LEARNING DESIGN TOOLKIT (M.ED. IN IDET)

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Learning Design Toolkit

Learning Theories

Module 1

Behaviorism

Behavioral theory focuses on the way humans learn through interaction with their environment. Behaviorism solidifies the fact that behaviors are learned through conditioning. Skinner mentioned that conditioning is a procedure that utilizes punishment and reinforcement. The behavioral model provides an organized approach to teaching, allowing educators to set clear expectations and provide consistent routines. Behavioral theorists believe there is a certain way to do tasks to cultivate a desired outcome, and the teacher determines what that looks like (Samoila et al., 2023).

Example

This theory can be applied to student behavior plans. Many students thrive with positive They can better interact in school when their positive behaviors are rewarded (Bright, 2023). For example, if a young student struggles with speaking out inappropriately in class, they may have a positive behavior plan to encourage them when they appropriately follow classroom expectations. The plan could state that when the student does the desired task of raising their hand before asking questions, the teacher will thank them for raising their hand and waiting to be called on before speaking.

Reference(s)

Bright, K. (2023, September 21). *Behaviorism in education: How to foster learning environments.* LearnLever. https://learnlever.com/behaviorism-in-education/

Samoila, C., Ursutiu, D., & Munteanu, F. (2023). The remote experiment in the light of the learning theories. *International Journal of Online & Biomedical Engineering*, *19*(14), 26–44. https://doi.org/10.3991/ijoe.v19i14.43163

Cognitivism

Cognitivism is a learning theory that emphasizes the internal processes of the mind, such as thinking, memory, and problem-solving, as central to how individuals acquire and retain knowledge. Unlike behaviorism, which focuses on observable actions, cognitivism views learners as active participants who interpret information, organize it into meaningful structures, and retrieve it when needed. Instructional strategies such as scaffolding, chunking, and the use of visual organizers support these mental processes by helping learners connect new information to prior knowledge and apply it in practical contexts. In this way, learning is seen not simply as a response to stimuli but as the development of cognitive structures that enable understanding and transfer of knowledge (Schunk, 2020; Simply Psychology, 2023).

Example

An example of cognitivism in practice can be seen when a coach works with a new preschool teacher on implementing a daily routine. Rather than simply providing directions, the coach helps the teacher break the routine into smaller, manageable steps (chunking), uses a visual schedule to represent the sequence of activities (organizing information), and engages the teacher in role-play to practice recalling and applying the routine (retrieval practice). This approach reflects cognitivism because it supports the teacher's mental processes of encoding, storing, and retrieving information, which makes the learning more meaningful and transferable to real classroom practice (Schunk, 2020; Simply Psychology, 2023).

Reference(s)

Schunk, D. H. (2020). *Learning theories: An educational perspective* (8th ed.). Pearson.

Simply Psychology. (2023). *Cognitivism in education*. https://www.simplypsychology.org/cognitivism.html

Constructivism

Constructivism is a learning theory that emphasizes the active role of learners in constructing their own understanding and knowledge through experiences and reflection. Instead of passively receiving information, learners build meaning by connecting new knowledge to prior experiences and engaging in authentic, real-world tasks (Schunk, 2020; Simply Psychology, 2023). Teachers or facilitators act as guides who provide scaffolding, encourage inquiry, and create opportunities for collaboration. Constructivism highlights that learning is most effective when it is learner-centered, social, and situated in meaningful contexts.

Example

In a preschool classroom, a teacher introduces a gardening project where children plant seeds and observe them over time. Rather than directly telling the children what will happen, the teacher encourages them to make predictions, record their observations, and discuss findings with peers. Through this process, children draw on prior knowledge, test their ideas, and refine their understanding of plant growth. This example reflects constructivism because the learners are actively engaged in building meaning through authentic, hands-on experiences that connect new concepts to what they already know (Simply Psychology, 2023).

Reference(s)

Schunk, D. H. (2020). *Learning theories: An educational perspective* (8th ed.). Pearson.

Simply Psychology. (2023). *Constructivism in education*. https://www.simplypsychology.org/constructivism.html

Connectivism

Connectivism is a learning theory developed by George Siemens and Stephen Downes that emphasizes how learning occurs in a networked, digital age. Connectivism suggests that knowledge is distributed across networks of people, resources, and organizations, rather than residing solely within individuals. Learning occurs when learners make connections between specialized nodes of information, develop the ability to navigate networks, and apply insights from diverse sources. Technology plays a critical role in supporting these connections, enabling learners to access, share, and update information continuously. Social interaction, collaboration, and the diversity of perspectives are essential for constructing meaningful knowledge in this framework (Siemens, 2005; Downes, 2012; Bell, 2011).

