Australian Education Research Organisation

Explainer

Explicit instruction optimises learning

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This explainer provides an introduction to explicit instruction, with a focus on explaining how it contributes to positive outcomes for students' learning achievement and dispositions. Related explainers introduce the role of knowledge in the learning process and the importance of managing cognitive load, which also provide insights into important evidence with implications for effective teaching practices and related policies.

Explicit instruction is a systematic, engaging and success-oriented teaching approach. It involves fully explaining and effectively demonstrating what students need to learn. This approach to instruction accords with what we know about the learning process, and empirical evidence on the most effective teaching practices. Learning new information happens most effectively and efficiently when teaching is clear, systematic and does not leave students to construct or discover knowledge and skills without guidance.

Explicit instruction involves breaking down the content of an area of learning, and providing comprehensive explanations, and step-by-step guidance until students are ready to demonstrate their learning independently. During explicit instruction teachers sequence the content and provide small chunks of new information. Teachers directly explain to students how to do complete a task, why the task is important, and how the task relates to and extends their previous knowledge. Demonstrations of how to perform tasks or solve problems are provided, often using worked examples. Regular checks for understanding are undertaken to allow teachers to identify and address misconceptions and support students' learning progress. Progress is facilitated by the gradual release of supports until students demonstrate that they have mastered an area of learning and can extend and apply their learning to increasingly complex and independent tasks.

All students benefit from explicit instruction

There are differences in the amount of time, guidance, repetition and opportunities to practice that students need, but the mechanisms of learning that transfer information to long-term memory to build knowledge and understanding are the same. This helps explain why some teaching practices are more consistently effective for students while they are learning new information. Explicit instruction has been found to have a positive impact on student achievement across a range of content areas, including mathematics, reading comprehension, spelling and science, and across a range of education contexts. Explicit instruction caters to the needs of all students, providing structured support so all students can succeed, and opportunities to extend and apply learning to promote excellence. Students who find learning persistently challenging because of additional limitations in memory, or differences in how they process language and information, benefit greatly from the breaking down, sequencing and scaffolding features of explicit instruction.

Explicit instruction in practice

Explicit approaches to teaching have common elements and underlying principles but can look quite different in practice. A common and flexible framework for explicit instruction involves an 'I do, we do, you do' approach. The teacher introduces new content (I do), then works together with students, often with several repetitions for guided practise (we do), before students work in pairs or individually, supported by teacher observation and support (you do). While some approaches incorporate formal programs (usually recognisable by their capitalised name, such as Direct Instruction) and may involve teachers using scripted lessons within teaching manuals, the general principles of explicit instruction can be applied by teachers without scripts.

Common misconceptions about explicit instruction are that it focuses on outdated approaches to teaching, sometimes described as 'chalk and talk' or 'drill and kill'. This implies an exclusive focus on teacher-centred content delivery. Evidence-based approaches to teaching are explicitly centred on the idea that teaching has been successful when students have retained what they've learned – not when content has been delivered. To maximise learning (i.e., storage in long-term memory), explicit teaching is dynamic and responsive. It involves interacting with students as they practise, and adjusting teaching to learning needs as they arise. Students are actively engaged to think about what they are learning to optimise meaningful retention and recall. Active exchanges include questioning, elaborating, thinking aloud and peer-sharing while the teacher checks for understanding and responds. Rather than students learning in isolation, explicit instruction includes flexible grouping of students to focus on tasks most relevant to their current need for guidance, explanation and support. It also includes working with peers to share and compare ideas when students are ready to generate new insights and complete creative tasks that reflect and extend what they've been taught explicitly.

How an explicit teaching approach optimises learning

Breaking down and fully explaining content helps students transfer information to memory

Learning requires new information to be processed in working memory and transferred to long-term memory to be stored, recalled and re-used. Working memory is limited and can only process small amounts of information at a time (Centre for Education Statistics and Evaluation, 2017). For some students, working memory is even more limited and learning is more challenging. By breaking down information into smaller, manageable chunks, teachers tailor their approach to how memory functions and aid students' retention of knowledge.

