Maximising Every Student's Potential

The research base behind the EP Learning Cycle

Education Perfect

Introduction

The ability to adjust teaching to meet the specific learning needs of students across the full range of abilities is now a core expectation of teachers. However, variation in student attainment levels can be large (Hunter et. al., 2022), making differentiation a time-consuming and complicated burden for teachers.

Education Perfect (EP) supports educators with a blend of technology, pedagogical best practice, curriculum-aligned content, and data insights to power a differentiated and personalised teaching and learning cycle.

The EP digital learning platform is underpinned by an extensive evidence base that guides the design and development of trusted and effective teaching and learning experiences for teachers, students and school leaders. The components of instruction, practice and revision, and assessment are woven together to facilitate student understanding, skill development, and critical thinking.

EP understands that teachers lie at the heart of quality teaching and learning experiences for students. “The quality of teacher professional knowledge and practices … are central to the enhancement of learning for all students” (Wyatt-Smith et al., 2019). Quality teacher practice is enhanced through the enablement of differentiation and personalisation to meet individual student needs; cultivation of student motivation and metacognition; provision of timely and specific feedback and insights for both teacher and student; and an ongoing tracking of student learning growth over time.

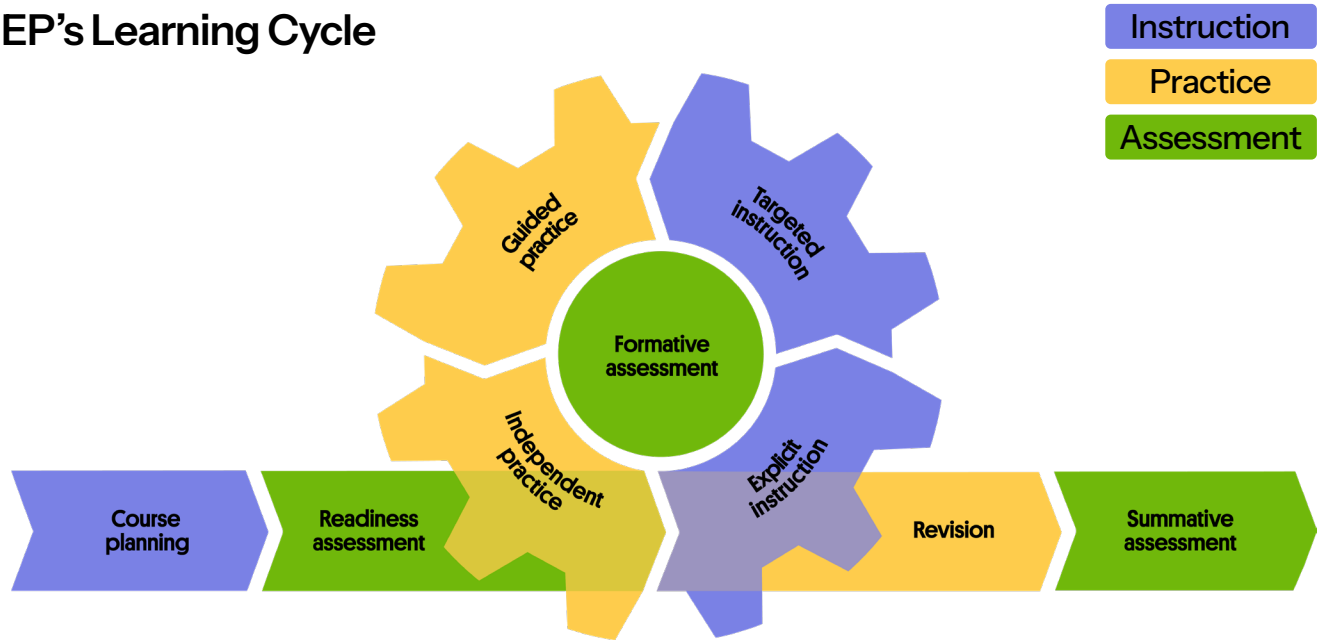
- Differentiation and personalisation
- Motivation and metacognition
- Feedback and insights
- Visibility of progress

Read more about the research base behind the design of EP in the EP Learning Cycle whitepaper.

View the connection between use of EP and the outcomes for teachers and students in the EP Logic Model.

Read an independent review of the research behind EP in the Johns Hopkins University CRRE whitepaper.