Example

A professional learning community (PLC) of teachers is working to improve literacy instruction across multiple schools. Instead of relying solely on one expert or textbook, teachers connect through online platforms, discussion forums, and shared digital resources. They share strategies, analyze student data collaboratively, and learn from one another's experiences. A teacher might discover a new reading intervention through a blog post, discuss its potential with peers in a virtual meeting, and apply it in the classroom while continuously gathering feedback from the network. This scenario reflects connectivism because learning occurs through interactions within a network, knowledge is distributed across digital and human nodes, and the teacher actively navigates information sources to build understanding (Siemens, 2005; Downes, 2012).

Reference(s)

Bell, F. (2011). *Connectivism: Its place in theory-informed research and innovation in technology-enabled learning*. The International Review of Research in Open and Distributed Learning, 12(3), 98–118. https://doi.org/10.19173/irrodl.v12i3.902

Downes, S. (2012). *Connectivism and connective knowledge*. Stephen Downes. http://www.downes.ca/files/books/Connective_Knowledge-19May2012.pdf

Siemens, G. (2005). *Connectivism: A learning theory for the digital age*. International Journal of Instructional Technology and Distance Learning, 2(1). http://www.itdl.org/Journal/Jan_05/article01.htm

Pedagogy vs. Andragogy

TPACK | Technological Pedagogical Content Knowledge

TPACK is a framework that describes the knowledge teachers need to effectively integrate technology into their instruction. Developed by Mishra and Koehler (2006), it builds on Shulman's idea of Pedagogical Content Knowledge (PCK) and highlights that effective teaching with technology requires understanding the interplay between three core components: **Content Knowledge (CK)**, **Pedagogical Knowledge (PK)**, and **Technological Knowledge (TK)**. Successful integration occurs at the intersection of these areas, where teachers can design meaningful, technology-enhanced learning experiences. For example, Pedagogical Content Knowledge (PCK) refers to knowing how to teach specific content effectively; Technological Content Knowledge (TCK) involves understanding how technology can represent and enhance content; and Technological Pedagogical Knowledge (TPK) focuses on how technology can support teaching methods regardless of content.

Key Principles of TPACK

1. Teaching is most effective when content, pedagogy, and technology are integrated intentionally.
2. Technology should support pedagogy and content, not drive instruction.
3. Teachers need flexible strategies to adapt technology to various learning contexts.
4. Continuous reflection and professional learning are essential for refining TPACK knowledge.

Example

A middle school science teacher is planning a lesson on the water cycle. For content knowledge (CK), the teacher ensures mastery of the water cycle concepts. For pedagogical knowledge (PK), the teacher decides to use inquiry-based learning to encourage student exploration. For technological knowledge (TK), the teacher selects an interactive simulation that allows students to manipulate variables and visualize the water cycle in real time. By combining these elements, the teacher creates a lesson that is engaging, conceptually accurate, and supported by technology, reflecting the TPACK framework. Students explore the water cycle, collaborate, and apply their learning, demonstrating the practical integration of content, pedagogy, and technology (Mishra & Koehler, 2006; Koehler & Mishra, 2009).

Reference(s)

Koehler, M. J., & Mishra, P. (2009). What is technological pedagogical content knowledge (TPACK)? *Contemporary Issues in Technology and Teacher Education, 9*(1), 60–70. https://citejournal.org/volume-9/issue-1-09/general/what-is-technological-pedagogical-content-knowledge-tpack/

Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for teacher knowledge. *Teachers College Record, 108*(6), 1017–1054. https://doi.org/10.1111/j.1467-9620.2006.00684.x

TAWOK | Technology Andragogy Work Content Knowledge

TAWOK is a framework designed for vocational and technical education that extends the TPACK model by incorporating adult learning principles (andragogy) and workplace-relevant content. It emphasizes that effective learning occurs when technology, andragogy, work-specific skills, and content knowledge are integrated. Developed to guide Technical and Vocational Education and Training (TVET), the framework helps educators design learning experiences that prepare learners for real-world applications by aligning instruction with adult learning strategies and workplace requirements (Arifin, Nurtanto, Priatna, Kholifah, & Fawaid, 2020; Arifin, Nurtanto, Warju, & Kholifah, 2020).

Example

In a vocational training program for automotive technicians, the instructor is designing a course on engine diagnostics. To apply the TAWOK framework, the instructor considers:

- **Technology Knowledge (TK):** Using diagnostic software and virtual simulation tools to replicate engine problems.
- **Andragogy Knowledge (AK):** Applying adult learning principles by allowing learners to self-direct, experiment, and solve real-world problems.
- **Work Knowledge (WK):** Understanding the actual tasks and skills required in an automotive repair shop.
- **Content Knowledge (CK):** Mastery of engine systems, troubleshooting methods, and repair procedures.

