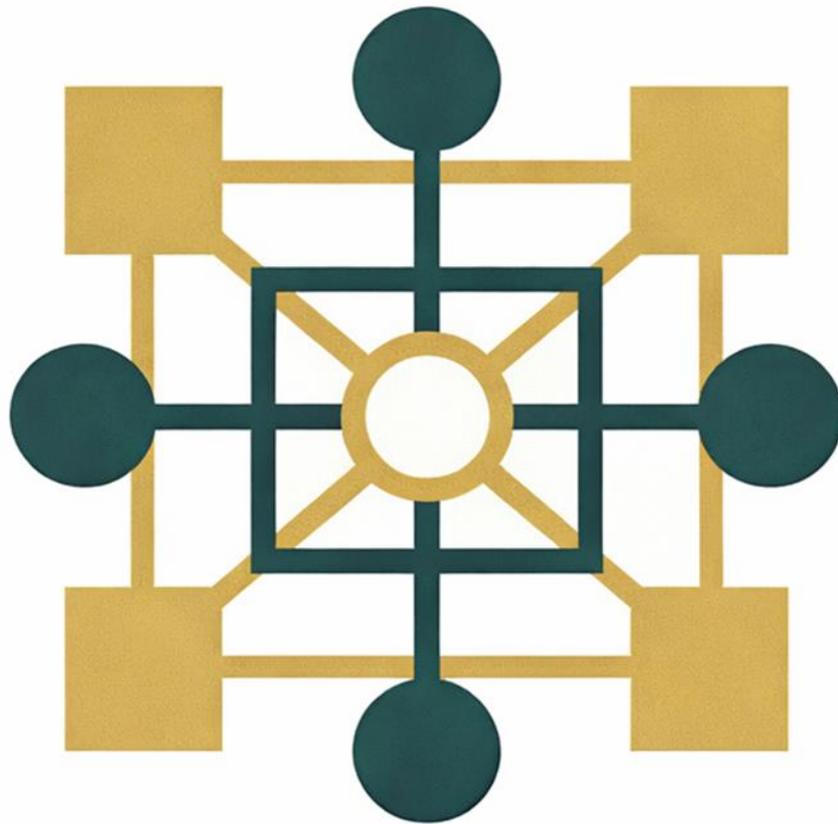


HOST:

The Core Framework

Foundational Principles for Academic Excellence



MOHAMMED TIKRITY

HOST

The Core Framework

A Framework for Improving Teaching

Highly Optimised Structured Teaching (HOST™) is a systems-based instructional framework designed to improve the effectiveness and efficiency of teaching. HOST provides a structured way to analyse, design, and optimise teaching practices by treating instruction as an interacting system rather than a collection of isolated techniques.

HOST: The Core Framework is designed for individual educators across educational and professional learning contexts who want to improve the clarity, effectiveness, and efficiency of their own instructional practice.

Mohammed Tikrity

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About the Author

Dr Mohammed Tikrity is the developer of the Highly Optimised Structured Teaching (HOST) framework and the author of HOST: The Core Framework. He holds a PhD in Control Systems Engineering from the University of Manchester and has completed advanced postgraduate training in management and strategic analysis at Manchester Business School.

With over two decades of experience in research and development management, alongside more than ten years of teaching experience in physics and mathematics, Dr Tikrity's work integrates systems thinking, instructional design, and classroom practice. His professional background has informed a sustained interest in teaching quality, instructional efficiency, and the role of time as a constrained resource in education.

The HOST framework reflects this integration, offering educators a structured way of thinking about instruction that supports clarity, professional judgement, and deliberate skill development across diverse teaching contexts.

The HOST Series

A Coherent Professional Learning System

The HOST series is designed as a **progressive system for developing teaching skill**, not as a collection of standalone texts. Each book has a distinct role, while working together to support understanding, application, practice, and specialisation of **Highly Optimised Structured Teaching (HOST)**.

The series follows a clear professional learning pathway:



The HOST Learning Pathway. Each stage builds on the previous one.

The Four HOST Books and Their Roles

1. HOST: The Core Framework

➔ Understand HOST

Purpose

To establish the **conceptual foundation** of HOST.

Focus

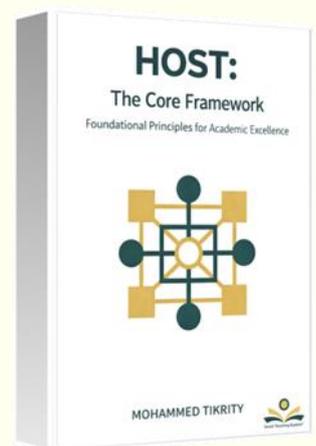
- Teaching quality as effectiveness *and* efficiency
- Teaching as a system
- The 3-Levels Teaching Structure (Foundation, Strengthener, Engagement)
- Time, clarity, and instructional decision-making

What this book does

- Explains *what* HOST is and *why* it works
- Provides shared language and theoretical grounding
- Anchors HOST in research and systems thinking

This book answers:

“How should we think about teaching?”



2. HOST: The Teaching Playbook

➔ Apply HOST

Purpose

To translate the framework into **day-to-day classroom practice**.

Focus

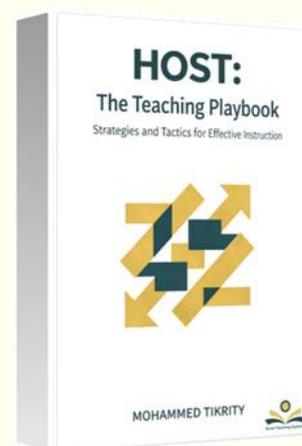
- Lesson design and delivery
- Real-time instructional decisions
- Practical use of the 3-Levels Teaching Structure
- Reducing re-teaching and wasted time

What this book does

- Shows *how* HOST works in real classrooms
- Provides practical guidance, examples, and checklists
- Supports deliberate, efficient teaching without prescribing methods

This book answers:

“How do I use HOST in my lessons?”



3. HOST: The Practise Workbook

➔ Practise HOST

Purpose

To support **skill development through reflection and practice**.

Focus

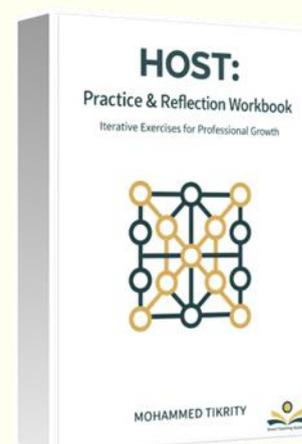
- Deliberate practice of core teaching moves
- Reflection before, during, and after teaching
- Building fluency and automaticity over time

What this book does

- Turns understanding into habit
- Supports metacognitive teaching
- Helps teachers refine practice incrementally

This book answers:

“How do I get better at HOST over time?”



4. HOST: The University Teaching Edition

➔ Specialise HOST

Purpose

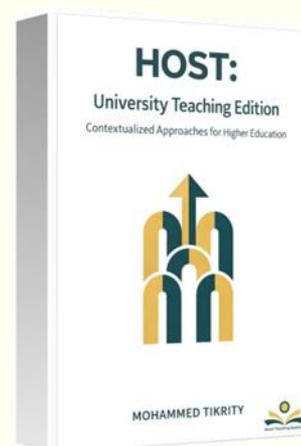
To adapt HOST for **higher education contexts**.

Focus

- Lectures, seminars, tutorials, and labs
- Learning outcomes, assessment design, and academic autonomy
- Student engagement and efficiency in HE settings

What this book does

- Applies HOST to the specific demands of university teaching
- Aligns HOST with HE pedagogy and curriculum structures
- Supports lecturers in designing clearer, more efficient instruction

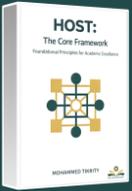
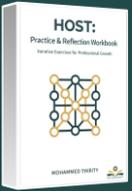


This book answers:

“How does HOST work in higher education?”

How the Books Work Together

The HOST series is designed to be used as a system. Each book can stand alone, but together they support understanding, application, practice, and contextual specialisation of Highly Optimised Structured Teaching.

			
The Core Framework	The Teaching Playbook	The Workbook	The University Edition
<p>Understand HOST</p> <p>Establishes the conceptual foundation of HOST.</p> <p>Explains teaching quality as effectiveness and efficiency, introduces the 3-Levels Teaching Structure, and frames teaching as a system-based professional skill.</p> <p>“How should we think about teaching?”</p>	<p>Apply HOST</p> <p>Translates the framework into everyday classroom practice.</p> <p>Supports lesson design, real-time instructional decisions, and efficient use of teaching time without prescribing methods.</p> <p>“How do I use HOST in my lessons?”</p>	<p>Practise HOST</p> <p>Supports deliberate practice and reflection.</p> <p>Helps teachers develop fluency, automaticity, and metacognitive awareness through structured prompts and repeated use.</p> <p>“How do I get better at HOST over time?”</p>	<p>Specialise HOST</p> <p>Adapts HOST for higher education contexts, including lectures, seminars, tutorials, and labs.</p> <p>Aligns HOST with learning outcomes, assessment, and academic autonomy.</p> <p>“How does HOST work in higher education?”</p>

Each book can be used independently, but the greatest benefit comes from using them **as a system**.

Using the HOST Series Effectively

- **New to HOST?**
Start with *HOST: The Core Framework*.
- **Want immediate classroom impact?**
Use *The Teaching Playbook* alongside the framework.
- **Focusing on improvement and growth?**
Work through *The Teacher Workbook* over time.
- **Teaching in higher education?**
Use *The University Teaching Edition* for contextual guidance.

In Summary

The HOST series is designed to help educators:

- **Understand** teaching as a system
- **Apply** structure deliberately
- **Practise** core instructional skills
- **Specialise** for their teaching context

Together, the books form a **coherent professional learning system** that supports clearer teaching, more efficient use of time, and better learning outcomes — without adding to workload.

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Introduction

Teaching is a complex professional activity that takes place across a wide range of educational and learning contexts, including early childhood education, schools, vocational and technical training, higher education, and professional learning environments.

Across these contexts, educators are required to make continuous instructional decisions: what to teach, how to structure learning experiences, how to respond to learner understanding, and how to manage time, attention, and cognitive demand. These decisions strongly influence learning outcomes, yet they are often made without access to a coherent, evidence-informed framework that supports deliberate instructional design and regulation.

Many educators enter teaching roles with strong subject, professional, or disciplinary expertise but limited formal preparation in how learning works or how instruction can be systematically designed to support it. As a result, instructional practice frequently develops through experience, intuition, and incremental adjustment rather than through structured professional skill development.

Intended Audience

HOST: The Core Framework is designed for educators across three primary contexts:

- **Teachers (K–12)** working in primary and secondary education,
- **University educators** teaching in higher education settings, and
- **Trainers and facilitators** working in professional learning, corporate, or vocational environments.

While examples and applications may vary across contexts, the underlying principles of Highly Optimised Structured Teaching (HOST™) remain consistent. The framework is intentionally designed to be context-flexible, enabling educators to adapt its structures and principles to their specific learners, disciplines, and instructional settings.

HOST was developed to address this need for a coherent, adaptable approach to teaching.

HOST is a **research-informed instructional framework** that supports educators in analysing, designing, implementing, and regulating instructional decisions across educational sectors. Rather than treating teaching as a collection of isolated techniques, HOST approaches instruction as an **interacting system**—one in which clarity, structure, strategy, and engagement must be deliberately aligned to support **effective and efficient learning**.

HOST: The Core Framework is designed as a foundational guide for individual educators who want to improve the clarity, effectiveness, and efficiency of their own instructional practice. It does not prescribe a single pedagogy, method, or teaching style. Instead, it provides a structured way of thinking about instruction, supporting educators in making more intentional decisions before, during, and after teaching.

At its core, HOST treats teaching as a learnable professional skill. Like other complex skills, teaching develops through understanding, practice, reflection, and gradual movement toward fluency. By focusing on instructional structure, cognitive clarity, and metacognitive regulation, HOST supports professional growth without adding unnecessary complexity or workload.

This framework is intended to be applied flexibly. It may be used to design a single lesson, guide recurring instructional sessions, support reflective practice, or inform broader professional learning. The principles of HOST are designed to adapt across disciplines, age groups, learning formats, and institutional settings.

Executive Overview

HOST: The Core Framework

HOST (Highly Optimised Structured Teaching) is a practical, research-informed framework designed to support thoughtful instructional decision-making across educational and professional learning contexts.

The framework addresses a central challenge in education: while teaching has a profound impact on learning, many educators lack access to a clear, evidence-informed structure that supports the development of teaching skill over time. As a result, instructional decisions are often shaped by habit, tradition, or local norms rather than by systematic reflection and research-aligned practice.

HOST responds to this challenge by translating established findings from the learning sciences, instructional design, and large-scale educational research into a coherent structure that can be applied in everyday teaching. Rather than promoting fixed methods or isolated strategies, HOST supports a way of thinking about instruction that enables deliberate, adaptive practice across subjects, learner groups, and institutional contexts.

At the centre of the HOST framework is the **3-Levels Teaching Structure**, which organises instruction across three interrelated levels: **Foundation**, **Strengtheners**, and **Engagement**. This structure supports educators in prioritising instructional clarity, strategically strengthening learning using evidence-based approaches, and attending to the conditions that support learner participation and persistence. Effective teaching is understood as dynamic movement across these levels, guided by metacognitive awareness during instruction.

HOST also incorporates the Effect Size Barometer, a research-curated resource designed to help educators interpret and prioritise evidence-based teaching strategies. The Barometer draws on large-scale meta-analyses to provide comparative insight into instructional impact, while preserving professional judgement and contextual flexibility.

HOST framework is intended as a foundational resource for individual professional development. It does not define teaching standards, evaluate performance, or prescribe uniform practice. Its purpose is focused and practical: to support educators in teaching more clearly, more deliberately, and more sustainably across diverse learning environments.

The Central Challenge in Teaching

Across educational and professional learning contexts, a substantial proportion of educators have limited or uneven preparation in the systematic design and enactment of instruction. While formal teacher education is required in many school systems, preparation for instructional decision-making varies considerably in depth and practical focus. In many education systems, particularly in higher education, educators are appointed primarily on the basis of disciplinary or research credentials rather than demonstrated teaching expertise. As a result, teaching practice across sectors commonly develops through experience rather than through sustained, structured professional learning.

While expectations for teaching quality have increased, formal preparation in instructional design, learning theory, and evidence-based teaching practice remains uneven. In many cases, educators are appointed or promoted primarily on the basis of subject expertise, professional experience, or research credentials, with the assumption that teaching skill will develop naturally over time.

However, research consistently demonstrates that expertise in a subject or profession does not automatically translate into effective teaching. The skills required to design learning experiences, support understanding, manage cognitive load, and respond adaptively to learners differ fundamentally from those required to master disciplinary knowledge or professional practice.