EP’s Learning Cycle



Pedagogical Foundations

The EP Learning Cycle and the teaching and learning that it underpins is built on a foundation of evidence-based pedagogy. The principles of visible learning, Universal Design for Learning, multimedia learning, Bloom's revised taxonomy and Webb's Depth of Knowledge schema are embedded throughout the platform. Timely and actionable feedback loops are integral to the EP experience, driving continuous student reflection and iteration as they build towards mastery.

Visible Learning

Hattie's (2023) visible learning principles are paramount: teachers need to see learning through the eyes of students, and students need to learn how to become their own teachers. EP utilises a variety of proven teaching and learning strategies to ensure a greater than average impact on student learning.

Universal Design for Learning (UDL)

UDL has the potential to accelerate student achievement (King-Sears et al., 2023) and is utilised to support learner agency (CAST, 2024) and provide an inclusive, flexible, and supportive learning environment (Rose & Meyer, 2006). This ensures that barriers are reduced where possible and students are able to engage fully in meaningful learning.

Multimedia Learning

A learner-centred design approach aims to assist students in constructing knowledge, such that they both remember and understand presented material and can then transfer that knowledge to solve new problems (Mayer, 2021). All lessons, quizzes and assessments are designed to stimulate cognitive activity.

Bloom's Taxonomy and Depth of Knowledge

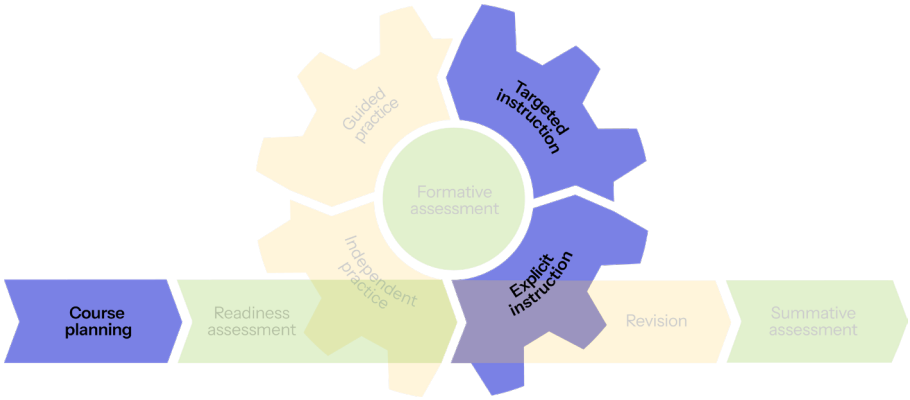
Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001) provides the foundational structure for sequencing within lessons, progressing students from basic recall to higher-order thinking. Webb's Depth of Knowledge schema (Webb, 1997) is used within the EP Mastery Model to help students build, demonstrate and retain mastery across a range of cognitive complexities.

Timely and Specific Feedback

Acknowledging the premise that "good feedback causes thinking" (Black & Wiliam, 2003), timely and specific feedback is provided to students throughout all phases of the Learning Cycle. Three questions are at the forefront of feedback: where am I going; how am I going; and where to next? (Hattie &Timperley, 2007).

Students are given ongoing and actionable feedback through various methods. In multiple-choice and short-answer questions, students receive instant, automatic grading and model answers. For open-ended, extended responses, students can engage in self-assessment using model answers, explanations and grading criteria, or get feedback from teachers in either text or recorded verbal format. AI-powered feedback loops for extended response questions provide immediate, targeted suggestions to help students improve their work and accelerate their learning.

Instruction



Course Planning

Topics can be arranged to align with scope and sequence, and lessons and assessments can be customised or created to support existing teaching plans.

Explicit Instruction

Lessons have clear success criteria, direct explanations, modelled examples and a scaffolded progression from simple comprehension through to extended thinking.

Targeted Instruction

Platform insights support teachers to better understand student learning progress, and then tailor activities to meet the needs of small groups or individuals.

Backward Design: *Planning with the end in mind*

Using the Understanding by Design framework, EP engages in an iterative design process to identify desired results, determine acceptable evidence and plan learning experiences and instruction that equip students to demonstrate deep understanding and achieve the desired results (Wiggins & McTighe, 2005).

Learning Intentions and Success Criteria: *Learning roadmaps*

Lessons begin with learning intentions and success criteria based on Bloom's Revised Taxonomy (Anderson & Krathwohl, 2001). This ensures students are clear about the intention of the lesson and what they are expected to have learned by the end of it. Reflection prompts also support learner autonomy.

