard

This scorecard is designed to assist you in evaluating how well your current EdTech solution(s) support teaching and learning in your school.

The goal is to evaluate how well your current systems and tools support your school's teaching and learning goals, and to identify opportunities for improvement. Where gaps exist between what your goals and what your technology provides, you know what to look for in your next EdTech solution.

Instructions: Use this scorecard to evaluate an EdTech solution against the criteria established in the *EdTech Impact Standard*. Rate the platform on a scale of 0–2 for each criterion.

Score	Scoring guidelines
0	No/minimal evidence that the solution meets the criteria
1	Partial evidence that the solution meets the criteria
2	Strong evidence that the solution meets the criteria

Pillar 1: Enhancing Teacher Practice

How effectively does the tool support a connected teaching and learning cycle?

Evaluation Criteria	Score (0–2)	Evidence
Teaching and Learning Breadth	☐	Does the platform seamlessly connect or enable the connection of all phases of instruction, practice, and assessment in one interface?
Actionable Data Insights	☐	Is data linked across the phases of instruction, practice, and assessment, providing a roadmap for learning that is clear and actionable for teachers?
Support for Differentiation	☐	Does the platform provide teachers with the insights and capability to support learner variability, at all stages of the learning journey.
Formative Feedback	☐	Does the system provide immediate, formative marking and feedback that makes student progress visible and helps teachers evaluate and support student learning?
Collective Improvement	☐	Do school leaders have access to cohort-wide data to inform department- and school-level improvement?

Pillar 2: Improving Student Self-Efficacy

Does the tool move beyond surface level engagement to active learning?

Evaluation Criteria	Score (0–2)	Evidence
Generative Learning	☐	Are students consistently engaged with generative learning activities as opposed to passive viewing?
Cognitive Scaffolding	☐	Does the platform support a progression through 'I do, we do, you do' in line with the Gradual Release of Responsibility model?
Actionable Feedback	☐	Do feedback mechanisms engage students and allow them to refine their work in real-time?
Zone of Proximal Development	☐	Does the platform adapt to keep students in the "sweet spot" of desirable difficulty, avoiding boredom or frustration?
Mastery Progression	☐	Does the platform support students to progress from recall toward strategic and extended thinking, with clear signals of their own growth and mastery over time?

The Impact Summary

Total Score (out of 20): ☐ /20

0–10: Surface-Level Impact.

11–15: Partial Impact.

16–20: High Impact.

The New Standard for EdTech

The transition from an era of rapid experimentation and expansion in EdTech to one of more deliberate, rigorous scrutiny marks a necessary maturation for the education sector. As this paper sought to demonstrate, the shift toward fully integrated learning platforms is not merely a technical preference: it reflects a growing consensus among school leaders and teachers that digital tools must be anchored in what the learning sciences tell us about how students best absorb, practice and retain knowledge. Integrated learning platforms can also serve to alleviate the digital fatigue now endemic in schools; a fatigue brought on not by screen time alone, but by the cognitive and administrative exhaustion of navigating multiple platforms, dashboards and interfaces.

The EdTech Impact Standard proposed here offers a principled basis for this more demanding evaluation. A platform that supports only one phase of the teaching and learning cycle, however well-designed that phase may be, is less effective for enhancing teacher practice or improving student self-efficacy in a meaningful sense. True impact requires a coherent structure that encompasses instruction, practice, and assessment operating as a continuous loop. When that loop includes timely and actionable data insights, then it can fulfill the promise of reducing teacher burden and keeping students engaged with productive, scaffolded challenges. Education Perfect is one platform that operationalises this standard across the full learning cycle, and the evidence reviewed here suggests it does so in ways that are substantively aligned with established learning principles: allowing students to engage in active learning that involves productive struggle, with scaffolding and support along the way, to help them cultivate mastery and self-efficacy.