Insufficient preparation for teaching has consequences beyond individual classrooms. Inefficient instructional practice can lead to reduced learning gains, increased workload for educators, ineffective use of institutional resources, and diminished learner engagement. Over time, these effects accumulate, influencing learner outcomes, professional satisfaction, and the overall impact of educational systems.

This challenge is compounded by the limitations of many traditional professional development approaches. Short-term workshops and isolated training sessions, while often well intentioned, frequently fail to produce sustained changes in instructional practice. Research on professional learning repeatedly shows that awareness alone is insufficient; meaningful improvement requires structured frameworks that support enactment, feedback, reflection, and refinement within everyday teaching.

Across educational sectors, there is therefore a clear need for instructional frameworks that:

- support deliberate and evidence-informed teaching decisions,
- integrate research with professional judgement,
- focus on both teaching effectiveness and efficiency, and
- enable sustained development of teaching skill over time.

The HOST framework is designed to address this need. By treating teaching as a system rather than a collection of techniques, and by embedding metacognitive regulation into instructional practice, HOST provides educators with a practical structure for improving teaching quality across diverse learning contexts.

Intended Audience

HOST: The Core Framework is designed for educators across three primary contexts:

- Teachers (K–12) working in primary and secondary education,
- University educators teaching in higher education settings, and
- Trainers and facilitators working in professional learning, corporate, or vocational environments.

While examples and applications may vary across contexts, the underlying principles of Highly Optimised Structured Teaching (HOST) remain consistent. The framework is intentionally designed to be context-flexible, enabling educators to adapt its structures and principles to their specific learners, disciplines, and instructional settings.

Note:

In this book, the term educator refers to teachers, instructors, trainers, and academic staff across educational and professional learning contexts.

1. Important Concepts

Before diving into the principles of the Highly Optimised Structured Teaching (HOST) model there are a few concepts that should be clarified and understood. These are:

- Evidence-based Teaching Strategies
- Meta-analysis
- Effect Size
- Metacognition

Evidence-Based Teaching Strategies

In this document, the term evidence-based is used within an evidence-informed approach, recognising that research evidence must be integrated with professional judgement and contextual knowledge rather than applied prescriptively.

Evidence-based teaching strategies are instructional approaches that are grounded in rigorous empirical research demonstrating their effectiveness in improving student learning outcomes. Rather than relying on tradition, intuition, or personal preference, evidence-based teaching draws on findings from educational psychology, learning sciences, and large-scale studies to inform instructional decisions.

In education, evidence-based teaching involves systematically selecting, implementing, and refining teaching methods that have been shown to work across contexts, disciplines, and learner populations. Examples include explicit instruction, formative assessment, spaced practice, retrieval practice, and structured feedback. These strategies are not prescriptive formulas but adaptable principles that can be applied flexibly to different subjects and learning environments.

The use of evidence-based teaching strategies helps bridge the gap between research and practice. It enables instructors to focus their time and effort on methods that have a demonstrable impact on learning rather than investing in approaches that may be popular but ineffective. Importantly, evidence-based teaching does not dismiss professional judgment; instead, it integrates research evidence with instructor expertise and contextual factors such as student characteristics and institutional goals.

In the context of education, adopting evidence-based strategies is particularly critical due to increasing demands for accountability, quality assurance, and student success. By grounding teaching decisions in reliable evidence, educators can enhance learning efficiency, improve academic outcomes, and contribute to a culture of continuous improvement in teaching and learning.

Meta-Analysis

Meta-analysis is a statistical research method used to systematically combine and analyse the results of multiple independent studies that investigate the same or similar educational interventions or phenomena. Rather than relying on the findings of a single study, meta-analysis provides a more robust and reliable estimate of an intervention's overall effectiveness by aggregating data across many contexts, samples, and methodologies.

In education, meta-analysis is particularly valuable because individual studies often produce mixed or context-dependent results. By synthesising large bodies of research, meta-analysis helps identify patterns, generalisable effects, and the relative impact of different teaching strategies. It reduces the influence of random variation and isolated findings, offering a clearer picture of what works, what works best, and under what conditions.

A key output of meta-analysis is the calculation of effect sizes, which quantify the magnitude of an intervention's impact on learning. This allows educators and researchers to compare the effectiveness of different teaching approaches using a common metric. Meta-analyses therefore play a crucial role in informing evidence-based teaching, curriculum design, and professional development.

For education instructors, understanding meta-analysis provides insight into how educational evidence is generated and evaluated. It encourages informed decision-making based on comprehensive research syntheses rather than anecdotal experiences or single studies. As such, meta-analysis forms a foundational pillar for systematic, research-informed teaching frameworks such as the HOST.

Effect Size

Effect size is a quantitative measure used to describe the strength or magnitude of the impact that a teaching strategy, intervention, or educational practice has on student learning. Unlike statistical significance, which indicates whether an effect is likely due to chance, effect size indicates **how large and meaningful** that effect is in practical terms.

In educational research, effect size provides a common scale that allows comparisons across studies, disciplines, and instructional approaches. One of the most commonly used measures is Cohen's d , where values around 0.2 are considered small, 0.5 moderate, and 0.8 or above large. In practice, higher effect sizes suggest that an intervention has a stronger influence on learning outcomes.

Effect size is particularly important for educators because it shifts attention from whether a method works to **how well it works**. This distinction is critical in education, where time, resources, and instructional effort are limited. Teaching strategies with higher effect sizes tend to yield greater learning gains for students relative to the effort invested.

Within evidence-based teaching frameworks, effect size helps prioritise instructional practices that deliver the greatest educational impact. It also

supports reflective teaching by enabling instructors to evaluate and refine their methods based on measurable outcomes. In the HOST framework, effect size serves as a guiding principle for selecting and structuring teaching practices that maximize learning efficiency and effectiveness.

The Effect Size Barometer

As individual educators, we are constantly making instructional choices—often under time pressure and with incomplete information. Which strategies are worth prioritising? Which approaches are likely to make a meaningful difference to student learning? And which practices, while popular, may offer limited impact relative to the effort they require?

The **Effect Size Barometer** is designed to support these everyday decisions.

Included with **HOST: The Core Framework**, the **Effect Size Barometer** is a **research-curated, practitioner-friendly resource** that synthesises findings from large-scale meta-analyses of teaching and learning, including the work of **John Hattie, Robert Marzano**, and the **Educational Endowment Foundation (EEF)**. These bodies of research commonly report impact using **effect sizes**, which provide an estimate of the average influence of instructional strategies on student learning.

The purpose of the Effect Size Barometer is **not to prescribe what teachers must do**, but to help educators **orient themselves within the evidence** when planning, delivering, and reflecting on instruction—supporting informed, professional judgement rather than checklist compliance.

Metacognition

Metacognition refers to an individual’s awareness and regulation of their own thinking and teaching processes. Commonly described as “thinking about thinking,” metacognition involves the ability to plan, monitor, and evaluate one’s understanding and performance during teaching tasks.

Metacognition plays a critical role in teaching effectiveness, particularly as instructors are required to design, monitor, and adapt learning experiences in increasingly complex instructional contexts. Teaching-related metacognition refers to educators’ awareness and regulation of their own instructional thinking, including how they plan, monitor, and evaluate teaching decisions in response to student learning evidence.

Metacognitively skilled educators are able to assess the effectiveness of their instructional strategies, recognise gaps between intended and actual learning outcomes, select appropriate pedagogical responses, and adjust their approach when difficulties arise. These capacities are especially important in complex teaching tasks such as facilitating problem solving, supporting critical analysis, and enabling the transfer of knowledge.

Teaching practices that reflect strong metacognition include explicit modelling of disciplinary thinking, reflective questioning, adaptive use of formative assessment, and ongoing evaluation of instructional impact. Research in teacher cognition and professional learning consistently shows that instructors

who engage in structured reflection and adaptive decision-making achieve stronger and more sustained teaching outcomes.

Within structured teaching models such as **HOST**, metacognition is intentionally embedded to support educators in moving beyond content delivery toward deliberate instructional design and responsive teaching practice. This enables more effective teaching, improved learning conditions for students, and greater long-term instructional efficiency.

2. Understanding Teaching Quality: A Research Perspective

The Major Source of Variance in Student Achievement

A central question in educational research concerns which factors account for the greatest variance in student achievement. A substantial body of research consistently demonstrates that **teacher quality is the most influential within-school factor affecting student performance**, outweighing the effects of school organisation, leadership, class size, and financial resources (Hattie, 2003, 2009, 2012; Darling-Hammond, 2010; Hanushek, 2016).

Synthesising more than 1,400 meta-analyses, Hattie and Zierer (2019) identified **255 factors** influencing student achievement. These factors were classified into nine domains, each weighted according to its relative impact on learning outcomes.

Domains	Factors	Domains (Weighted)	Weighted (%)
1. Student	38	0.25	7.4%
2. Home	16	0.11	3.2%
3. School	25	0.29	8.6%
4. Classroom	24	0.28	8.3%
5. Curricula	31	0.46	13.6%
6. Teacher	16	0.52	15.3%
7. Teaching strategies	20	0.55	16.2%
8. Teaching Implementation methods	53	0.38	11.2%
9. Teaching Learning strategies	32	0.55	16.2%
Total	255	0.37	100%

The domains that are directly related to teaching - **teacher characteristics, teaching strategies, teaching implementation methods, and teaching-learning strategies** - account for the largest proportion of variance in student achievement.

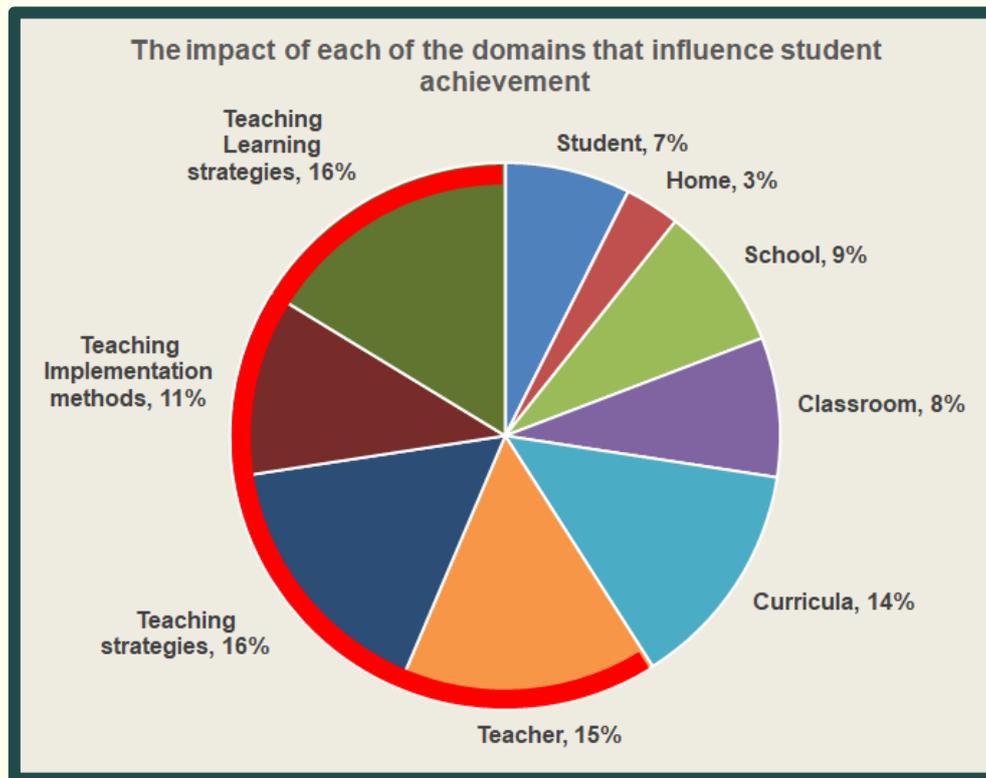


Figure 2.1. The nine domains influencing student achievement and their relative impact on learning outcomes (Hattie & Zierer, 2019).

Hattie (2003) argued that educational discourse has historically overemphasised structural and contextual factors, such as school buildings, class size, curriculum reform, and parental involvement, while underestimating the central role of the teacher. He famously described this misdirection as “searching for a wallet lost in the bushes under the lamppost because that is where the light is,” concluding that the true source of impact lies with “the person who gently closes the classroom door and performs the teaching act.”

Teaching quality should therefore be understood not merely as a set of personal attributes, but as a **dynamic, observable, and measurable construct**, manifested through instructional decisions and learning-environment practices

What Makes Teaching Great?

Based on the preceding analysis, teaching quality can be defined as follows:

- **Teaching Quality** is instruction that is both **effective** and **efficient**.
- **Teaching Effectiveness** is instruction that meets standards and achieves objectives.

- **Teaching Efficiency** is the optimal use of time and resources to achieve those objectives.

Empirical research strongly supports this conceptualisation. Wiliam (2006) demonstrated that variability in student achievement at the classroom level is several times greater than at the school level, concluding that “there is no such thing as a good school, only schools with good teachers.”

Empirical evidence illustrates the magnitude of this effect. Dylan Wiliam (2009) shows that:

- Students taught by the most effective teachers learn **approximately twice as much** as those taught by average teachers.
- Students taught by the least effective teachers learn **about half as much** as those with average teachers.
- This results in a **four-fold difference in learning rate** between the most and least effective teachers.
- In practical terms, learning that may take **two months** with a highly effective teacher can require **eight months** with a poorly performing one.

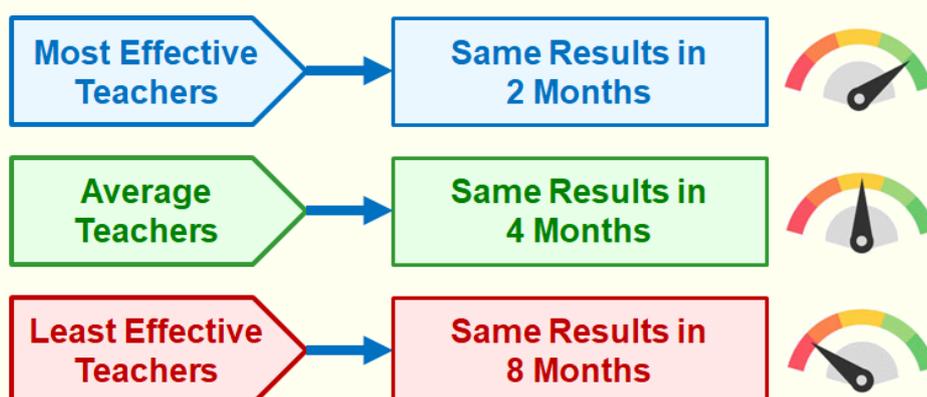


Figure 2.2. Fourfold difference in learning rate between the most and least effective teachers.

Concluding Definition

Teaching **quality** is instruction that is **effective and efficient**, enacted through well-structured teaching processes that maximise learning outcomes within optimal time and resource constraints. It encompasses teacher knowledge, skill, pedagogical judgment, and the ability to design, implement, and regulate instruction in ways that produce sustained student achievement.