Cognitive Load Theory: *Optimising learning*

Intrinsic cognitive load (inherent difficulty of subject matter) is managed by sequencing, chunking, modelling and scaffolding (Rosenshine, 2012). Extraneous cognitive load (unnecessary mental effort not related to learning) is minimised by simple, clean and clear course navigation and content layout.

Principles of Instruction: *Guiding teaching and learning*

Lessons are structured for mastery-based learning, with content delivered in small, multimedia-supported chunks, aided by scaffolds, modelling and checks for understanding (Rosenshine, 2012). Students receive continuous feedback, including AI-powered assistance on extended responses, and must demonstrate a full grasp of the material before moving on.

Differentiation: *Meeting students' learning needs*

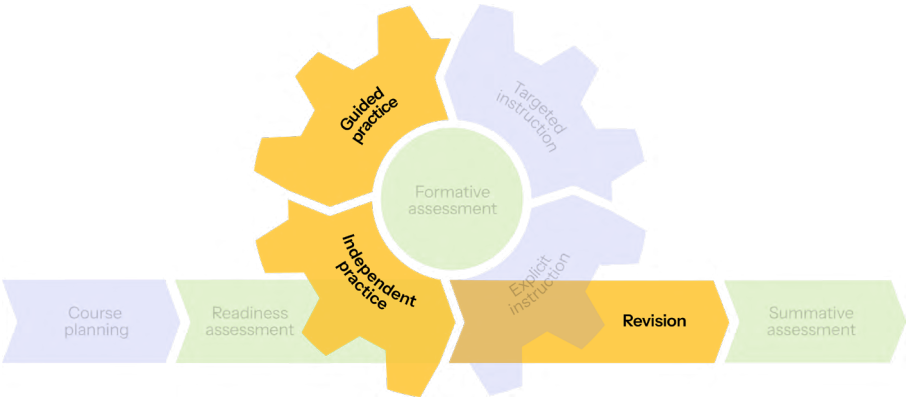
Differentiation is a core requirement for teaching and learning but there are huge variations in student attainment levels and the majority of teachers do not have enough time to prepare for effective teaching (Hunter et. al., 2022), making differentiation an added burden.

Personalised Learning: *Making learning worthwhile*

Personalisation enhances motivation and attitude, metacognitive skill development, self-reflection, academic achievement and student engagement, with digital technology-supported personalised learning specifically enhancing student learning outcomes (Zheng et al., 2022).

Tools to assign customised lessons and activities to specific student groups or individuals, along with EP Create's AI-supported quiz feature, allow teachers to quickly generate tailored, curriculum-aligned content, saving teachers both time and burden when differentiating instruction and personalising learning.

Practice and Revision



Guided Practice

As a key element of a gradual release of responsibility model, guided practice is paired with regular checks for understanding and formative feedback.

Independent Practice

Lesson questions build in cognitive demand as students are ready, and built-in spaced retrieval practice supports students to progress towards mastery.

Revision

Multiple opportunities for revision are available, from teacher-assigned activities to student-led review and consolidation of previously covered learning.

Deliberate Practice: *Becoming an expert*

In line with research that expert performance results from active engagement in deliberate practice (Ericsson, 2008), lessons are designed to be highly responsive and engaging, starting with clear learning intentions and a progression of questions from simple recall to independent practice. Automated grading, AI feedback, dynamic question variations and quizzes help students master the target topic.

Gamification: *Motivating and engaging students*

Gamification features, such as earning points for correct answers, annual competitions, the Dash revision game, avatars and digital stickers, encourage effort and peer interaction. These features boost student engagement and motivation by positively impacting cognitive, motivational and behavioural learning (Sailer & Homer, 2020; Smiderle et al., 2020).

Zone of Proximal Development: *Guiding learning with support*

Guided instruction and practice, with just the right amount of support via scaffolding, ensures students are working in their zone of proximal development and are assisted in mastering skills which they cannot yet perform independently (Vgotsky, 1978).

Desirable Difficulty: *Learning through productive struggle*

The principle of "desirable difficulty" acknowledges that a sense of struggle or difficulty during learning is not necessarily a sign of failure, but often an indicator that genuinely effective cognitive processing is occurring (Bjork, 1994). EP facilitates this productive struggle by breaking content into interactive chunks where progression is contingent on mastery, thereby calibrating the challenge to the learner's level, and providing ongoing feedback to prevent the struggle from becoming overwhelming.