By integrating these components, students simulate engine diagnostics using software, collaborate on problem-solving tasks, and connect the content directly to workplace practices. This approach reflects TAWOK because it merges technology, adult learning strategies, work-relevant skills, and content knowledge into a coherent learning environment, preparing learners for practical application in the field (Arifin, Nurtanto, Priatna, Kholifah, & Fawaid, 2020; Arifin, Nurtanto, Warju, & Kholifah, 2020).

Reference(s)

Arifin, Z., Nurtanto, M., Priatna, A., Kholifah, N., & Fawaid, M. (2020). Technology andragogy work content knowledge model as a new framework in vocational education: Revised technology pedagogy content knowledge model. *TEM Journal, 9*(2), 786–791. https://www.temjournal.com/content/92/TEMJournalMay2020_786_791.html

Arifin, Z., Nurtanto, M., Warju, W., & Kholifah, N. (2020). The technology andragogy work content knowledge model framework on technical and vocational education and training. *International Journal of Evaluation and Research in Education (IJERE), 9*(3), 697–703. https://doi.org/10.11591/ijere.v9i3.20561

Learning Process Models

Kolb's Experiential Learning Theory

Kolb's Experiential Learning Theory posits that learning is a process whereby knowledge is created through the transformation of experience. According to Kolb (1984), learning is cyclical and involves four stages: **Concrete Experience (CE)**, **Reflective Observation (RO)**, **Abstract Conceptualization (AC)**, and **Active Experimentation (AE)**. Learners ideally move through all stages to fully understand and apply new knowledge. ELT emphasizes that learning is both a cognitive and experiential process, allowing learners to reflect on experiences, conceptualize ideas, and test them in real-world contexts. The theory also identifies four learning styles—**Diverging, Assimilating, Converging, and Accommodating**—which reflect individual preferences in processing experiences (Kolb, 1984; McLeod, 2017).

Example

A nursing instructor is teaching students how to insert intravenous (IV) lines. To apply Kolb's Experiential Learning Theory:

- **Concrete Experience (CE):** Students practice inserting IVs on simulation arms under supervision.
- **Reflective Observation (RO):** Students reflect on what worked well, what challenges they faced, and how the procedure felt.
- **Abstract Conceptualization (AC):** The instructor guides students to identify principles and best practices for safe IV insertion based on their reflections and clinical guidelines.
- **Active Experimentation (AE):** Students apply these principles in subsequent simulations or real clinical settings, testing and refining their skills.

This approach demonstrates how Kolb's ELT provides a structured cycle for learning from direct experience, fostering both technical skills and critical thinking (Kolb, 1984; McLeod, 2017).

Reference(s)

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development*. Prentice Hall.

McLeod, S. (2017). Kolb's learning styles and experiential learning cycle. *Simply Psychology*. https://www.simplypsychology.org/learning-kolb.html

Gagne's Nine Events of Instruction

Gagné's Nine Events of Instruction is a systematic framework for designing effective teaching and learning experiences. Developed by Robert Gagné, the model identifies nine sequential steps that guide instruction, aligning learning activities with how the brain processes and retains information. The framework is grounded in cognitive psychology and emphasizes that learners benefit from structured, goal-oriented instruction that moves from gaining attention to enhancing retention and transfer (Gagné, Wager, Golas, & Keller, 2005). By following these steps, instructors can ensure that learning objectives are achieved efficiently and effectively.

The Nine Events of Instruction:

1. **Gain Attention:** Capture the learner's interest using stimuli, questions, or scenarios.
2. **Inform Learners of Objectives:** Clearly state what learners will achieve.
3. **Stimulate Recall of Prior Learning:** Connect new information to existing knowledge.
4. **Present the Content:** Deliver material in a structured, meaningful way.
5. **Provide Learning Guidance:** Offer examples, analogies, or strategies to facilitate understanding.
6. **Elicit Performance (Practice):** Allow learners to actively engage with the content.
7. **Provide Feedback:** Give immediate and specific feedback on performance.
8. **Assess Performance:** Test learners' understanding and mastery of objectives.
9. **Enhance Retention and Transfer:** Encourage application of knowledge in new contexts.

Example

A high school chemistry teacher is designing a lesson on chemical reactions using Gagné's Nine Events of Instruction:

1. **Gain Attention:** The teacher shows a short video of a dramatic chemical reaction to spark curiosity.
2. **Inform Learners of Objectives:** Students are told they will be able to identify types of chemical reactions and predict the products.
3. **Stimulate Recall of Prior Learning:** The teacher reviews prior knowledge about atoms, molecules, and bonding.

4. **Present the Content:** New concepts, such as synthesis and decomposition reactions, are explained through a structured lecture and visual diagrams.
5. **Provide Learning Guidance:** The teacher demonstrates step-by-step examples and shares problem-solving strategies.
6. **Elicit Performance (Practice):** Students complete guided practice problems in pairs.
7. **Provide Feedback:** The teacher provides immediate feedback on their answers, clarifying misconceptions.
8. **Assess Performance:** Students complete a short quiz to demonstrate mastery of the objectives.
9. **Enhance Retention and Transfer:** Students design a simple experiment at home to observe a chemical reaction, applying what they learned in a new context.