This definition provides a coherent foundation for the HOST model and establishes a conceptual basis for understanding and reflecting on teaching quality.

3. The 3-Levels Teaching Structure

The Core Framework of the Highly Optimised Structured Teaching (HOST) Model

Despite decades of research into instructional design and evidence-based teaching strategies—such as Merrill’s Component Display Theory (1983) and First Principles of Instruction (2002), as well as large-scale meta-analyses by Hattie (2009), Marzano (1998), and the Education Endowment Foundation (2016) - many educators still struggle to translate these findings into effective instructional practice. The challenge is not a lack of research, but a lack of **practical, structured frameworks** that guide teachers in applying this research consistently and efficiently.

The **3-Levels Teaching Structure** was developed to address this gap. It offers a **clear, and practical framework** that enables educators to apply high-impact teaching strategies systematically. As a central component of the **HOST** model, the **3-Levels Teaching Structure** is designed to support **faster, better, and stronger learning**.

The framework reflects the core elements of effective teaching and provides several key benefits:

- It establishes a **common instructional language** that defines teaching and learning processes.
- It supports the implementation of **high-quality, evidence-based instructional practices**.
- It provides a **well-specified and structured approach** for supporting teaching effectiveness
- It lowers the barrier to pedagogical change by making improvement **manageable and actionable**.
- It enables educators to improve teaching performance **rapidly and sustainably**.

Overview of the Three Levels

The 3-Levels Teaching Structure classifies instructional activity into three interrelated levels:

1. **Foundation Level**
2. **Strengtheners (Booster) Level**
3. **Engagement Level**

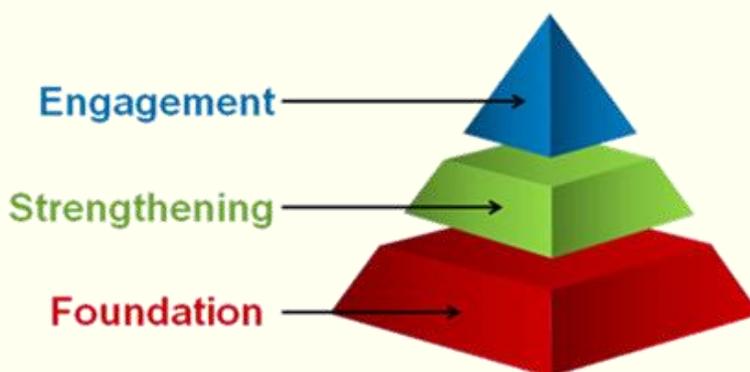


Figure 3.1. The 3-Levels Teaching Structure.

The Foundation Level forms the instructional base, the Strengtheners Level amplifies learning through evidence-based strategies, and the Engagement Level creates the conditions necessary for sustained learning.

Effective teaching does not occur within a single level. Rather, optimal learning outcomes are achieved through the **strategic integration of all three levels**. Teaching is inherently dynamic, and expertise develops through learning how to move purposefully between levels and within each level as learning unfolds.

Foundation Level: The Structural Core of Teaching

The **Foundation Level** represents the backbone of effective instruction. It ensures clarity, coherence, and cognitive accessibility, and is grounded primarily in **Merrill's Component Display Theory (CDT)**.

While CDT identifies both content dimensions (facts, concepts, procedures, principles) and performance dimensions (remembering, using, finding), the **HOST** model places particular emphasis on **presentation forms**, as these most directly shape instructional clarity and learning effectiveness.

Merrill (2002) identified four **Primary Presentation Forms (PPFs)** that constitute the Foundation Level:

- **Tell** – presenting rules, definitions, or principles
- **Show** – demonstrating concepts through examples or worked solutions
- **Ask** – prompting recall and checking for understanding
- **Ask to Do** – engaging learners in guided or independent practice

These are the four instructional actions that form the core structure of the Foundation Level. Effective teaching depends on the deliberate sequencing, balance, and timing of these forms.

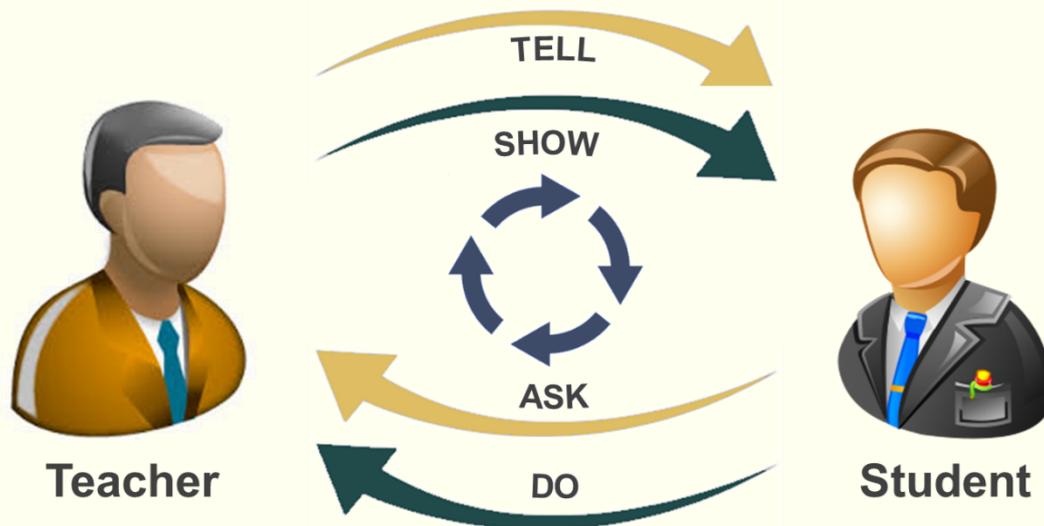


Figure 3.2. The four primary presentation forms (PPFs).

The instructor actively manages these presentation forms to reduce cognitive load, establish clear learning pathways, and ensure that learners understand not only *what* they are learning, but *how* to engage with the content.

Strengtheners Level: Amplifying Learning Through Evidence-Based Strategies

The **Strengtheners Level**, also referred to as the **Booster Level**, extends Merrill's concept of **Secondary Presentation Forms**. Within the Highly Optimised Structured Teaching (HOST), this level encompasses **all high-impact, evidence-based teaching strategies** that deepen, accelerate, and consolidate learning.

At this level, instructors deliberately integrate strategies with strong empirical support, such as those identified by Hattie, Marzano, and the Education Endowment Foundation. These strategies are embedded purposefully within instruction rather than applied as isolated techniques.

Examples include:

- Direct instruction and worked examples
- Feedback and formative assessment
- Spaced practice and retrieval practice
- Teaching metacognitive and problem-solving strategies
- Cooperative and collaborative learning
- Mastery learning and concept mapping

In addition, instructional techniques such as **chunking, sequencing, overviews, contextualization, cognitive lenses, zooming in and out, and structured summarization** are integral components of this level.

The Strengtheners Level enables learners to learn **faster**, understand **more deeply**, and retain knowledge **more securely**, while simultaneously increasing instructional efficiency.

Engagement Level: Creating the Conditions for Learning

The **Engagement Level** addresses the affective, behavioural, and social conditions that make learning possible. learner engagement is a critical determinant of instructional success and influences achievement, persistence, motivation, and classroom climate.

This level includes factors such as:

- Sustaining **attention**
- Effective **class management**
- Establishing a **positive learning atmosphere**
- Enhancing **motivation and participation**

Contemporary research views engagement as a multidimensional construct, encompassing academic, cognitive, behavioural, psychological, and social elements. Rather than adopting a single engagement taxonomy, the HOST framework treats engagement as a **dynamic condition** that must be continuously monitored and regulated throughout instruction.

The 3-Levels Teaching Structure provides an organisational framework for instructional decisions rather than a fixed lesson sequence.

Metacognition: Regulating Teaching Across the Three Levels

Metacognition plays a central role in the 3-Levels Teaching Structure. It refers to instructors' awareness of their instructional decisions and their ability to regulate teaching in response to learner needs. This regulatory function represents metacognition as simultaneous awareness of all three levels.

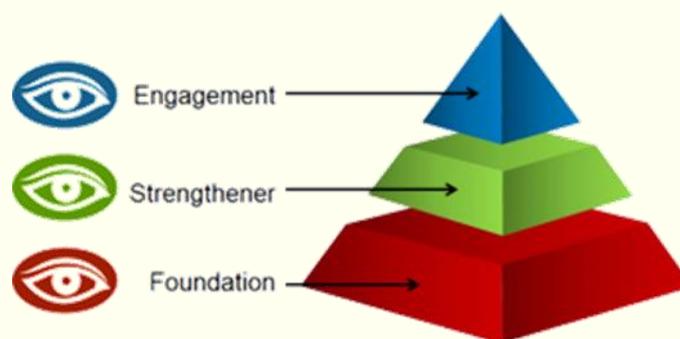


Figure 3.3. The three levels and three eyes.

The “three eyes” symbolise the instructor’s continuous monitoring of instructional structure (Foundation), learning amplification (Strengtheners), and learner engagement (Engagement).

Effective teaching requires instructors to observe and adjust their focus across all three levels in real time. This metacognitive skill enables responsive teaching and supports sustained improvement in instructional quality.

Dynamic Movement Across Levels

A defining feature of the 3-Levels Teaching Structure is **dynamic movement**. Teaching is not linear or static; it involves continuous adjustment based on learner understanding, engagement, and instructional goals.

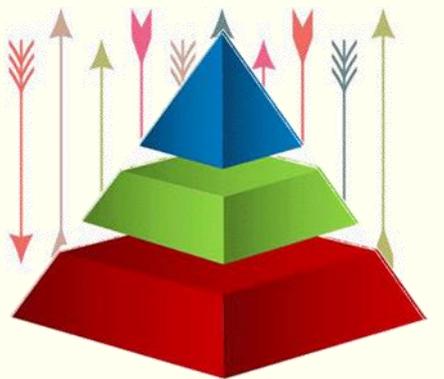


Figure 3.4. The 3-Levels Teaching Dynamic.

This means continuous vertical movement between the three levels and horizontal movement within each level. Effective teaching depends on shifting instructional focus at the right moment to maximise learning impact.

Vertical movement refers to shifting focus between the Foundation, Strengtheners, and Engagement levels. Horizontal movement refers to adjusting strategies within a single level, such as varying feedback approaches or engagement techniques.

This process is analogous to driving a car. Understanding how gears work is essential, but mastery comes from knowing **when to shift gears** to optimise performance. Similarly, expert teaching emerges from knowing when to shift instructional focus to meet learners’ needs.

Through deliberate practice and metacognitive awareness, educators develop fluency in navigating the 3-Levels Teaching Structure, resulting in **highly efficient, responsive, and impactful teaching**.

Automaticity

Automaticity in teaching refers to the ability to execute teaching strategies and techniques effortlessly and without conscious thought. When teachers develop automaticity in their practice, they can:

- Focus more attention on student learning rather than on managing instruction learner
- Respond more quickly and effectively to learner needs
- Implement multiple strategies simultaneously
- Maintain better classroom flow and engagement

Developing automaticity in teaching requires:

1. **Deliberate practice:** Repeatedly practicing specific teaching techniques until they become automatic
2. **Reflection:** Regularly analysing and reflecting on teaching practices
3. **Feedback:** Receiving and acting on feedback from learners, colleagues, and supervisors
4. **Continuous learning:** Staying updated with current research and best practices

It is important to recognise that automaticity does not develop overnight. Research on habit formation shows that building behaviours that feel natural and effortless takes time. In a large real-world study, Lally and colleagues (2010) found that the point at which a behaviour becomes automatic - when it happens with little conscious effort - varies widely depending on the person and the task. On average, this process takes around two months, but for many behaviours it can take several months of consistent practice, far longer than the popular but misleading “21-day” claim.

This means that developing new teaching routines should be understood as a gradual process, not something to be mastered quickly. The HOST framework is designed with this reality in mind. By providing a clear and repeatable structure, HOST enables teachers to practise the same core instructional moves lesson after lesson, allowing effective practices to become increasingly fluent and automatic over time.

4. Development of Teaching Skills

Teachers are **developed, not born**. High-quality teaching requires deliberate cultivation of professional skills, pedagogical judgment, and metacognitive competence. Teachers must therefore be equipped with the tools and practices that enable them to become both **effective and efficient** in their instructional practice.

Well-designed professional skill development should explicitly target both dimensions of teaching quality: effectiveness and efficiency. While teaching effectiveness focuses on meeting standards and learning objectives, teaching efficiency concerns the optimal use of time and resources to achieve these objectives. Importantly, gains in teaching efficiency must be supported by appropriate curricular alignment. If curriculum scope and pacing remain rigid, the potential benefits of improved instructional efficiency may be constrained.

Darling-Hammond, Hylar, and Gardner (2017) define effective professional development as **structured professional learning** that leads to changes in teacher knowledge and practice and results in improved student outcomes. Research consistently shows that professional development grounded in **models of effective practice**, including instructional modelling and curriculum-aligned frameworks, is particularly powerful in supporting teacher learning and student achievement.

Transforming the teaching profession requires more than increasing the number of professional development activities. As Schleicher (2011) argues, professional learning must be embedded within teachers' daily work and supported at the **school and system levels**, rather than treated as isolated training events. Effective teacher development is therefore **systemic, sustained, and practice-focused**.

Teaching Skill Development

Professional development should be viewed as a long-term developmental process. It extends beyond workshops and courses to include observation, practice, feedback, reflection, and iterative refinement of teaching practices. Through this process, teachers acquire not only new strategies and techniques, but also the capacity to function as **expert practitioners**.

Skill Acquisition and the Learning Ladder

The development of teaching skills follows well-established principles of skill acquisition. Broadwell's (1969) **learning ladder model** describes four stages through which individuals progress as they develop a new skill:

1. **Unconscious Incompetence** – lack of awareness of a missing skill
2. **Conscious Incompetence** – awareness of the need to improve

3. **Conscious Competence** – skilful performance requiring deliberate effort
4. **Unconscious Competence** – automatic and fluent performance

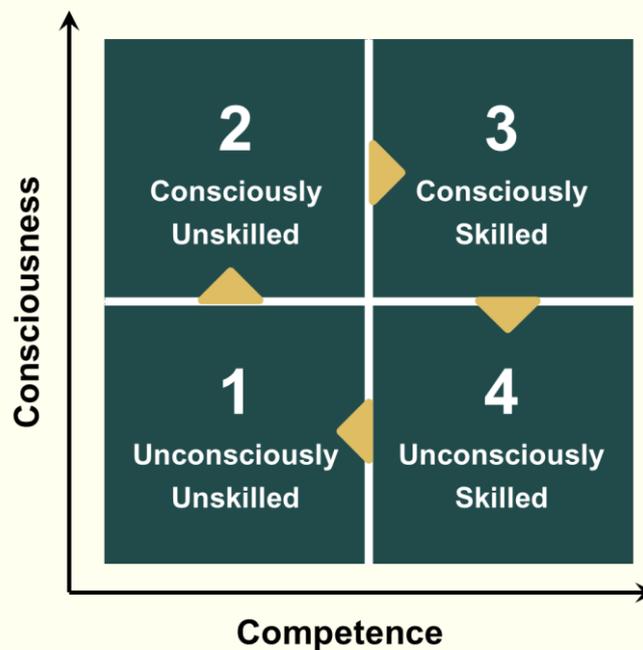


Figure 4.1. The 4 Stages of Skill Development.