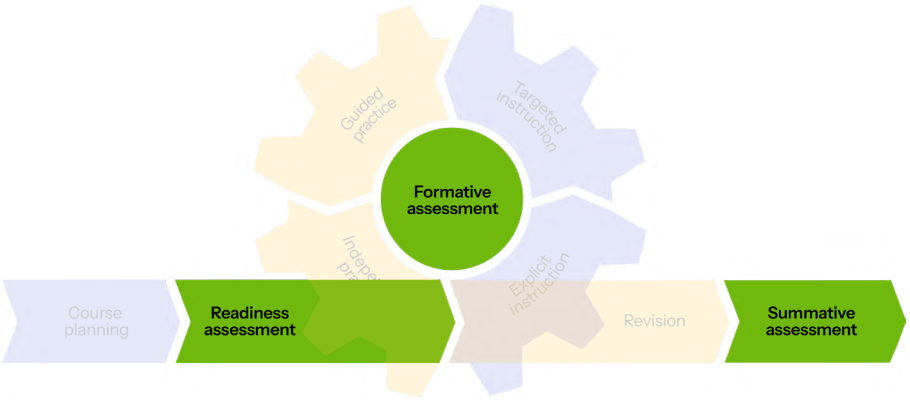
Spaced Retrieval Practice: *Consolidating learning*

Repeated retrieval practice has been found to enhance long-term retention and consolidate learning (Karpicke & Roediger, 2007; 2008). Spaced repetition creates desirable difficulty and also promotes long-term retention (Karpicke & Roediger, 2007). EP uses daily, weekly and monthly spaced reviews to reactivate new knowledge, place prior learning in working memory, support fluency of recall and reduce the use of short-term memory (Sherrington, 2019).

Learner Autonomy: *Promoting perseverance*

Learning is more effective if learners can tailor learning to individual needs and goals (Holec, 1981). When students are empowered to take ownership of their learning journey and have choices, their curiosity and motivation to learn is stimulated (McCombs, 2015). Learner autonomy is encouraged and supported throughout all phases of the Learning Cycle, nurturing lifelong learning.

Assessment



Readiness Assessment

Premade readiness assessments and flexible on-the-fly quizzes give insights into prior knowledge and skills, and provide actionable next steps.

Formative Assessment

Formative assessment and insights are embedded throughout the EP experience, providing ongoing formative feedback and guiding instruction.

Summative Assessment

Premade and customisable curriculum-aligned assessments support evaluation and tracking of student learning growth over time.

All assessment, including readiness and summative assessment, aligns with Dylan Wiliam's (2011) five key strategies for effective formative assessment:

Clarifying, sharing and understanding learning intentions

Learning intentions and success criteria work in tandem with the sequencing, modelling and scaffolding provided in lessons and give students agency to monitor their own progress.

Engineering effective classroom discussions, activities and tasks that elicit evidence of learning

Questions in lessons, quizzes and assessments check for understanding and seek out evidence of what students know and don't know in real-time, allowing the personalisation of instruction.

Providing feedback that moves learners forward

Quizzes and assessments provide immediate and specific feedback to guide students on what to do next and ultimately improve their learning.

Activating students as learning resources for one another

The ongoing formative feedback function encourages peer-to-peer feedback and collaboration, helping students learn from each other and take ownership of their learning.

Activating students as owners of their own learning

Learner autonomy is promoted by the automated provision of individualised next steps based on assessment results, along with ongoing formative feedback, student self-reflection, and quick quizzes.

A wide range of premade and customisable assessment tools, including an AI-powered feature for creating unique questions, offer teachers clear, actionable data to inform instruction and empower students to set their own learning goals, and track their progress.

Throughout the learning and assessment cycle, educators are supported in implementing data-informed practice:

Assess: Curriculum-aligned activities provide the raw data needed to measure student learning.