This scenario illustrates how Gagné's Nine Events of Instruction provides a structured sequence for teaching that maximizes engagement, comprehension, and application of knowledge (Gagné, Wager, Golas, & Keller, 2005; InstructionalDesign.org, n.d.).

Reference(s)

Gagné, R. M., Wager, W. W., Golas, K. C., & Keller, J. M. (2005). *Principles of instructional design* (5th ed.). Wadsworth/Thomson Learning.

InstructionalDesign.org. (n.d.). Gagné's Nine Events of Instruction. https://www.instructionaldesign.org/theories/gagne-nine-events/

Continuous Improvement

PDSA Cycle | Plan Do Study Act Cycle

The PDSA Cycle, also known as the Plan-Do-Study-Act cycle, is a systematic, iterative approach for continuous improvement in education, healthcare, and organizational processes. Developed from the work of W. Edwards Deming, the cycle emphasizes small, incremental changes and ongoing evaluation to enhance outcomes. The model consists of four stages: **Plan**, where objectives and strategies are developed; **Do**, where the plan is implemented on a small scale; **Study**, where data is collected and analyzed to evaluate effectiveness; and **Act**, where adjustments are made and successful changes are standardized or scaled up. The PDSA cycle encourages a culture of continuous learning and reflection, promoting evidence-based decision-making and adaptive problem-solving (Taylor et al., 2014; Institute for Healthcare Improvement, n.d.).

Stages of the PDSA Cycle:

1. **Plan:** Identify a goal or problem, develop a plan with measurable objectives, and determine how success will be evaluated.

2. **Do:** Implement the plan on a small scale to test its effectiveness.
3. **Study:** Analyze data collected during implementation, compare results with expectations, and reflect on learnings.
4. **Act:** Based on findings, refine the plan, adopt successful changes, or repeat the cycle with new adjustments.

Example

A school principal wants to improve student engagement in virtual classrooms. Using the PDSA cycle:

- **Plan:** The principal and teachers set a goal to increase student participation by 20% over the next month, planning weekly interactive polls and breakout discussions.
- **Do:** The strategies are implemented for a small group of classes over two weeks.
- **Study:** Teachers analyze participation data and student feedback to evaluate the effectiveness of the strategies. Breakout discussions show significant improvement in engagement, while polls show moderate results.
- **Act:** Breakout discussions are expanded to all classes, polls are redesigned for greater interactivity, and the cycle is repeated to further refine strategies.

This scenario illustrates how the PDSA cycle fosters continuous improvement by testing small changes, analyzing results, and making informed adjustments to enhance learning outcomes (Taylor et al., 2014; Institute for Healthcare Improvement, n.d.).

Reference(s)

Institute for Healthcare Improvement. (n.d.). *Science of improvement: Testing changes*. http://www.ihi.org/resources/Pages/HowtoImprove/ScienceofImprovementTestingChanges.aspx

Taylor, M. J., McNicholas, C., Nicolay, C., Darzi, A., Bell, D., & Reed, J. E. (2014). Systematic review of the application of the plan–do–study–act method to improve quality in healthcare. *BMJ Quality & Safety, 23*(4), 290–298. https://doi.org/10.1136/bmjqs-2013-002862

Design Models

Module 2

Instructional Design (ID) vs. Learning Experience Design (LXD)

Instructional Design (ID) and Learning Experience Design (LXD) define an approach to creating a learning experience. Design includes understanding the audience's needs and goals to create learning activities and effective content delivery. The two methods are complementary and do not have to exist exclusively. ID emphasizes learning and supports a step-by-step process for developing instruction. Typically, instruction is driven by learning objectives, direct instruction, and uses traditional assessments to evaluate learning. LXD has an integrated approach with a heavier emphasis on emotional, social, and cognitive aspects of learning. In LXD, the focus is on integrating hands-on and collaborative instruction that often utilizes technology. According to Floor (2023), “A great way to explain the general difference between LXD and ID is by comparing a scientist to an artist” (para. 2). Like a scientist, the instructional designer follows a methodical process with clear objectives and measurable results. Meanwhile, the learning experience designer, like an artist, creates engaging, emotionally rich experiences that connect with learners on multiple levels beyond just transferring information.

Example

An example demonstrating the difference between ID and LXD can be illustrated in a professional development session with school staff. The staff will receive training on the new Assessment Feature in the school’s LMS.