Progression through these stages is influenced by motivation, feedback, practice, and metacognitive awareness. Teachers cannot improve skills they do not recognise as necessary. Consequently, effective professional development must first surface gaps in knowledge and practice before meaningful learning can occur.

Phases of the Teacher Skill Development

Building on the learning ladder model, the **teacher skill development** is organised into three developmental phases:

Phase A: Awareness and Metacognition

Phase B: Skill Building

Phase C: Practice and Automation

Phase A: Awareness and Metacognition

This phase supports movement from **unconscious incompetence to conscious incompetence**. The focus is on awareness-raising and metacognitive insight. Teachers are introduced to new skills through modelling, explanation, and demonstration, and are shown how these skills improve teaching effectiveness and efficiency.

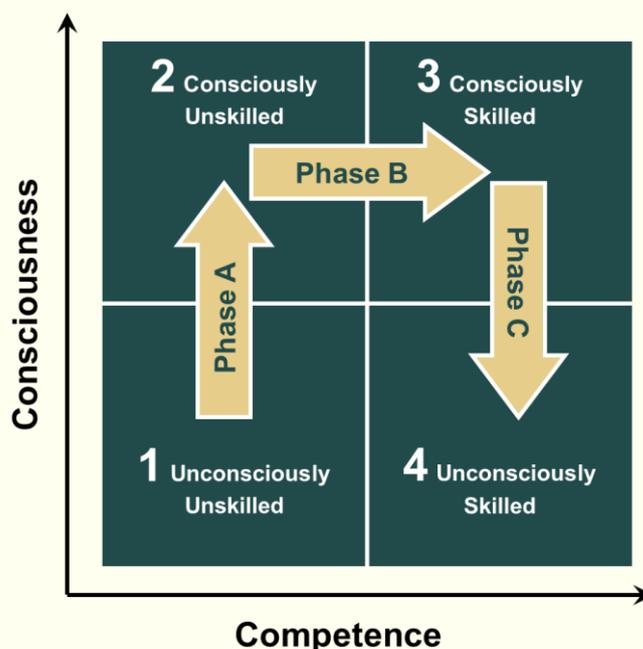


Figure 4.2. The Three Phases of Learning a New Skill.

Phase B: Skill Building

In this phase, teachers move from **conscious incompetence to conscious competence**. They commit to learning and practising new skills, often breaking them into smaller components. Guided practice, feedback, and coaching are central at this stage.

Phase C: Practice and Automation

This phase supports the transition from **conscious competence to unconscious competence**. Through sustained practice, skills become automatic and integrated into everyday teaching. At this stage, teachers can apply skills fluently while managing other classroom demands and, in many cases, teach these skills to others.

An effective professional skill development must be designed across **grade levels and subject areas**, providing teachers with practical tools, resources, and hands-on strategies to support their professional growth.

Metacognitive Competence in Teacher Development

Metacognition is a cornerstone of effective skill development. Abdelrahman (2020) defines metacognition as the ability to select appropriate strategies, monitor outcomes, and adjust approaches based on existing knowledge and experience.

Kruger and Dunning (2000) demonstrated that individuals with low expertise often overestimate their competence due to insufficient metacognitive skills.

Their findings highlight the importance of helping teachers accurately evaluate their own strengths and weaknesses. Teachers who remain in a state of unconscious incompetence are unlikely to seek improvement, underscoring the necessity of structured feedback and reflective practice within professional skill development.

An effective professional skill development is therefore **adaptive and ongoing**, enabling teachers to:

- Engage with current research on student learning
- Apply evidence-based teaching strategies
- Reflect on practice using data and feedback
- Collaborate within professional learning communities

Reflective tools may be used by educators to self-diagnosis and improvement.

Discussion and Conclusion

This section has demonstrated that the development of teaching skills is essential for improving both **teaching effectiveness and teaching efficiency**, which together define **teaching quality**. Building on the Highly Optimised Structured Teaching (HOST) and the **3-Levels Teaching Structure**, it has shown how structured professional development can help teachers optimise their instructional practices while reducing time and effort without compromising student achievement.

The HOST framework offers two key benefits:

1. It provides teachers with a **clear and practical instructional structure**.
2. It promotes **productive and efficient teaching**, enabling teachers to save instructional time while maintaining high learning outcomes.

To fully realise these benefits, teachers should engage with the **3S framework**, which integrates:

- **Teaching strategies** (evidence-based methods),
- **Teaching structure** (the 3-Levels Teaching Structure), and
- **Teaching skills** (metacognitive and procedural competence).

Conclusions and Recommendations

- The 3-Levels Teaching Structure has strong potential to **accelerate student learning**.
- Understanding teaching effectiveness and efficiency is a critical component of ongoing professional development.
- Effective professional learning should address **both effectiveness and efficiency**.

- Teachers' professional knowledge and skills can be systematically enhanced through sustained, practice-focused professional development.
- Further research is needed to validate the 3-Levels Teaching Structure and to quantify potential savings in instructional time and resources.

5. The Principles of Smart Teaching (HOST Model)

The **Principles of Smart Teaching** provide a practical framework for implementing the **Highly Optimised Structured Teaching (HOST)**. The HOST framework is a research-informed framework for supporting effective teaching practice.

The following principles guide educators in creating structured, engaging, and high-impact learning experiences:

1. **Goal Orientation:** Formulate clear, specific, and measurable behavioural learning objectives.
2. **Contextual Mapping:** Link topics forward and backward to existing learner knowledge (The "Big Picture").
3. **Primary Foundations:** Utilise **Primary Presentation Forms (PPFs)** based on Merrill's Component Display Theory.
4. **Evidence-Based Practice:** Adopt proven teaching strategies (e.g., Hattie's Visible Learning and Marzano's High-Yield Strategies).
5. **Instructional Support:** Integrate **Secondary Presentation Forms (SPFs)**, such as summarising, outlining, and mnemonics.
6. **Cognitive Sequencing:** Apply the "cognitive lens" through chunking and sequencing (Reigeluth, 1983).
7. **Metacognitive Monitoring:** Maintain engagement and situational awareness using the "Three Eyes" strategy.
8. **Technical Mastery:** Leverage presentation and visual instructional tools for instructional flow
9. **Cognitive Efficiency:** Apply **Cognitive Load Theory** to eliminate instructional "bloat" and redundant information.

Principle 1: Formulating Clear and Specific Learning Objectives

Effective teaching begins with clearly articulated learning intentions and outcomes that are **explicitly communicated and understood by learners**.

A Learning Objective is a precise statement describing the specific skill, knowledge, or attitude a student is expected to demonstrate by the end of a lesson. Unlike general educational aims, behavioural Objectives focus on observable outcomes.

The Importance of Clear Learning Objectives

Clear objectives act as a roadmap for both the teacher and the student.

- For the **Teacher**: They guide lesson planning, the selection of teaching methods, and the design of assessments.
- For the **Student**: They provide clarity on what is expected, reducing anxiety and focusing effort.

Components of a Learning Objective

A well-structured Learning objective typically includes three elements:

1. **Performance**: What the student will do (e.g., "identify," "solve," "explain").
2. **Conditions**: The circumstances under which the performance occurs (e.g., "given a map," "without a calculator").
3. **Criteria**: The standard of acceptable performance (e.g., "with 90% accuracy," "in under 5 minutes", "in less than 50 words", ...).

Six Levels of Learning

Bloom's Taxonomy (1956) categorises learning into six levels - from basic recall to deep critical thinking, i.e. moving from lower-order thinking (remembering facts) to higher-order thinking. These six levels of learning are:

Level	Description
Remember	Recall key facts and concepts
Understand	Explaining ideas or concepts; grasping meaning.
Apply	Using information in new situations; solving problems.
Analyse	Breaking down information into parts; seeing relationships.
Evaluate	Making judgments, assessing value, justifying decisions.

Create	Producing new or original work; generating new ideas.
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Bloom's taxonomy framework should be followed in order; learners must start at the first level – Remember – and master that level before moving on to the next. The first level – Knowledge – is a necessary precondition for the following five levels. That is why the taxonomy is presented as a pyramid to show that knowledge acts as a foundation for all subsequent levels of learning:

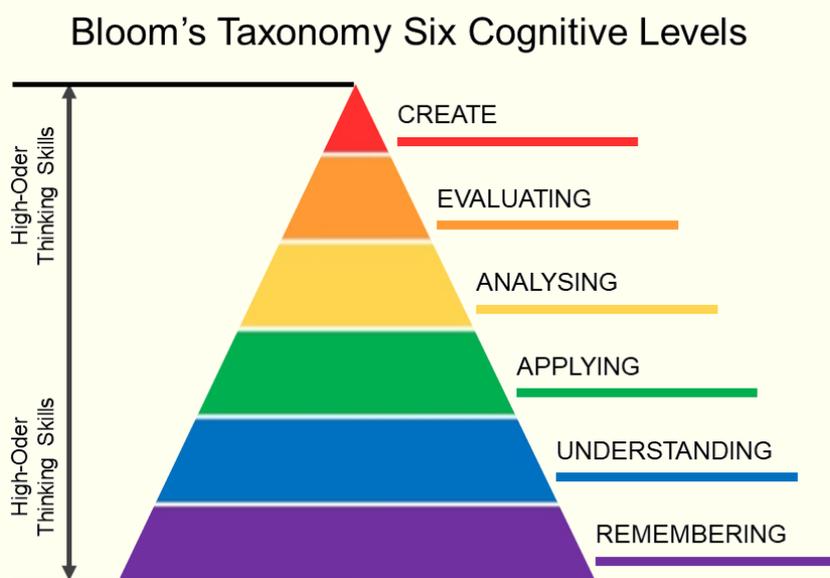


Figure 5.1. The Six Levels of Learning

Applying Bloom's Taxonomy in Teaching

On an individual level, **Bloom's Taxonomy** provides a valuable roadmap for guiding students and educators through the learning process, from the acquisition of foundational knowledge to the creation and application of new ideas.

In essence, Bloom's Taxonomy serves as a *conceptual compass* for designing clear learning objectives and assessing the depth of understanding achieved in your courses.

Use Bloom's Action Verbs When Writing Learning Outcomes

When drafting or revising course syllabi, lesson plans, or training programmes, employ action verbs from Bloom's framework. They signal the expected cognitive process and make learning goals measurable.

Example:

By the end of the lesson, students will be able to identify the steps for solving linear equations and justify their answers using mathematical reasoning.

Pose “Bloom-Style” Questions to Deepen Student Thinking

To help students connect course content to disciplinary practice, frame questions aligned with each cognitive level.

Example:

This study relies on peer collaboration. How might these group dynamics change if conducted asynchronously in a digital environment?

Such questions guide learners beyond recall toward analysis, application, and synthesis - skills central to education.

Use the Taxonomy to Differentiate Teaching and Assessment

The six learning levels can help identify where students - or entire cohorts - may need further support. This differentiation ensures that introductory learning experiences reinforce remembering and understanding, while more advanced learning contexts elevate learners toward evaluation and creation.

Example:

Younger students may need additional practice recalling and using key concepts, whereas older students should be applying their understanding to solve problems and explain their reasoning in new situations.

Bloom’s Taxonomy for Teachers and Educators / instructors

Level	Common Performance (Action) Verbs
1. Remember (<i>recall and recognise information</i>)	list, define, describe, identify, label, recall, match, state
2. Understand (<i>explain ideas or concepts</i>)	summarise, explain, interpret, classify, illustrate, discuss
3. Apply (<i>use knowledge in new situations</i>)	apply, demonstrate, operate, compute, use, perform, implement, solve
4. Analyse (<i>break down and examine parts</i>)	analyse, compare, contrast, differentiate, organise, examine, investigate
5. Evaluate (<i>judge based on criteria or standards</i>)	evaluate, assess, justify, critique, appraise, defend, select, prioritise
6. Create (<i>generate new ideas or products</i>)	design, develop, compose, construct, formulate, produce, propose

Below is a clear, simple, and classroom-ready table that Teachers and Educators / instructors can use to design learning outcomes, assignments, and reflections using Bloom’s Taxonomy.

Bloom’s Level	Sample Teaching or Assessment Activities	Reflection (for students or teachers)
1. Remember	<ul style="list-style-type: none"> • Create flashcards or glossaries of key terms. • Provide short quizzes or “minute papers”. • Ask students to outline an article’s main ideas 	<p><i>What key concepts do I remember most clearly from today’s session?</i></p> <p><i>Which terms still confuse me?</i></p>
2. Understand	<ul style="list-style-type: none"> • Ask students to paraphrase theories in their own words. • Use concept mapping to show relationships between ideas. • Facilitate small-group discussions to interpret readings 	<p><i>Can I explain this theory to a peer in simple terms?</i></p> <p><i>How does this concept connect to prior knowledge?</i></p>
3. Apply	<ul style="list-style-type: none"> • Design in-class problem-solving tasks. • Have students run a lab procedure or case study? • Assign short essays applying theory to real-world examples 	<p><i>Where can I apply this concept in my research or career?</i></p> <p><i>Which part of the process was most challenging to use?</i></p>
4. Analyse	<ul style="list-style-type: none"> • Compare two theoretical models or research methods. • Ask students to critique an argument’s logic or evidence. • Use data analysis or case deconstruction activities 	<p><i>What patterns or relationships did I notice?</i></p> <p><i>Which assumptions influence my interpretation?</i></p>
5. Evaluate	<ul style="list-style-type: none"> • Conduct peer-review sessions. • Debate or write position papers. • Ask students to assess the validity of sources or research design 	<p><i>What criteria did I use to decide quality or credibility?</i></p> <p><i>How might others view this issue differently?</i></p>
6. Create	<ul style="list-style-type: none"> • Ask students to design a research proposal, portfolio, or presentation. • Organise group projects addressing real-life challenges. • Invite creative outputs—podcasts, datasets, visualisations 	<p><i>What new idea did I contribute?</i></p> <p><i>How does this creation show my understanding of the subject?</i></p>

Considerations

While Bloom's Taxonomy remains one of the most widely recognised models for cognitive development, educators should apply it *flexibly* rather than mechanically.

Scholars have raised two key considerations:

1. The levels, though presented hierarchically, can be **reordered or revisited** depending on the learner's needs or the nature of the discipline.
2. The neat separation of cognitive processes may appear **artificial**; thinking and learning are often fluid, overlapping, and iterative.