For school leaders, the responsibility is clear. To address current challenges, the focus must move from superficial features to pedagogical integrity. When platforms rely on passive consumption or gamified drills, they ignore what is required for deep learning, leaving students with a fleeting sense of achievement and teachers with a lot of data that doesn't tell them much. The future of educational technology lies in pedagogical cohesion and data linkage across the teaching and learning cycle — tools that act as force multipliers for teachers while demanding the productive struggle essential for student growth. By using EP's integrated platform, schools ensure that every digital interaction is a strategic investment in both teacher efficacy and the long-term academic success of their students.

Procurement decisions that once turned on features, price, or familiarity must now be held to a higher standard that is firmly grounded in pedagogy, evidence, and the coherence of the teaching and learning experience. The tools that will prove their worth in this new environment are those designed not to generate activity, but to build genuine capability: in teachers, to practise with insight and intention; in students, to grow as confident, autonomous learners. That is the standard the sector now demands, and the one against which all EdTech investment should be measured.

References

Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review, 84*(2), 191–215.

Bambrick-Santoyo, P. (2019). *Driven by data 2.0: A practical guide to improve instruction*. Jossey-Bass.

Black, P., & Wiliam, D. (1998). *Inside the black box: raising standards through classroom assessment*. Hawker Brownlow Education. http://dx.doi.org/10.1177/003172171009200119

Bjork, R. A., & Bjork, E. L. (2020). Desirable difficulties in theory and practice. *Journal of Applied research in Memory and Cognition*, *9*(4), 475.

Bjork, E. L., & Bjork, R. A. (2011). Making things hard on yourself, but in a good way: Creating desirable difficulties to enhance learning. In M. A. Gernsbacher, R. W. Pew, L. M. Hough, & J. R. Pomerantz (Eds.), *Psychology and the real world: Essays illustrating fundamental contributions to society* (pp. 56-64). Worth Publishers.

Bjork, R.A. (1994a). Memory and metamemory considerations in the training of human beings. In J. Metcalfe and A. Shimamura (Eds.), *Metacognition: Knowing about knowing* (pp.185-205). MIT Press.

Bjork, R.A. (1994b). Institutional impediments to effective training. In D. Druckman and R.A.Bjork (Eds.), *Learning, remembering, believing: Enhancing human performance* (pp.295-306). National Academy Press.

Dunlosky, J., Rawson, K. A., Marsh, E. J., Nathan, M. J., & Willingham, D. T. (2013). Improving students' learning with effective learning techniques: Promising directions from cognitive and educational psychology. *Psychological Science in the Public Interest, 14*(1), 4–58.

Education Endowment Foundation. (2025). *Metacognition and self-regulated learning*.

Ericsson, K. A., Krampe, R. T., & Tesch-Römer, C. (1993). The role of deliberate practice in the acquisition of expert performance. *Psychological Review, 100*, 363–406.

Fisher, D., & Frey, N. (2013). *Gradual release of responsibility instructional framework*.

Flavell, J.H. (1979). Metacognition and cognitive monitoring: A new area of cognitive-developmental inquiry. *American Psychologist, 34*(10), 906-911.

Gee, J. P. (2007). *What Video Games Have to Teach Us about Learning and Literacy*. Revised and Updated Edition. Palgrave Macmillan.

Glass, R. (1999). The realities of software technology payoffs. *Communications of the ACM, 42*(2), 74–79.

Hattie, J. (2023). *Visible Learning: The Sequel: A synthesis of over 2,100 meta-analyses relating to achievement* (1st ed.). Routledge. https://doi.org/10.4324/9781003380542

Hattie, J. (2009). *Visible Learning: a synthesis of meta-analyses relating to achievement.* London: Routledge.