Instructional Design (ID)	Learning Experience Design (LXD)
The staff is presented with the learning objective to learn the new online feature. Staff are required to use online assessments to collect data. ↓ The instructor demonstrates the skills and steps to complete the goals. ↓ The staff members try the step-by-step implementation as guided by the instructor. ↓ Staff have begun using the new online feature in their classrooms. Instructors and administration evaluate and hold staff accountable for carrying out the directive.	The staff is presented with a problem that needs to be solved. The administration needs a way to collect data as students complete formative work. The staff are given the new online assessment feature on the LMS as a possible option. ↓ The staff begins to explore the LMS and its features to experiment with how it works and what it can do. As they explore, they create lists of pros and cons. The staff notes items for which they need further training or exploration. ↓ Through collaboration, the staff determines that the online LMS is the best way to collect

	data. The staff begins using the assessment feature to collect data. ↓ As the data are collected, the administration and staff evaluate the effectiveness and adjust accordingly.

Reference(s)

Floor, N. (2023, November 9). *Learning experience design vs instructional design.* Learning Experience Design. https://lxd.org/news/learning-experience-design-vs-instructional-design/

First Principles of Instruction

Merrill's Principles of Instruction

Merrill's Principles of Instruction focus on learning that is active, relevant, and problem-centered. According to Merrill (2002), effective instruction happens when:

1. **Problem-Centered** – Learners engage with real-world tasks from the beginning rather than only learning theory.
2. **Activation** – Learners connect new knowledge to prior experiences.
3. **Demonstration** – Concepts and skills are clearly modeled.
4. **Application** – Learners practice with feedback and support.
5. **Integration** – Learners reflect, share, and transfer their learning into new contexts.

This approach emphasizes that learning is more effective when it's meaningful and hands-on, rather than passive.

Example

As an instructional coach, I see Merrill's model come to life when I support teachers introducing Mighty Minutes in their classrooms. Instead of just telling teachers what Mighty Minutes are, I:

- **Problem-Centered**: Start with the challenge— "How do we keep toddlers engaged during transitions?"
- **Activation**: Ask teachers to recall what strategies they have already tried.
- **Demonstration**: Model a Mighty Minute with them, showing how simple and playful it can be.
- **Application**: Have teachers practice with their own group of children while I provide feedback.
- **Integration**: Encourage them to share their success in our coaching cohort and reflect on how it helped transitions feel smoother.

This process allows teachers not only to learn about Mighty Minutes but to live them out in their classrooms.

Reference(s)

Merrill, M. D. (2002). *First principles of instruction.* Educational Technology Research and Development, 50(3), 43–59. https://doi.org/10.1007/BF02505024

Merrill's Four-Phase Cycle of Instruction

Merrill's Four-Phase Cycle of Instruction emphasizes that learning is most effective when it follows a structured cycle. The phases build on each other to ensure learners are not only introduced to new knowledge but also practice and transfer it into their own contexts.

1. **Activation** – Learners recall and connect to prior knowledge and experiences.
2. **Demonstration** – The teacher or coach models the new knowledge, skills, or strategies.
3. **Application** – Learners actively practice while receiving support and feedback.
4. **Integration** – Learners reflect, share, and apply their new learning in authentic ways.

This cycle ensures that instruction is not just about hearing information but about experiencing and owning it.

Example

When I am coaching teachers on how to support toddlers during clean-up time, I might use Merrill's cycle:

- **Activation**: Ask teachers what routines or strategies they already use during transitions.
- **Demonstration**: Show a video clip or model how singing a simple Mighty Minute can signal clean-up.
- **Application**: Teachers try it with their class while I observe and provide encouragement.
- **Integration**: Teachers share in our next cohort meeting how the strategy worked, reflect on challenges, and consider other routines where songs could support transitions.

By following this cycle, teachers move from awareness to ownership of the strategy.

Reference(s)

Merrill, M. D. (2002). *First principles of instruction.* Educational Technology Research and Development, 50(3), 43–59. https://doi.org/10.1007/BF02505024

Project Management Models

Agile

Agile is a flexible, iterative approach to instructional design that emphasizes collaboration, adaptability, and continuous improvement. Instead of following a rigid, step-by-step plan (like

ADDIE), Agile focuses on creating smaller cycles of design, implementation, and feedback. This enables coaches, teachers, and leaders to test strategies quickly, adjust, and respond to learners' needs in real-time (Educause, 2017).

Example

As an instructional coach, I might use Agile when supporting teachers with implementing Mighty Minutes. Instead of designing a complete year-long plan at once, I would:

1. Begin with a short cycle, introducing two or three Mighty Minutes that align with their current study.
2. Observe the classroom and gather teacher reflections on how children are engaged.
3. Meet with the teacher to discuss what worked, what did not, and brainstorm tweaks.
4. Adjust the next round of Mighty Minutes based on this feedback.

This Agile cycle allows us to respond to children's needs and teachers' comfort levels, rather than sticking to a rigid script. Over time, the teacher builds confidence, and the strategies become embedded in daily practice.