In Summary

For Teachers and Educators, Bloom's Taxonomy is not a rigid staircase but a **dynamic framework** for cultivating deeper learning.

By consciously designing outcomes, activities, and assessments that engage multiple cognitive levels, educators move students from memorising content toward *thinking like scholars* - interpreting, questioning, evaluating, and ultimately creating new knowledge.

Once learning objectives are clear, effective teaching requires situating those objectives within a meaningful conceptual context.

Key takeaway for educators:

The purpose of this section is not mastery of theory but improved instructional decisions.

Principle 2: Forward and Backward Linkage

Learning is strengthened when new content is **explicitly connected to prior knowledge** and positioned within a **coherent conceptual structure**.

Decades of research in cognitive psychology and instructional design demonstrate that learners understand and retain new information more effectively when it is integrated into existing knowledge frameworks rather than presented in isolation.

A crucial distinction must therefore be made between **understanding and memorisation**. Memorisation involves recalling information, whereas genuine understanding requires learners to connect new knowledge to what they already know and to apply it flexibly in future contexts.

Linking New Learning to Conceptual Structure

Linking refers to the deliberate instructional practice of connecting the current lesson to the broader conceptual structure of the subject. It addresses the learner's implicit question: **"Where does this fit?"** This principle emphasises establishing a high-level conceptual overview before engaging with details, enabling students to organise information meaningfully.

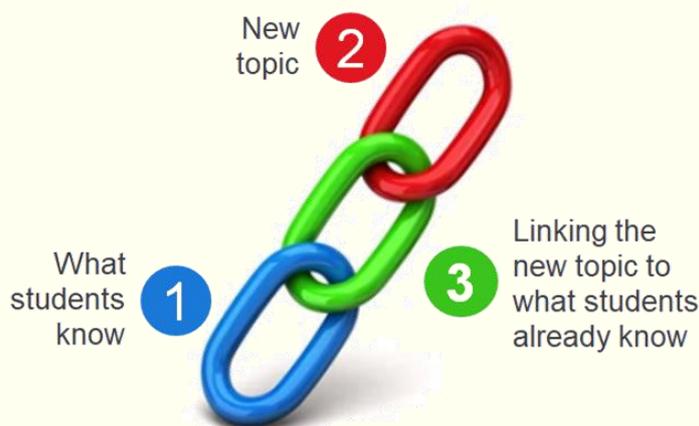


Figure 5.2. Linking the new knowledge to the existing knowledge

This process involves building **cognitive bridges**—backward, forward, and lateral linkages—between ideas, examples, and applications.

Backward Linkage: Connecting to Prior Knowledge

When introducing a new topic, instructors should help students **activate relevant prior knowledge**. This involves prompting learners to recall familiar concepts, experiences, or examples that relate to the upcoming content.

Establishing backward connections helps students perceive continuity in learning and recognise how new ideas build upon existing understanding.

Example

Before teaching industrial manufacturing processes, an instructor may ask students to recall how raw materials are sourced and prepared. These prior concepts provide a foundation for understanding subsequent stages of production.

Forward Linkage: Connecting to Future Applications

Forward linkage supports **transfer of learning** by showing how current content will be used in more advanced topics or real-world contexts. Instructors should explicitly highlight how today's lesson connects to future learning or professional practice.

This approach increases motivation and creates a sense of purpose.

Example

A lesson on manufacturing methods may be linked forward to later topics such as supply chain management, sustainability, product design, or business innovation. Students learn not only what a concept is, but why it matters and where it leads.

Lateral Linkage: Connecting Across Concepts and Disciplines

Learning becomes more meaningful when students recognise relationships between parallel or related ideas across subjects or contexts. Lateral linkage encourages **integration and synthesis**, supporting higher-order thinking.

Example

While studying manufacturing efficiency, students may connect insights from economics (resource allocation) or environmental science (waste reduction). Such cross-linking fosters interdisciplinary understanding and systems thinking.

Teaching Implications

This principle calls on instructors to:

- provide **explicit examples** that connect new content with familiar ideas.
- encourage students to generate their own examples, demonstrating **understanding rather than memorisation**.
- use **visual organisers** (e.g. concept maps, flow diagrams) to illustrate backward, forward, and lateral relationships.
- assess understanding through tasks that require linking theory to concrete cases and real-world applications.

Illustrative Example

In manufacturing education, backward, forward, and lateral linkages can be illustrated through the structure of production systems:

- **Backward linkages:** the supply of raw materials and components feeding the production process.
- **Forward linkages:** distribution, marketing, and sales activities that follow production.
- **Lateral linkages:** interactions with related industries or enabling technologies (e.g. logistics, engineering design, digital systems).

This model demonstrates how each stage is interconnected—a principle equally applicable to any discipline that requires learners to connect past knowledge to future practice.

Principle 3: Use of Primary Presentation Forms (in Merrill's Components Display Theory)

Once learners understand where new knowledge fits, instruction must be structured in a way that makes learning explicit and manageable.

Component Display Theory (Merrill, 1983) focuses on developing knowledge and skills in a systematic way. It combines behavioural theory and cognitive theory in the field of learning.

Component Display Theory (CDT) includes three sections:

- **Content** - the type of content to be taught (facts, concepts, procedures, and principles).
- **Performance** - the level required to teach content (remember, use and find).
- **Presentation Forms** - primary, secondary, and tertiary

For instructional designers to maximise the effectiveness of their instructional design, they must use all primary and secondary presentation forms for the specific content dimension and performance level.

CDT theory specifies four Primary Presentation Forms (PPFs), five Secondary Presentation Forms (SPFs), and Other Presentation Forms (OPFs).

Most researchers focus on the content and performance dimensions of CDT Component Display Theory. However, we found that presentation forms are more important in achieving effective teaching. Therefore, the HOST method focuses on presentation forms.

The Four Primary Presentation Forms

Merrill proposed four Primary Presentation Forms (PPFs) which are: expository generality (rule), expository instance (example), inquisitory generality (recall), and inquisitory instance (practice). In simple language, these four Primary Presentation Forms (PPFs) are:

- Tell (rules)
- Show (examples)
- Ask (recall)
- Ask to do (practice)

The teacher manages the sequence and balance of these four basic presentation forms.

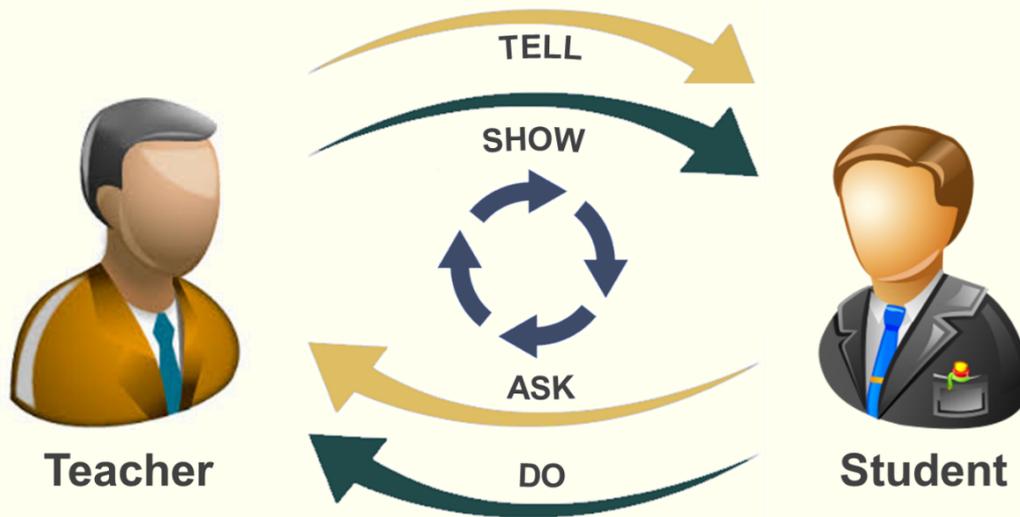


Figure 5.3. The Four Primary Presentation Forms (PPFs).

Balancing "Ideas" and "Examples"

Effective teaching clarifies generalities with examples, which prevents generalities from being abstract and dry. On the other hand, limiting oneself to examples without clarifying the "basic idea" places a burden on learners to find the basic idea themselves.

Balancing "Giving" and "Taking"

Effective presentation is not a monologue. It requires a balance between:

- Giving (Presenting): The teacher provides information.
- Taking (Questioning): The teacher asks questions to check engagement and prompt thinking.

Principle 4: Using High Impact, Evidence Based Strategies

Principles 4, 5, and 6 together form the Strengthened Level of the HOST model. Effective teaching involves the deliberate selection of evidence-informed strategies that align with instructional goals and learner needs.

Effective teaching should be guided by **evidence**, not tradition, habit, or opinion. Teachers and educators must base their instructional decisions on verifiable data and proven research rather than personal interpretation or anecdotal experience. In other words, teaching strategies should reflect the principle of “**no interpretation without evidence.**”

Educational quality and effectiveness are influenced by a complex combination of factors - student aptitude, teacher expertise, teaching methods, curriculum design, school context, family background, learning environment, and assessment practices. Among the most powerful tools for identifying what truly works are **meta-analyses** that calculate **effect sizes**—quantitative measures showing how strongly particular factors or interventions influence learning outcomes.

Teachers and instructors can consult the **Effect Size Barometer** available on the [Smart Teaching System website](#) to understand and compare the relative impact of different strategies and interventions.

Leading Evidence-Based Frameworks

Dozens of validated strategies have been documented in educational research. The most prominent sets include:

- John Hattie’s High-Impact Strategies.
- Robert Marzano’s Nine Instructional Strategies.
- The UK Educational Endowment Foundation (EEF) evidence toolkit.

Below is a summary of some strategies identified by each source:

John Hattie	Robert Marzano	EEF Educational Endowment
1. Direct Instruction	1. Identifying similarities and differences	1. Feedback
2. Notetaking and observations	2. Summarizing and note-taking	2. One-to-one tutoring
3. Spaced practice	3. Reinforcing effort and providing praise	3. Early years intervention
4. Feedback	4. Homework and practice	4. Homework (secondary)
5. Teaching metacognitive skills	5. Non-linguistic representations	5. Collaborative learning

6. Teaching problem-solving skills	6. Cooperative learning	6. Oral language intervention
7. Reciprocal teaching	7. Setting objectives and providing feedback	7. Phonics
8. Mastery learning	8. Generating and testing hypotheses	8. Mastery learning
9. Concept mapping	9. Questions, cues, and advance organisers	9. Small group tuition
10. Worked examples	---	10. Small-group tuition

There is also the **High Impact Teaching Strategies (HITS)** - ten evidence-based strategies endorsed by the Department of Education and Training in Victoria, Australia (2017) - further reaffirm these research findings.



Figure 5.4. *The 10 High Impact Teaching Strategies*

Shared High-Impact Practices

Eight Shared High-Impact Practices (Hattie & Marzano)

1. Establish clear, explicit lesson objectives.
2. Use methods and materials that make explanations accessible.
3. Engage students actively with content to deepen understanding.
4. Implement continuous feedback—returning evaluations and clarifying understanding.
5. Revisit and re-present information to strengthen retention.
6. Connect theory to practice through real-world application.
7. Encourage collaboration and peer learning.
8. Build students' confidence and self-efficacy.

Educators do **not** need to use every strategy simultaneously. The goal is to **select and adapt** those most appropriate for the subject, context, and learner group.

Common Misconceptions About Evidence-Based Teaching

- Focusing on an overly narrow set of “favourite” strategies.
- Assuming that high-impact methods should be applied in every unit or semester.
- Believing that a strategy with strong evidence will inevitably succeed in all contexts.

These misunderstandings can reduce overall effectiveness. Strategic application and professional judgment remain essential.

Strategies with Limited or Minimal Impact

Research indicates that some popular methods yield comparatively low or inconsistent effects on student achievement, including:

- Granting students total control over their learning pathways.
- Generic problem-based learning (without structure or guidance).
- Teaching explicitly to the test.
- Instruction based solely on learning styles.
- Pure inquiry-based learning without scaffolding.

Guidance from the Educational Endowment Foundation (EEF)

The EEF has rigorously tested and synthesised results from **over 190 educational interventions**. Each is summarised using three key indicators:

1. **Average impact** on learning outcomes.
2. **Strength of evidence** supporting the intervention.
3. **Implementation cost**.

The EEF Toolkit—available through its official website—offers practical, evidence-based guidance for teachers, schools, and universities seeking to invest in strategies that demonstrably improve student achievement.

In Summary

Adopting high-impact, evidence-based strategies requires teachers to:

- Commit to **data-driven decision-making**,
- Understand **effect sizes** and the strength of evidence, and
- Apply proven methods judiciously and reflectively.

By leveraging resources such as the **HOST framework** and research from Hattie, Marzano, and the EEF, educators can transform teaching from intuition-based practice to a **scientifically informed profession** that consistently enhances student learning and achievement.

Principle 5: Using Secondary Presentation Forms (SPFs)

Just as **Primary Presentation Forms (PPFs)** serve as the essential building blocks of a teaching strategy, **Secondary Presentation Forms (SPFs)** act as the "cement" that binds and reinforces them. SPFs are vital for simplifying and clarifying complex material, ensuring the learner can effectively interpret and master the content introduced by the PPFs.

By providing layers of contextual detail and explanation, Secondary Presentation Forms function to consolidate and solidify the learning process. These clarifications extend the reach of primary presentations through the following types:

- Providing supportive information that helps learners understand and interpret information in these components
- Explaining terms or components in generalities
- Connecting generalities with specific examples
- Providing measurements
- Providing alternative representations for generalities or examples (such as diagrams)
- Providing context for generalities or examples
- Providing reactions or correct answers for learners about their responses

The original Secondary Presentation Forms in Component Display Theory (Merrill, 1983) include specific elements (prerequisites, objectives, help, mnemonics, and feedback). However, the **HOST** model expands the concept of Secondary Presentation Forms to include all tools and means used to help learners clarify, simplify, consolidate, facilitate recall, and remember basic information. Among these tools and means:

- Connecting the topic with what the learner knows
- Clarifying the justification for learning
- Introductory introduction
- Selecting evidence-based strategies
- Using diagrams and illustrative drawings
- Using comparison, similarity and difference (Marzano strategies)
- Summarising, classifying, review, and comprehensive conclusion, etc.

Thus, the new expanded Secondary Presentation Forms become the second level of the **HOST** model framework, which can be called the **Strengtheners Level** or Reinforcement Level.

Some expanded Secondary Presentation Forms in the HOST framework:

- Reviewing and explaining main ideas (generalities)
- Connecting main ideas with specific examples
- Providing alternative ways to present main ideas (such as reformulating them or expressing them with a diagram)
- Comparing main ideas with known and understandable cases for trainees
- Presenting a specific context for a specific example or set of examples
- Retrieving the correct answer to an idea, question, or exercise
- Providing observations or information for the trainee's answer to a posed question
- Helping to connect an example that the trainee gives to a basic idea posed by the trainer.