Hattie, J., & Donoghue, G. (2016). Learning strategies: a synthesis and conceptual model. *Npj Science of Learning, 1*(1). https://doi.org/10.1038/npjscilearn.2016.13

Hattie, J., & Timperley, H. (2007). The power of feedback. *Review of Educational Research*, *77*(1), 81–112. https://doi.org/10.3102/003465430298487

Karpicke, J. D., & Roediger, H. L. (2007a). Expanding retrieval practice promotes short-term retention, but equally spaced retrieval enhances long-term retention. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, *33*(4), 704–719. https://doi.org/10.1037/0278-7393.33.4.704

Karpicke, J., & Roediger , H. L. (2007b). Repeated retrieval during learning is the key to long-term retention. *Journal of Memory and Language*, *57*(2), 151–162. https://doi.org/10.1016/j.jml.2006.09.004

Karpicke, J. D., & Roediger, H. L. (2008). The critical importance of retrieval for learning. *Science*, *319* (5865), 966–968. https://doi.org/10.1126/science.1152408

Maybin, J., Mercer, N., & Stierer, B. (1992). *Scaffolding learning in the classroom.* Thinking voices: The work of the national oracy project.

Mayer, R. E. (2021). *Multimedia Learning* (3rd ed.). Cambridge: Cambridge University Press.

OECD. (2023). *OECD digital education outlook 2023: Towards an effective digital education ecosystem*. OECD Publishing. https://doi.org/10.1787/c74f03de-en

OECD (2024). *Managing screen time: How to protect and equip students against distraction.* PISA in Focus, No. 124. OECD Publishing. https://doi.org/10.1787/7c225af4-en

Pearson, P. D., McVee, M. B., Shanahan, L. E. (2019). In M. B. McVee, E. Ortlieb, J. Reichenberg, J., & P. D. Pearson, (Eds), (2019). *The gradual release of responsibility in literacy research and practice* (pp. 1-21). Bingley, UK: Emerald Group Publishing.

Pearson, P. D., & Gallagher, M. C. (1983). The instruction of reading comprehension. *Contemporary educational psychology*, *8*(3), 317-344.

Roediger, H.L. and Abel, M. (2015). The retrieval practice effect: Theories and applications. *Current Directions in Psychological Science, 24*(3), 187-193

Rosenshine, B. (2012). Principles of instruction: Research-based strategies that all teachers should know. *American Educator, 36*(1), 12–19, 39.

Sherrington, T. (2019). *Rosenshine's Principles in Action*. John Catt Educational Ltd.

Takacs, Z. K., Swart, E. K., & Bus, A. G. (2015). Benefits and pitfalls of multimedia and interactive features in technology-enhanced storybooks: A meta-analysis. *Review of educational research*, 85(4), 698-739.

Tomlinson, C. A. (2014). *The differentiated classroom: Responding to the needs of all learners* (Second edition.) ASCD.

UNESCO. (2023). *Global education monitoring report 2023: Technology in education: A tool on whose terms?* UNESCO.

Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Harvard University Press.

Webb, N. (1997). *Research Monograph Number 6: Criteria for alignment of expectations and assessments on mathematics and science education.* Washington, D.C.: CCSSO. https://eric.ed.gov/?id=ED414305

Wiggins, G., & McTighe, J. (2005). *Understanding by design* (2nd ed.). Association for Supervision and Curriculum Development.

Wood, D., Bruner, J.S. & Ross, G. (1976). The role of tutoring in problem solving. *Journal of Child Psychology and Psychiatry, 17*(2), 89-100.

Zhai, N., & Ma, X. (2022). The Effectiveness of Automated Writing Evaluation on Writing Quality: A Meta-Analysis. *Journal of Educational Computing Research*, *61*(4), 875-900. https://doi.org/10.1177/07356331221127300

Zheng, L., Long, M., Zhong, L. & Fosua Gyasi, J. (2022). The effectiveness of technology-facilitated personalized learning on learning achievements and learning perceptions: a meta-analysis. *Education and Information Technologies, 27*, 11807–11830. https://doi.org/10.1007/s10639-022-11092-7

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