Reference(s)

Educause. (2017). *7 Things You Should Know About Agile Learning Design.* EDUCAUSE. https://library.educause.edu/resources/2017/1/7-things-you-should-know-about-agile-learning-design

SAM | Successive Approximation Model

The Successive Approximation Model (SAM) is an instructional design approach that emphasizes rapid design, prototyping, and constant feedback (Allen Interactions, 2012). Instead of developing an entire program before testing it, SAM encourages starting small, creating quick drafts, and refining them based on real-world input. This cycle repeats until the product is effective and practical.

Key features of SAM include:

- **Preparation Phase** – gather information, identify needs, and brainstorm solutions.
- **Iterative Design Phase** – build quick prototypes, test them, and adjust based on feedback.
- **Iterative Development Phase** – expand prototypes into more polished versions while continuing to refine.

The SAMR Model—Substitution, Augmentation, Modification, and Redefinition— provides a framework for thinking about how technology can enhance teaching and learning. At the most basic level, Substitution replaces a traditional tool with a digital one (for example, typing instead of handwriting). Augmentation adds a slight improvement, such as using spell-check or digital comments. Modification takes learning a step further by transforming the task, such as collaborating in real-time on a shared document. Finally, Redefinition creates new learning opportunities that were previously impossible, such as students producing multimedia projects or connecting with peers worldwide (Puentedura, 2013).

Example

As an instructional coach, I might use SAM when supporting a teacher with improving small-group instruction. Instead of redesigning the entire small group structure all at once, we would:

1. **Preparation** – talk through the teacher's goals and identify one challenge (e.g., keeping children engaged while waiting for their turn).
2. **Iterative Design** – co-create a quick strategy, such as adding a hands-on activity basket, and try it out right away.
3. **Iterative Development** – reflect together, adjust the strategy, and build a stronger plan with more activities as we refine what works.

This approach allows the teacher to see progress quickly, feel supported through small changes, and avoid being overwhelmed by a large-scale redesign.

Reference(s)

Allen Interactions. (2012). *Leaving ADDIE for SAM: An agile model for developing the best learning experiences.* American Society for Training and Development.

Puentedura, R. R. (2013). *SAMR: A contextualized introduction.* Retrieved from http://www.hippasus.com/rrpweblog

SAMR | Substitution, Augmentation, Modification, and Redefinition

The SAMR model (Substitution, Augmentation, Modification, Redefinition) provides a framework for integrating technology in ways that move beyond simply replacing traditional tools, toward transforming learning experiences (Puentedura, 2010).

At the Substitution level, technology acts as a direct replacement with no functional change, such as typing worksheets into Google Docs instead of using paper (Puentedura, 2010). Augmentation still substitutes, but it also adds functional improvements, such as students collaborating on documents and leaving feedback in real-time (Puentedura, 2010). Modification allows significant redesigning tasks; for example, students could create a multimedia presentation combining audio, video, and images to explain a concept (Puentedura, 2010). Finally, Redefinition enables learning that was previously impossible, such as global collaborations where students co-create projects using digital tools and virtual communication (Puentedura, 2010).

Using SAMR in coaching helps teachers reflect on their current use of technology and plan ways to enhance engagement, collaboration, and creativity in their classrooms.

Example

As an instructional coach, I might use SAM when supporting a teacher with improving small-group instruction. Instead of redesigning the entire small group structure all at once, we would:

4. **Preparation** – talk through the teacher's goals and identify one challenge (e.g., keeping children engaged while waiting for their turn).
5. **Iterative Design** – co-create a quick strategy, such as adding a hands-on activity basket, and try it out right away.
6. **Iterative Development** – reflect together, adjust the strategy, and build a stronger plan with more activities as we refine what works.

This approach allows the teacher to see progress quickly, feel supported through small changes, and avoid being overwhelmed by a large-scale redesign.

Example of SAMR in Coaching Practice

When supporting a preschool teacher in integrating technology into small group instruction, I might use the **SAMR framework** to guide the process step by step.

- **Substitution** – The teacher replaces paper alphabet cards with a digital alphabet app. The task remains the same, but the tool has evolved into a digital one.
- **Augmentation** – The teacher uses the app's voice feedback and highlighting features to give children immediate responses as they match letters and sounds. This adds functionality that paper cards cannot provide.
- **Modification** – We shift the task so children can record themselves saying the letter sounds and then listen back, comparing their recordings with the model. This transforms the learning activity into something more interactive and reflective.
- **Redefinition** – Finally, students create a short digital story where they use pictures, voice recordings, and text to showcase their understanding of letter-sound connections. This task would not have been possible without the use of technology.

By advancing through the SAMR levels, the teacher begins to see how technology can be more than a substitute—it can transform learning in ways that deeply engage young children and expand their opportunities for expression.