Inter Display Relationships (IDRs)

Inter-display relationship is another form of presentation forms independent of primary and secondary presentation forms (Merrill, 1983).

The relationship consists of information presented to the student about how to process learning material. It also includes guidance given to the students about how to work in the learning environment.

Principle 6: Using the Cognitive Lens, Chunking, and Sequencing

Cognitive lens, chunking, and sequencing are instructional tools used to help learners clarify, simplify, consolidate, and retain information more effectively. Together, these approaches support comprehension by structuring content in ways that align with how human cognition processes information.

Among the key tools and approaches involved are:

- **Elaboration Theory**
- **Use of a cognitive lens**
- **Overview–detail structuring**
- **Comprehensive introduction, summarisation, classification, and synthesis**

Elaboration Theory and Component Display Theory

Component Display Theory (Merrill, 1983) focuses primarily on the **micro-level structure of instruction**, particularly the types of content (facts, concepts, procedures, principles) and the forms of instructional presentation required for mastery.

In contrast, **Elaboration Theory** (Reigeluth, 1983) addresses the **macro-level organisation of instruction**, emphasising how content should be sequenced from simple to complex to support understanding and long-term retention.

According to Elaboration Theory, instruction should be organised in an **increasing order of complexity**, beginning with a simple, general overview and progressively adding detail. Reigeluth conceptualises instruction as consisting of **layers**, where each layer elaborates on the preceding one. Each successive layer both reinforces prior knowledge and extends it, supporting retrieval and retention.

This layered structure operates like a **conceptual magnifying lens**, moving:

- from **simple to complex**, and
- from **general to specific**.

A typical elaborative sequence includes:

- presenting a review of the simplest core concepts,
- adding detail to one selected aspect,
- reviewing the topic while clarifying relationships between core ideas and detailed elements,
- adding further layers of detail; and
- presenting a synthesising summary of the topic.

The Three Stages of Elaboration Theory

Elaboration Theory is designed to help learners progressively develop the understanding and skills required to master complex concepts. It does so through a structured, cumulative learning process consisting of three main stages:

1. Overview of the Whole Task

Instruction begins with a **broad overview** of the entire task or conceptual domain. This overview provides learners with a mental framework, showing how the parts relate to one another and establishing a coherent structure for subsequent learning.

2. Focus on Individual Components

Learners then focus on a **simplified version of one component** or on the first step within the overall process. This allows them to develop foundational understanding before progressing to greater complexity.

3. Reintegration and Mastery

After individual components have been addressed, learners return to the **whole task**. This reintegration reinforces understanding and supports the synthesis of individual elements into a coherent and transferable mental model.

The Cognitive Lens and the Cognitive Zoom Process

Elaboration Theory provides guidance on how teachers can structure lessons from simple to complex concepts using a **cognitive lens**. Instruction begins with a **wide-angle view**, which helps identify the core structure of the topic. This initial perspective establishes context and meaning.

The lens then enters a **magnification process**, in which specific elements are expanded and explored in greater detail. Throughout this process, learners are encouraged to observe the relationship between the overarching conceptual structure and its detailed components.

This instructional strategy is referred to as the **Cognitive Zoom process**, which involves progressively deeper levels of elaboration while maintaining alignment with the overall conceptual framework.

The Cognitive Zoom Stages

- **Wide-Angle View (Epitome)**
Instruction begins with a high-level overview of fundamental concepts. This *epitome* establishes a mental schema that provides context for all subsequent details.
- **Zoom-In (Elaboration)**
Learners focus on specific components, adding layers of complexity

and exploring relationships between details and the broader conceptual structure.

- **Zoom-Out (Synthesis)**

Learners periodically return to the overview to integrate new details into the whole. This recontextualization strengthens cognitive organisation and supports durable learning.

Organising Educational Materials

Effective instructional design requires careful decisions about how educational materials are arranged and grouped. Common organising principles include sequencing content:

- from **simple to complex**,
- in **chronological or historical order**,
- according to learners' **prior knowledge or mastery levels**; and
- in a **progressive sequence** where mastery of prerequisite concepts is required before advancing.

Chunking

Chunking refers to dividing information into smaller, manageable units. In educational contexts, chunking helps learners process new information more effectively by reducing demands on **working memory**, which has a limited capacity.

Working memory capacity varies depending on:

- the type and complexity of information, and
- individual learner characteristics.

When working memory is overloaded, information is likely to be lost before it can be consolidated into long-term memory. This presents a central challenge for instructional design.

As a result, complex content should be **broken into smaller, coherent units**, allowing learners to process, integrate, and retain information more effectively.

Sequencing

Sequencing refers to arranging instructional content in a logical and purposeful order. Effective sequencing helps learners recognise relationships between ideas, build on prior knowledge, and progress toward learning objectives without cognitive overload.

Common sequencing principles include moving:

- from **simple to complex**,
- from **known to unknown**,
- from **concrete to abstract**,
- from **general to specific**; and

- through **chronological or procedural sequences**.

Effective teaching requires skilful use of sequencing to support understanding while managing cognitive load. Even well-structured instruction, however, requires continuous monitoring and adjustment—an issue addressed in the following principle.

Principle 7: Maintaining a Metacognitive Strategy and Monitoring Engagement

Effective teaching requires continuous metacognitive monitoring of learning and engagement, enabling timely instructional adjustment.

Metacognitive Strategies

The **3-Levels Teaching Structure** classifies the teaching activities into three levels:

1. **Foundation Level**
2. **Strengtheners (Booster) Level**
3. **Engagement Level**

The best way to maximise learning outcomes is to combine activities from all levels. Moving from one level to another reflects the true nature of teaching. Developing the skill of navigating these levels and elements requires practice and experience.

Metacognition means knowledge about knowledge, about cognitive processes, and knowledge about the strengths and weaknesses of knowledge that a person possesses specifically, and knowledge about how to monitor teaching and learning performance.

The Three Eyes Metacognitive Strategy

Maintaining metacognitive strategy and monitoring Students' engagement (the three eyes).

Moving from one level to another reflecting the realities of teaching process. The sequence and timing of movement vertically between levels and horizontally across elements in each level is a dynamic process – a skill which can only be mastered through practice.

Dynamic Movement

The 3-Levels teaching structure seeks to achieve the highest level of learning outcomes through the most effective combination of teaching activities. It involves perpetual movement, at the right moments, vertically between the three levels, and horizontally within each of the three levels.

To become a competent car driver, you must first understand the main driving skills. Up-shifting and down-shifting refer to the method of changing gears, not the direction of the gear lever. Generally, you shift up when increasing speed and shift down for more power; for instance, when ascending a hill or starting from a stop.

Principle 8: Technical Mastery

Leverage presentation and visual instructional tools for instructional flow

Metacognitive regulation applies not only to instructional decision-making but also to the design and use of instructional tools. Presentation tools such as **PowerPoint**, when intentionally designed, function as strategic instructional supports that enhance comprehension and retention.

Through structured design, educators can transform abstract or text-heavy material into dynamic learning experiences that sustain attention and foster deep retention. Well - designed presentations and visual supports can become shared cognitive frameworks that promote clarity, participation, and conceptual alignment across diverse learners.

Beyond static slides, presentation and visual instructional tools can serve as dynamic pedagogical supports. Incorporating visuals, diagrams, videos, and interactive elements allows educators to accommodate diverse learning preferences, simplify abstract ideas, and shift instruction from passive reception to active engagement.

When embedded within the HOST framework, such tools enhance clarity, engagement, and instructional efficiency. While presentation tools remain valuable supports, the primary determinant of instructional impact lies in the structure of delivery. Without an evidence-informed framework such as HOST, even well-designed instructional materials risk becoming underutilised or inefficient learning resources.

Presentation tools such as **PowerPoint** are not merely slideshows; when intentionally designed, they function as **sophisticated cognitive interfaces** that connects complex data to learner understanding.

Through structured design, teachers / educators can transform abstract, text-heavy material into dynamic learning experiences that sustain attention and foster deep retention. In a learning context, a well-structured presentation becomes a **shared cognitive framework** — a “common language” that ensures clarity, participation, and conceptual alignment across diverse learners.

Maximising Instructional Impact with Presentation Tools

Beyond static slides, presentation and visual instructional tools can serve as **dynamic pedagogical supports** that bridges theory and retention. Incorporating **visuals, diagrams, videos, and interactive elements** allows educators to:

- Accommodate diverse learning preferences.
- Simplify abstract data.

- Shift the classroom from **passive reception** to **active engagement**.

When embedded with quizzes, polls, or branching pathways, PowerPoint transforms into a **structured, reusable roadmap** that reinforces knowledge construction and independent study.

Investing in **HOST-aligned PowerPoint design** (Highly Optimised Structured Teaching) can support improved **student understanding** and more **efficient instructional** preparation

Key advantages include:

- **Cognitive Clarity:** Structures complex concepts into concise, visually scannable formats that enhance long-term retention.
- **Active Engagement:** Uses pacing, animation, and interactive components to sustain focus and break lecture monotony.
- **Creative Pedagogical Control:** Enables visualisation of abstract relationships beyond the limits of verbal explanation.

Integrating PowerPoint into the HOST Framework

When integrated into the **Highly Optimised Structured Teaching (HOST)** framework, PowerPoint evolves from a simple visual medium into a structured instructional support that enhances **clarity, engagement, and learning efficiency**.

While PowerPoint remains an effective content-delivery tool, **the true differentiator** in education lies in the **structure of delivery**. Without an evidence-based framework such as HOST, even well-designed presentations risk becoming underutilised or inefficient learning resources.

Principle 9: Use Cognitive Load Theory and the Redundancy Effect

Cognitive Load Theory (CLT) is an instructional theory based on the knowledge of human cognition (Sweller, Ayres & Kalyuga, 2011).

To understand the CLT and Redundancy Effect, we must look at the architecture of human cognition. The Information Processing Model (IPM) provides this blueprint, illustrating how we transform raw sensory data into meaningful knowledge.

The model highlights a critical bottleneck: while our Long-Term Memory is vast, our Working Memory is limited. Attention is the mechanism that manages this flow.

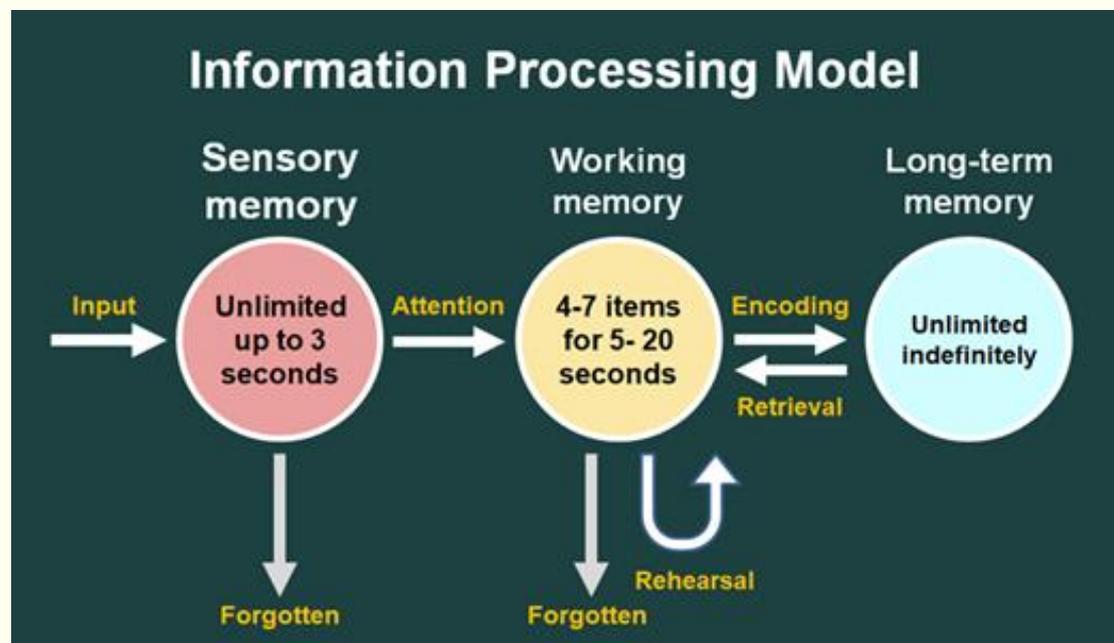


Figure 5.5. The Information Processing Model.

Processing Architecture

- **Input** (Sensory Memory): The entry point where environmental stimuli (sights, sounds) are briefly registered.
- **Attention:** The critical "gatekeeper." It filters out noise and selects specific inputs for processing. Without attention, learning cannot occur.
- **Processing** (Working Memory): The brain's "workbench." Here, information is actively manipulated. Because this space is limited, overloading it leads to cognitive failure.
- **Encoding & Storage** (Long-Term Memory): The transfer of information from the workbench to permanent storage. Effective encoding relies on organization and connection to prior knowledge.
- **Retrieval:** The process of bringing stored knowledge back into Working Memory to solve current problems.

- **Output:** The observable result of processing, such as answering a question or performing a skill.
- **Feedback:** The validation loop. Did the output meet the goal? This information adjusts future processing.

Cognitive Load Theory and the Redundancy effect

In addition to working memory load, the theory recognises three other types of cognitive load:

Intrinsic Cognitive Load

Intrinsic cognitive load indicates the inherent difficulty of the learning task, which occurs due to the complexity of new information. Intrinsic load can be reduced through simplifying the learning material.

Extraneous Cognitive Load

Extraneous cognitive load is used to describe the cognitive effort put forth for things that do not contribute to direct learning. Thus, the working memory is distracted from processing new information.

Germane Cognitive Load

Germane cognitive load is used to describe the cognitive effort deliberately used by the learner to process information for long-term storage. There is deep processing of new information that occurs by integrating it with previous knowledge.