Providing opportunities for review and practise helps students retain and recall what they learn

Providing students time to review and practise what they have learned under guidance is important until they are prepared to apply their learning independently (Rosenshine, 2012). This helps to avoid students developing misconceptions and storing them in long-term memory as they work with new ideas and concepts. Deliberate practise reinforces and fortifies the connections in long-term memory, making it easier for individuals to independently retrieve and use their learning. In contrast to cramming and simple repetition, regular, spaced and varied guided practise helps students make meaningful connections within their memory so they can apply what they learn in the future (Brown et al., 2014; Carpenter et al., 2022; Weinstein et al., 2018).

Organising and sequencing content around a specific objective deepens student understanding

Students will more effectively retain what they are learning by making connections in memory to what they already know, developing a deeper understanding across the area of learning and greater readiness to apply what they learn (Kirschner & Hendrick, 2020; Martin & Evans, 2018). Organising lessons around a specific objective prompts students to think about how new learning relates to what they already know and why it is important. Breaking down and providing a logical organiser for content related to that objective also helps students to understand the connections and relationships within the area they are learning about (Kirschner & Hendrick, 2020).

Knowledge-building, guidance and scaffolding supports students with additional limitations in prior knowledge, memory and information processing

The guidance offered during explicit instruction is particularly helpful for students who experience barriers to learning or who have additional learning needs. Structured guidance can help to ensure that all students receive the support, or extension and enrichment, that they need (Arias-Gundín & García Llamazares, 2021). Gaps in background knowledge can also be addressed if these are planned for and incorporated into a sequence of lessons. Such structure is not provided by minimally guided approaches (Reynolds et al., 2010; Sweller, 1994).

Structure and guidance help novices develop mastery over their learning

Students learn most efficiently and effectively by gaining new information from what knowledgeable individuals do, say or write (Kirschner et al., 2006). People can acquire knowledge through their own experience, but the process is slow and prone to error. Students are novices and so they process information differently to experts, even when they are exposed to the same information. Things that novices see as separate pieces of information, experts see as an organised set of facts that they can integrate with what they already know (Kalyuga, 2007). When learning new information, students first need to build the mental models of understanding that experts already have. Once those mental models are in place, students can move from seeing what they are learning as isolated facts to recognising connections and relationships for deeper understanding (Kirschner & Hendrick, 2020).

A strong foundation of knowledge and skills provides students with mental models for extending and applying their learning with greater independence

Starting learning with student-led, minimally guided approaches is not the most effective or efficient method for learning new information. When a student attempts to learn new information without being explicitly taught, their working memory can quickly become overloaded, interfering with the ability to store, recall and apply what they are learning (Kirschner et al., 2006). Without guidance, there is also a risk that students commit inaccuracies to memory (Kalyuga, 2007; Sweller et al., 2003). Once students have mastered the knowledge within a learning area, they may benefit from well-structured, guided inquiry that helps them extend and apply their knowledge to authentic and relevant tasks (Martin & Evans, 2018). At this point in their learning, students can also engage in creative tasks to generate unique insights and responses, extending their learning beyond what was explicitly taught (Fiorella & Mayer, 2016; Kirschner & Hendrick, 2020; Willingham, 2021).

Implications for policymakers

- Explicit instruction is supported by a strong body of evidence which consistently demonstrates its effectiveness for a diverse range of students and contexts.
- Explicit instruction is effective because it aligns with how students learn new information, leading to optimal outcomes and providing the foundation for higher-order capacities like critical and creative thinking and independent learning.
- Policies and programs that support explicit instruction contribute to maximising learning progress and attainment. They will prioritise the breaking down and systematic delivery of well-sequenced information using worked examples and opportunities for guided practise for novice learners.

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