Reference(s)

Puentedura, R. R. (2013). *SAMR: A contextualized introduction.* Retrieved from http://www.hippasus.com/rrpweblog

Waterfall

The Waterfall Model is one of the earliest instructional design frameworks, following a linear, step-by-step process. Much like water flowing downward, each phase must be completed before moving to the next. The phases typically include:

1. **Requirements/Analysis** – gather information and identify goals.
2. **Design** – map out the instructional plan.
3. **Development** – create the learning materials.
4. **Implementation** – deliver or launch the program.
5. **Evaluation** – assess outcomes after completion.

The strength of the Waterfall approach is its clear structure and predictability. However, it can be less flexible because changes are difficult to make once the process has moved forward (SQA Academy, 2023). As TechTarget explains, the Waterfall model uses a logical sequence of goals and “sets distinct endpoints or goals for each phase of the development process,” which cannot be revisited once complete making it less adaptable than iterative models (Kirvan et al., 2024).

Example
As an instructional coach, I may see the Waterfall Model applied when helping a district implement a new curriculum across its classrooms. For instance, the district leadership team may:

1. Analyze teacher needs and review the curriculum standards.
2. Design a year-long professional development plan.
3. Develop the training materials, handouts, and coaching supports.
4. Implement the plan by scheduling workshops and coaching cycles.
5. Evaluate success through teacher feedback and classroom observations at the end of the rollout.

This model works well for large-scale projects that require structure, detailed planning, and a clear beginning-to-end sequence—though it may not allow for as much flexibility as iterative models like Agile or SAM.

Reference(s)
Kirvan, P., Lutkevich, B., & Lewis, S. (2024, November 15). *What is the Waterfall model? Definition and guide*. TechTarget. Retrieved from https://www.techtarget.com/searchsoftwarequality/definition/waterfall-model

SQA Academy. (2023). *Waterfall model in software development: Advantages and disadvantages*. https://sqaacademy.com/waterfall-model/

ADDIE | Analysis, Design, Development, Implementation, and Evaluation

The **ADDIE Model**—standing for Analysis, Design, Development, Implementation, and Evaluation—is a well-established framework in instructional design that offers a clear, sequential process to guide the creation of learning experiences. It starts with understanding learner needs (Analysis), planning objectives and strategies (Design), building materials (Development), delivering instruction (Implementation), and assessing effectiveness (Evaluation). Its strength lies in its straightforward structure, making it a go-to for organized and scalable learning design (InstructionalDesign.org, n.d.).

Example

As an instructional coach, I might apply ADDIE when rolling out a new literacy toolkit across classrooms:

- **Analysis**: I collaborate with teachers to understand reading challenges and the needs of diverse learners.
- **Design**: We plan how the toolkit aligns with standards and integrate purposeful mini lessons.
- **Development**: I create sample lesson templates, anchor charts, and parent letters.
- **Implementation**: Teachers pilot the toolkit in their classrooms with my support.
- **Evaluation**: We gather student reading data and teacher reflections to identify what's working and where tweaks are needed — then loop back into Analysis if it's time to refine (InstructionalDesign.org, n.d.; D2L Blog, Parikh, 2023).

Reference(s)

InstructionalDesign.org. (n.d.). *ADDIE Model*. InstructionalDesign.org. https://www.instructionaldesign.org/models/addie/