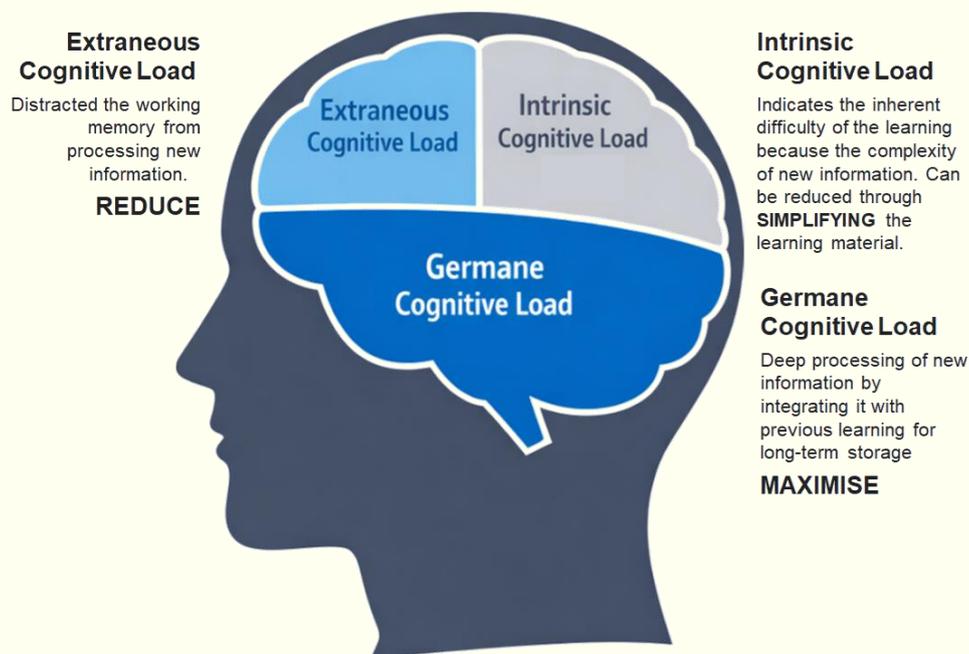


Figure 5.6. The three types of cognitive load

Learning and Teaching Strategies Based on Cognitive Load Theory

Cognitive Load Theory strategies focus on managing limited working memory by reducing distractions (extraneous load) and optimising essential processing (intrinsic/germane load) for better long-term learning, using methods like breaking down complex tasks (part-whole), providing worked examples, sequencing content, pairing visuals with text (dual coding), and gradually fading guidance as skills build.

Instruction should minimise extraneous cognitive load by eliminating redundancy, unnecessary complexity, and poorly aligned explanations.

Teaching Strategies (Reducing Extraneous Load)

- **Minimize Distractions:** Remove irrelevant info from slides, use clear layouts, and reduce background noise.

Learning Strategies (Optimising Intrinsic & Germane Load)

- **Chunking/Part-Whole Approach:** Break large topics into smaller, manageable sub-tasks and teach them sequentially before combining.

For Students (Self-Management)

- **Prioritize:** Use tools like mind maps or lists to focus working memory.
- **Chunk Information:** Break down large study tasks into smaller chunks.
- **Focus on Understanding:** Don't get stuck on one problem for too long; move on and return later.

Redundancy Effect

Unnecessary redundancy in a system, process, or information leads to inefficiency, increased cost, or excessive complexity.

For example, redundancy can appear as duplicate files, multiple sources or processors, and paragraphs or sections that perform the same function.

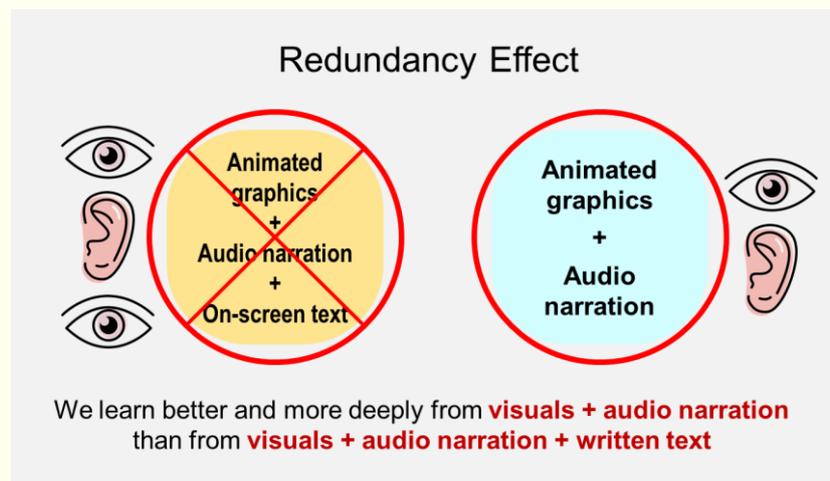


Figure 5.7. An Example of the Redundancy Effect.

EXPERT BLIND Spot

The expert blind spot refers to our inability to put ourselves in the position of novice students who are learning this new knowledge for the first time, and our ineffectiveness in understanding the difficulties they may face.

Once these blind spots are identified, the explanation should be modified, or simple additional steps should be included, as well as clearly highlighting the word or concept that students are already assumed to understand.

Working Memory and Chunking

When we learn, we use our working memory to temporarily store information. Providing learners with too much content can lead to cognitive overload. Working memory may reach its full capacity and no longer be able to absorb information. Therefore, learning content must be organised in a logical and gradual manner through chunking.

When you chunk, you take a specific topic and divide it into smaller units that logically form meaningful parts. Professor Gordon Parker says the human brain handles a maximum of four "chunks" of information, not seven.

"To remember a seven-digit phone number, say 7935864, we need to divide it into four parts: 64-58-93-7. Four is the limit of our capacity. There is consensus on this. Parker adds that George Miller's 'magic number 7,' for the limits of the brain's storage capacity, is inaccurate.

There are four steps to segmenting information effectively:

Step 1: Set priorities

Step 2: Divide the tutorial into parts

Step 3: Present the parts in a logical order.

Step 4: Reflect and evaluate what you have created.

Step 1 to segment information: Start at the top level.

- Use the segmentation strategy when determining the hierarchy of the educational material content.
- Determine how to organise units, lessons, and topics in a logical, sequential order.
- Start with big chunks of concept-related content and use them as modules.

There are many organisational strategies, such as simple to complex, cause and effect, sequencing, etc.

Step 2 to segment information: Divide the tutorial into parts.

- Break the units into smaller, relevant parts; these parts will become your lessons.
- Continue this process until the content is broken down to the topic level.

As you become more familiar with the content, fine-tune the internal structure.

Step 3 of segmenting information: Present the parts in a logical order.

- Divide the content into parts such as units, lessons and sessions.
- Organise the content so that each lesson consists of one piece of related information.

The division can be at the topic level, at the detailed educational objective level, or at the concept level.

As a rule, avoid presenting multiple topics, learning objectives, or concepts at once.

Step 4 of Information Chunking: Reflection and Working Memory Test

Do you need to include all the content in front of you? If not, get rid of unnecessary content, less is better than more.

Does the content piece require the learner to hold more than a few things in memory at one time to understand it? If so, break it up again. Images and text in multimedia lessons can reduce working memory requirements.

What if you have a lot of irrelevant information? If you have a lot of irrelevant facts, this is likely extraneous content that you don't need. If it's necessary to include these irrelevant facts, find a way to connect them together. In this case, you need to re-compartmentalise the information and group smaller pieces of information together into a single piece that helps learners process more at once.

Understanding cognitive limits highlights the importance of evaluating teaching based on evidence and observable practice rather than assumptions.

Key takeaway for educators:

The purpose of this section is not mastery of theory but improved instructional decisions.



For educators seeking guided support in applying the HOST framework, a limited professional programme is offered periodically.

How to Use *HOST: The Core Framework*

A Practical Guide for Educators

HOST: The Core Framework is a **foundational guide** designed to support educators in improving the **clarity, effectiveness, and efficiency** of their instructional practice. This guide explains **how to engage with the framework** in a practical and flexible way.

1. What *HOST: The Core Framework* Is — and Is Not

HOST: The Core Framework is:

- a **research-informed instructional framework**
- a **thinking structure** for designing and regulating teaching
- applicable across **schools, vocational education, higher education, and professional learning**
- designed for **individual professional growth**

HOST: The Core Framework is not:

- a scripted teaching method
- a checklist or compliance tool
- a performance evaluation framework
- a replacement for curriculum or subject expertise

HOST is intended to **support professional judgement**, not replace it.

2. Start with the Big Picture

Begin by familiarising yourself with:

- **The Central Challenge in Teaching**
- **Teaching Quality as Effectiveness and Efficiency**
- **The 3-Levels Teaching Structure**

These sections establish the **conceptual foundation** of HOST and help you understand *why* instructional structure matters before focusing on specific strategies.

3. Use the 3-Levels Teaching Structure as Your Anchor

The 3-Levels Teaching Structure is the core organising framework of HOST. Use it to **plan, deliver, and reflect on instruction**.

- **Foundation Level**
Focus on clarity, structure, and core instructional actions (Tell, Show, Ask, Ask to Do).
- **Strengthened Level**
Integrate high-impact, evidence-based strategies to deepen and accelerate learning.
- **Engagement Level**
Attend to attention, motivation, participation, and learning conditions.

Effective teaching involves **dynamic movement across all three levels**, not working in one level at a time.

4. Apply the Principles Selectively

You do **not** need to apply every principle at once.

Instead:

- focus on **one or two principles** at a time
- apply them consistently across multiple sessions
- reflect on their impact before adding more

Small, deliberate changes are more effective than large, unfocused adjustments.

5. Use the Effect Size Barometer as a Compass

The Effect Size Barometer is designed to support **prioritisation**, not prescription.

Use it to:

- compare the *relative impact* of teaching strategies
- guide decisions about where to invest your time and effort
- avoid over-reliance on popular but low-impact practices

Always integrate evidence with:

- your learners' needs
- your context
- your professional judgement

6. Practise Metacognitive Teaching

HOST places strong emphasis on **metacognition** — awareness and regulation of instructional decisions.

During teaching, regularly ask:

- *Which level am I working in right now?*
- *Is clarity sufficient before adding strategies?*
- *Do I need to adjust structure, strategy, or engagement?*

This metacognitive monitoring is what enables **adaptive, responsive teaching**.

7. Focus on Skill Development, Not Perfection

Teaching skill develops over time through:

- deliberate practice
- reflection
- feedback
- gradual automation

Use HOST to:

- practise the same core instructional moves repeatedly
- reduce unnecessary complexity
- build fluency and efficiency in everyday teaching

Improvement is **iterative**, not immediate.

8. Use HOST Flexibly

HOST can be used to:

- design a single lesson or session
- structure recurring teaching
- guide reflective practice
- support professional learning conversations

Adapt the framework to:

- your discipline
- your learners
- your instructional setting

There is **no single “correct” way** to implement HOST.

In Summary

HOST: The Core Framework provides a **clear, structured way of thinking about teaching**.

By focusing on:

- instructional clarity,
- evidence-informed strengthening strategies,
- engagement conditions, and
- metacognitive regulation,

educators can teach **more deliberately, more efficiently, and more sustainably** across diverse learning contexts.

HOST Quick-Start Checklist

A Practical Tool for Everyday Teaching

Use this checklist to apply the **HOST (Highly Optimised Structured Teaching)** framework in a **focused, manageable way**.

You do **not** need to use every item at once.

1. Clarify the Instructional Purpose (Before Teaching)

- What should learners **know, understand, or be able to do** by the end of this session?
- Is the objective **clear, specific, and observable**?
- Have I identified the **essential content** (what matters most)?

2. Establish a Strong Foundation Level (Structural Clarity)

- Have I clearly **told** learners the key idea, rule, or principle?
- Have I **shown** examples, models, or demonstrations?
- Have I **asked** learners to recall or explain key ideas?
- Have I **asked learners to do** something that applies the learning?
- Is the sequence of these actions **deliberate and balanced**?

Clarity before complexity.

3. Strengthen Learning with Evidence-Informed Strategies

- Which **high-impact strategy** best supports this learning goal?
- Am I using strategies **purposefully**, not automatically?
- Have I selected **one or two** strategies rather than many?
- Are strategies embedded within instruction rather than added on?

Examples:

- feedback
- worked examples
- retrieval practice
- spaced practice
- explicit instruction

4. Support Engagement Conditions

- Are learners **attentive and cognitively engaged**?
- Is the learning environment **predictable, supportive, and focused**?
- Am I monitoring participation and persistence?
- Do I need to adjust pacing, structure, or interaction?

Engagement supports learning; it does not replace structure.

5. Manage Cognitive Load

- Is information **chunked into manageable units**?
- Am I sequencing content from **simple to complex**?
- Have I removed unnecessary or redundant information?
- Are visuals and explanations aligned and purposeful?

6. Use Instructional Tools Intentionally

- Do presentation or visual tools **support clarity**, not distract from it?
- Is the tool aligned with the **Foundation and Strengtheners Levels**?
- Are visuals reinforcing meaning rather than duplicating text?
- Would fewer elements improve focus and retention?

7. Monitor Metacognitively (During Teaching)

- Which HOST level am I working in right now?
- Do I need to return to **clarity** before adding strategies?
- Is engagement breaking down due to structure, load, or pacing?
- Should I shift levels to maximise learning impact?

Effective teaching involves dynamic movement across levels.

8. Reflect After Teaching (Skill Development)

- What worked well at the **Foundation Level**?
- Which strategies had the **greatest impact**?
- Where did learners struggle or disengage?
- What one small adjustment will I make next time?

9. Focus on Progress, Not Perfection

- Am I improving **one instructional habit at a time**?
- Am I practising the same core moves repeatedly?
- Am I allowing time for skills to become fluent and automatic?

Quick Reminder

- Start simple
- Prioritise clarity
- Use evidence strategically
- Monitor and adapt
- Improve gradually

HOST is a framework for thinking, not a checklist to complete.

Below is a **Trainer Version of the HOST Quick-Start Checklist with Facilitation Notes**, designed for:

- professional development workshops
- instructional coaching
- faculty onboarding
- trainer-led or self-facilitated sessions

It is **ready for immediate use** and aligns tightly with:

- *HOST: The Core Framework*
 - the *How to Use HOST: The Core Framework* guide
 - the practitioner Quick-Start Checklist
-

HOST Quick-Start Checklist – Trainer Version

Trainer Version with Facilitation Notes

Audience: Educators, instructors, trainers, academic staff

Format: Workshop, coaching session, PLC, or self-study

Duration: 60–120 minutes (modular)

Trainer Orientation (Read Before Delivery)

Key message to participants:

HOST is not about adding more. It is about teaching more deliberately.

Trainer stance:

- non-evaluative
- practical
- reflective
- evidence-informed

Avoid positioning HOST as:

- a compliance tool
- a “best practice” checklist
- a replacement for existing pedagogy

Section 1: Clarifying Instructional Purpose

(Foundation Entry Point)

Participant Checklist

- What should learners know, understand, or be able to do?
- Is the objective clear, specific, and observable?
- What is essential vs. optional?

Facilitation Notes

Key point:

Unclear objectives are the most common source of instructional inefficiency.

Trainer prompt:

- “If learners could remember only one thing from this session, what would it be?”

Common pitfall to surface:

- Objectives that describe *activities* rather than *learning* (“covering content” vs. “demonstrating understanding”).

Optional activity (5–10 min):

- Ask participants to rewrite one objective using observable language.

Section 2: Establishing the Foundation Level

(Structural Clarity)

Participant Checklist

- Tell — present the core idea
- Show — model or demonstrate
- Ask — check understanding
- Ask learners to do — practise or apply
- Sequence is deliberate and balanced

Facilitation Notes

Key point:

Foundation comes **before** strategies and engagement.