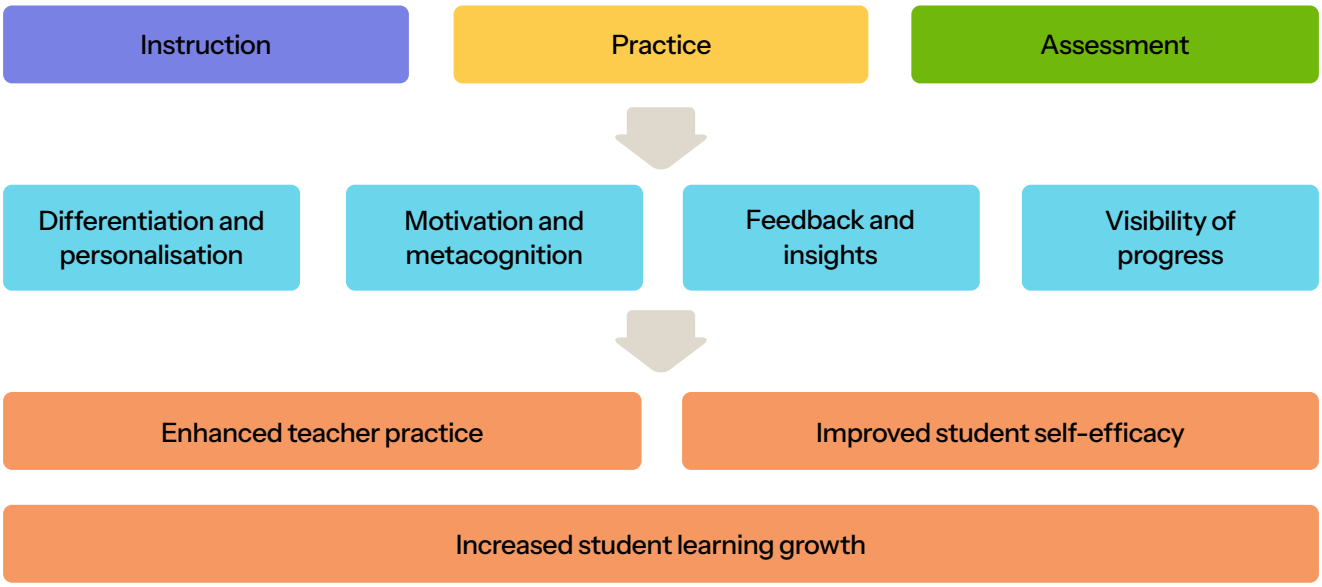
Analyse: Streamlined data analysis and insights help educators save time and make informed decisions.

Act: Extensive, adaptable resources help teachers quickly implement new instruction informed by analysis.

Build the Culture: Automated marking, instant feedback, and easy-to-interpret data dashboards help build a culture where using student data to inform decision-making becomes a routine part of daily practice.
(Bambrick-Santoyo, 2019)

A Cohesive Learning Ecosystem

EP's instruction, practice and revision, and assessment components are deeply intertwined to create a cohesive and effective learning ecosystem. The strong foundation in research ensures that EP actively supports enhanced teacher practice and improved student self-efficacy, and these together drive increased student learning growth.



EP courses and lessons are aligned to clear learning intentions and success criteria. Explicit instruction provides a clear roadmap for learners while reducing cognitive overload by sequencing, chunking, modelling, and scaffolding. Mastery-based progression ensures that students grasp new material before moving on. Teachers are supported to differentiate to meet the needs of groups and individuals, and students are empowered participants in a personalised learning experience. Extensive opportunities are provided for both guided and independent practice, which are critical for consolidating learning and building mastery. The platform's deliberate practice features help students build proficiency and confidence. Retrieval practice and spaced repetition encourage students to revisit material at strategic intervals to strengthen memory and consolidate knowledge. Students are empowered to take ownership of their educational journey.

Assessment is utilised as an integral part of the learning process, not just a tool for measurement. Readiness assessments help teachers to identify students' prior knowledge and learning gaps, enabling purposeful planning and targeted instruction. Formative assessments provide real-time evidence of learning, allowing teachers to adjust their instruction and providing students with immediate, actionable feedback. Summative assessments evaluate student learning outcomes and inform future planning.

Ultimately, Education Perfect is dedicated to providing teachers and students with the tools to support effective teaching and learning, leveraging educational research to ensure that everything we do is evidence-based.

Education Perfect is a cohesive learning ecosystem that empowers teachers to create dynamic learning experiences for their students. Instruction becomes more targeted because it's informed by readiness and formative assessments. Practice becomes more deliberate because it's guided by instructional feedback. Assessment becomes a tool for growth, providing the actionable insights needed to continuously refine teaching and learning. Leveraging all aspects of the EP Learning Cycle, combined with a data-informed approach, has the potential to enhance teacher impact and improve outcomes for every student.

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