Trainer prompt:

- “Which of the four actions do you tend to skip under time pressure?”

Trainer emphasis:

- Most instructional breakdowns occur because *practice precedes clarity*.

Coaching cue:

- If learners are confused, return to *Tell* or *Show*, not more activities.

Section 3: Strengthening Learning with Evidence-Informed Strategies

(Strengthener Level)

Participant Checklist

- Strategy selected intentionally
- One or two strategies only
- Embedded, not added on
- Aligned with the learning goal

Facilitation Notes

Key point:

More strategies ≠ better learning.

Trainer prompt:

- “Which strategy gives you the biggest return for effort in your context?”

Common misconception to challenge:

- High-impact strategies must be used constantly.

Trainer guidance:

- Use the Effect Size Barometer as a **compass**, not a rulebook.

Section 4: Supporting Engagement Conditions

(Engagement Level)

Participant Checklist

- Learners are attentive and participating
- Environment supports focus
- Pacing is appropriate
- Engagement is monitored continuously

Facilitation Notes

Key point:

Engagement is a **condition** for learning, not the cause of learning.

Trainer prompt:

- “Is disengagement due to motivation—or lack of clarity?”

Trainer caution:

- Do not jump to engagement techniques before fixing structure.

Section 5: Managing Cognitive Load

Participant Checklist

- Content is chunked
- Sequence is logical
- Redundancy removed
- Visuals support meaning

Facilitation Notes

Key point:

Cognitive overload often feels like disengagement.

Trainer prompt:

- “What could you remove without harming learning?”

Trainer strategy:

- Model reduction: simplify one slide or explanation live.

Section 6: Using Instructional Tools Intentionally

Participant Checklist

- Tools support clarity
- Visuals align with explanation
- No duplication of text and speech
- Less is more

Facilitation Notes

Key point:

Tools amplify structure — they do not replace it.

Trainer reminder:

- PowerPoint (or any tool) is optional; instructional structure is not.

Section 7: Metacognitive Monitoring During Teaching

(The Three Eyes)

Participant Checklist

- Foundation — Is clarity sufficient?
- Strengthener — Are strategies helping?
- Engagement — Are learners with me?

Facilitation Notes

Key point:

Expert teaching is defined by **adaptive movement** across levels.

Trainer analogy:

- “Like driving, mastery is knowing *when* to shift.”

Trainer coaching cue:

- Ask participants to identify one moment they should have shifted levels.

Section 8: Reflection After Teaching

(Skill Development)

Participant Checklist

- What worked?
- Where did learners struggle?
- What one change will I make next time?

Facilitation Notes

Key point:

Reflection should lead to **one actionable adjustment**, not many.

Trainer prompt:

- “What is the smallest change that could make the biggest difference?”
-

Section 9: Building Automaticity Over Time

Participant Checklist

- One focus area at a time
- Repeated practice
- Patience with development

Facilitation Notes

Key point:

Automaticity develops through repetition, not insight alone.

Trainer reminder:

- Normalise slow progress; discourage “quick fixes”.

Suggested Workshop Flow (90 Minutes)

1. Orientation & framing – 10 min
2. Foundation Level focus – 20 min
3. Strengtheners & engagement – 20 min
4. Metacognitive monitoring – 15 min
5. Reflection & action planning – 15 min
6. Close & next steps – 10 min

Final Trainer Message

HOST is not about teaching harder — it is about teaching more deliberately.

- Clarity first.
- Evidence second.
- Engagement continuously.
- Reflection always.

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Appendix B: High Impact, Evidence Based Strategies

Below is a summary of the High Impact teaching strategies identified by Hattie, Marzano and the Educational Endowment Foundation (EEF):

John Hattie	Robert Marzano	EEF Educational Endowment
1. Direct Instruction	1. Identifying similarities and differences	1. Feedback
2. Notetaking and observations	2. Summarizing and note-taking	2. One-to-one tutoring
3. Spaced practice	3. Reinforcing effort and providing praise	3. Early years intervention
4. Feedback	4. Homework and practice	4. Homework (secondary)
5. Teaching metacognitive skills	5. Non-linguistic representations	5. Collaborative learning
6. Teaching problem-solving skills	6. Cooperative learning	6. Oral language intervention
7. Reciprocal teaching	7. Setting objectives and providing feedback	7. Phonics
8. Mastery learning	8. Generating and testing hypotheses	8. Mastery learning
9. Concept mapping	9. Questions, cues, and advance organisers	9. Small group tuition
10. Worked examples	---	10. Small-group tuition

Shared High-Impact Practices

Eight Shared High-Impact Practices (Hattie & Marzano)

1. Establish clear, explicit lesson objectives.
2. Use methods and materials that make explanations accessible.
3. Engage students actively with content to deepen understanding.
4. Implement continuous feedback—returning evaluations and clarifying understanding.
5. Revisit and re-present information to strengthen retention.
6. Connect theory to practice through real-world application.
7. Encourage collaboration and peer learning.
8. Build students' confidence and self-efficacy.

High Impact Teaching Strategies (HITS)

The following are the **High Impact Teaching Strategies (HITS)** - ten evidence-based strategies endorsed by the Department of Education and Training in Victoria, Australia (2017) - further reaffirm these research findings.

These High Impact Teaching Strategies are:

- Setting Goals
- Structuring Lessons
- Explicit Teaching
- Worked Examples
- Collaborative Learning
- Multiple Exposures
- Questioning
- Feedback
- Metacognitive Strategies
- Differentiated Teaching

Appendix C: Cognitive Lens, Chunking, and Sequencing

The Cognitive Lens and the Cognitive Zoom Process

Elaboration Theory provides guidance on how teachers can structure lessons from simple to complex concepts using a **cognitive lens**. Instruction begins with a **wide-angle view**, which helps identify the core structure of the topic. This initial perspective establishes context and meaning.

The lens then enters a **magnification process**, in which specific elements are expanded and explored in greater detail. Throughout this process, learners are encouraged to observe the relationship between the overarching conceptual structure and its detailed components.

This instructional strategy is referred to as the **Cognitive Zoom process**, which involves progressively deeper levels of elaboration while maintaining alignment with the overall conceptual framework.

The Cognitive Zoom Stages

- **Wide-Angle View (Epitome)**
Instruction begins with a high-level overview of fundamental concepts. This *epitome* establishes a mental schema that provides context for all subsequent details.
- **Zoom-In (Elaboration)**
Learners focus on specific components, adding layers of complexity and exploring relationships between details and the broader conceptual structure.
- **Zoom-Out (Synthesis)**
Learners periodically return to the overview to integrate new details into the whole. This recontextualization strengthens cognitive organisation and supports durable learning.

Organising Educational Materials

Effective instructional design requires careful decisions about how educational materials are arranged and grouped. Common organising principles include sequencing content:

- from **simple to complex**,
- in **chronological or historical order**,
- according to learners' **prior knowledge or mastery levels**; and
- in a **progressive sequence** where mastery of prerequisite concepts is required before advancing.

Chunking

Chunking refers to dividing information into smaller, manageable units. In educational contexts, chunking helps learners process new information more effectively by reducing demands on **working memory**, which has a limited capacity.

Working memory capacity varies depending on:

- the type and complexity of information, and
- individual learner characteristics.

When working memory is overloaded, information is likely to be lost before it can be consolidated into long-term memory. This presents a central challenge for instructional design.

As a result, complex content should be **broken into smaller, coherent units**, allowing learners to process, integrate, and retain information more effectively.

Sequencing

Sequencing refers to arranging instructional content in a logical and purposeful order. Effective sequencing helps learners recognise relationships between ideas, build on prior knowledge, and progress toward learning objectives without cognitive overload.

Common sequencing principles include moving:

- from **simple to complex**,
- from **known to unknown**,
- from **concrete to abstract**,
- from **general to specific**; and
- through **chronological or procedural sequences**.

Effective teaching requires skilful use of sequencing to support understanding while managing cognitive load. Even well-structured instruction, however, requires continuous monitoring and adjustment—an issue addressed in the following principle.

Appendix E: Teaching Strategies and Effect Sizes of Widely Recognised HITS

Below is a consolidated list of **approximate effect sizes (Cohen's d)** for selected teaching strategies. These values are drawn primarily from **John Hattie's *Visible Learning* meta-analyses** (across multiple editions) and from closely aligned research syntheses, including the work of **Robert Marzano** and the **Educational Endowment Foundation (EEF)** where concepts and classifications overlap.

Important Notes for Academic Accuracy

- Effect sizes represent **average impacts across many studies**, not guarantees of effectiveness in every context.
- Strategy labels may vary or overlap across sources (for example, *explicit teaching* and *direct instruction*).
- The values presented are **widely cited approximate benchmarks**, intended to support comparison, planning, and professional discussion—not precise statistical claims.

Effect sizes in educational research—most notably popularised through Hattie's *Visible Learning* and the work of Marzano—provide a **standardised measure of the relative impact** of instructional strategies on student achievement.

Hattie commonly refers to an effect size of **$d = 0.40$** as the “**hinge point**,” representing the **average growth a student makes in one year of schooling**. Strategies with effect sizes above this threshold are often described as falling within the **Zone of Desired Effects**, indicating impacts greater than typical annual progress.

Effect Sizes for Widely Used Teaching Strategies

The table below presents **approximate effect sizes (Cohen's d)** for a range of commonly cited teaching strategies. These values are drawn from **widely referenced meta-analyses and research syntheses**, most notably the work of **John Hattie** and **Robert Marzano**.

Effect sizes should be interpreted as **indicative benchmarks**, not fixed guarantees of impact. Reported values may vary depending on the studies included, how strategies are defined, and the educational context in which they are applied.

Interpreting Impact Categories

- **Extraordinary Impact:** Well above typical annual progress
- **High Impact:** Clearly above the average yearly growth benchmark
- **Above Average:** Slightly above expected annual progress
- **Average:** Approximately equivalent to one year's growth ($\approx d = 0.40$)
- **Small Impact:** Below average, but not ineffective or inappropriate

Teaching Strategy	Effect Size (d)	Impact Category
1. Collaborative Learning	0.59	High Impact
2. Concept Mapping	0.64	High Impact
3. Cooperative Learning	0.40	Average
4. Differentiated Teaching	0.27	Small Impact
5. Direct Instruction	0.59	High Impact
6. Early Years Intervention	0.29	Small Impact
7. Feedback	0.73	High Impact
8. Homework and Practice	0.29	Small Impact
9. Identifying Similarities and Differences	1.32	Extraordinary
10. Mastery Learning	0.57	High Impact
11. Metacognitive Strategies / Teaching Skills	0.60	High Impact
12. Non-Linguistic Representations	0.75	High Impact
13. One-to-one Tutoring	1.00	Extraordinary
14. Oral Language Intervention	0.62	High Impact
15. Questions, Cues, and Advance Organisers	0.41	Above Average
16. Reciprocal Teaching	0.74	High Impact
17. Reinforcing Effort and Providing Praise	0.80	High Impact
18. Setting Objectives	0.56	High Impact
19. Small Group Tuition	0.47	Above Average
20. Spaced Practice / Multiple Exposures	0.65	High Impact
21. Structuring Lessons	0.50	High Impact
22. Summarising and Note Taking	1.00	Extraordinary
23. Teaching Problem Solving Skills	0.61	High Impact
24. Worked Examples	0.37	Small Impact

It is important to know that a **lower effect size does not necessarily mean a strategy is "bad."** For example:

- **Differentiated Teaching (0.27):** While the effect size is lower, it is often because it is extremely difficult to implement well across a whole class.

- **Worked Examples (0.37):** This is essential for novices (Foundations level) but has a lower effect size for experts who no longer need the scaffold.
- **Identifying Similarities and Differences (1.32):** This represents the "gold standard" of cognitive processing because it forces students to organize and categorize information deeply.

Key Interpretive Insights

High-Impact ($d \geq 0.60$)

- Feedback
- Reciprocal teaching
- Oral language intervention
- Metacognitive strategies
- Spaced practice
- Generating/testing hypotheses

These should be **instructional priorities**.

Moderate but Powerful (≈ 0.50 – 0.59)

- Direct / explicit instruction
- Cooperative learning
- Mastery learning
- Worked examples
- Phonics
- Structuring lessons

Most effective when **well-implemented and combined**.

Lower Impact (≤ 0.40)

- Differentiation (as commonly practised)
- Homework (especially in primary)
- Praise alone
- Multiple exposure without strategy

Not ineffective — but **implementation quality matters more than presence**.

About the HOST™ Series

The **HOST series** is a collection of professional and academic resources built around the **Highly Optimised Structured Teaching (HOST)** framework.

HOST is a research-informed, systems-based approach to teaching that treats instruction as a dynamic, learnable professional skill rather than a collection of isolated techniques. Drawing on evidence from the learning sciences, instructional design, and large-scale educational research, the HOST framework provides educators with a clear structure for designing, delivering, and regulating teaching in ways that improve both effectiveness and efficiency.

The series is designed to support educators across diverse learning contexts, including **K–12 education, higher education, and professional and vocational learning**. While teaching environments differ, the underlying instructional challenges—clarity, structure, engagement, cognitive load, and adaptive decision-making—remain consistent. The HOST series addresses these challenges through a shared conceptual language and a coherent instructional framework that can be flexibly adapted to different settings.

The HOST Series Titles

HOST: The Core Framework

This foundational volume introduces the conceptual architecture of Highly Optimised Structured Teaching. It presents the principles, structures, and research foundations that underpin the HOST model, including the 3-Levels Teaching Structure and the role of metacognitive regulation in effective instruction.

This book provides the shared language and conceptual foundation for all other titles in the series.

HOST: The Teaching Playbook

Designed for **K–12 teachers**, this practical guide translates the HOST framework into classroom-ready application. It focuses on lesson design, instructional routines, pacing, and decision-making within school contexts, supporting teachers in applying HOST deliberately in everyday practice.

HOST: The University Teaching Edition

This edition adapts the HOST framework for **higher education** contexts. It addresses the distinctive features of university teaching, including lectures, seminars, tutorials, laboratories, and academic autonomy. The book supports university educators in applying HOST within disciplinary teaching, large-group instruction, and research-led learning environments.

HOST: The Teacher Workbook

The workbook is a **cross-context companion** designed to support skill development, reflection, and practice for all educators using HOST. It provides structured activities, prompts, and tools that help educators internalise the framework, practise core instructional moves, and develop fluency and automaticity over time.

The workbook complements both the Core Framework and the context-specific application titles.

A Coherent Professional Learning System

Together, the HOST series forms a coherent professional learning system:

- **The Core Framework** establishes the conceptual foundation.
- **Application titles** translate the framework into specific educational contexts.
- **The Workbook** supports sustained skill development and reflective practice across all contexts.

The HOST series is not intended to prescribe a single teaching method or style. Instead, it provides educators with a structured way of thinking about instruction—supporting deliberate, evidence-informed, and adaptive teaching practice across diverse learning environments.