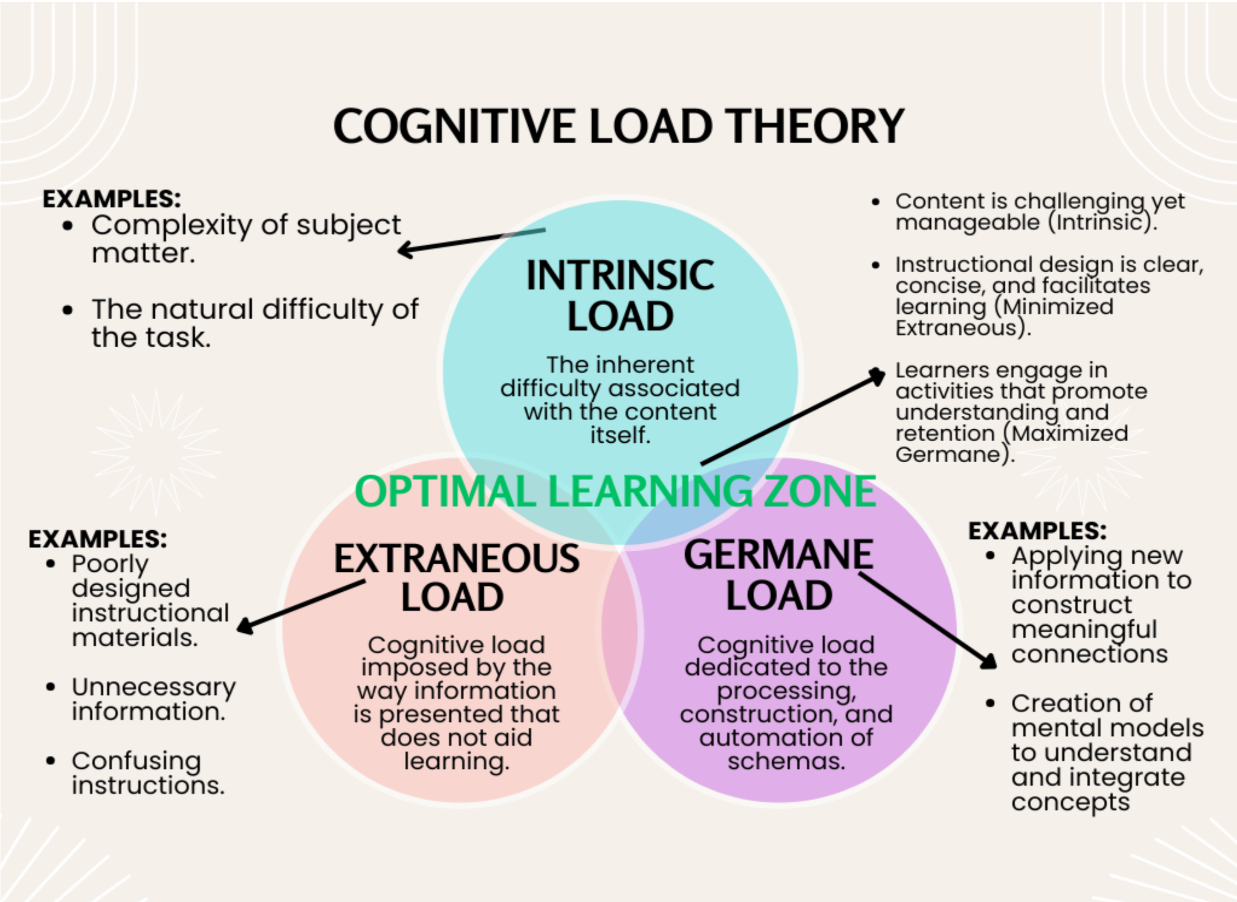
Parikh, A. (2023, September 18). *What Is the ADDIE Model of Instructional Design*? D2L Blog. https://www.d2l.com/blog/what-is-the-addie-model-of-instructional-design/

Cognitive Load

Module 3

Cognitive Load Theory

Cognitive load theory provides a framework for understanding the mental processes involved in learning and the limitations of our working memory. Clark and Mayer (2024) define learning as a change in knowledge caused by experience. Cognitive load theory builds on this by examining how our brains process, store, and manage information during learning.



At its core, the theory recognizes that our working memory has limited capacity. When these limits are exceeded, learning becomes ineffective. The theory identifies three distinct types of cognitive load:

Intrinsic load represents the inherent complexity of the material being learned. This load varies based on the learner's prior knowledge and the complexity of the content itself. Effective instruction carefully manages this essential processing to enhance learning (Clark & Mayer, 2024).

Extraneous load is the unnecessary mental effort caused by poor instructional design. This includes confusing layouts, irrelevant information, or unnecessarily complex explanations. As Clark and Mayer (2024) emphasize, well-designed courses minimize extraneous processing through thoughtful design strategies.

Germane load is the productive mental effort that contributes to deeper understanding. This includes activities that help learners construct schemas and apply knowledge. Courses should intentionally foster this generative processing to maximize learning and create lasting memories (Clark & Mayer, 2024).

In simple terms, cognitive load can be understood as the total mental effort required by a learner's brain when processing new information. Instructional designers must carefully balance these three types of cognitive load—reducing extraneous load, managing intrinsic load, and optimizing germane load—to create effective learning experiences.

Example

Cognitive load theory would apply during any instructional design project. If instructors were designing online professional development for training on new gradebook software at a school, they would minimize unnecessary cognitive burdens because learners have limited working memory capacity (Sweller, 2020). The designer would manage the intrinsic load by referring to what the staff currently uses for a gradebook. The course would refer to terms and names that the staff knows and break each component into smaller bits of information. The designer would minimize extraneous load by using a variety of learning experiences. The necessary content would be concise, include well-organized images, highlight important steps, and show each step necessary. Staff could easily follow the steps needed to learn the new gradebook. The training would maximize germane load by asking staff to work in groups and practice what they are learning during the training. The professional development would include scenarios asking the staff to solve problems using the new gradebook.

Reference(s)

Clark, R. C., & Mayer, R. E. (2024). *E-learning and the science of instruction: Proven guidelines for consumers and designers of multimedia learning*. John Wiley & Sons, Inc.

Sweller, J. (2020). Cognitive load theory and educational technology. *Educational Technology Research and Development*, *68*(1), 116.

Managing Cognitive Load

Multimedia Principle

The multimedia principle highlights that learners absorb and retain information more effectively when instruction combines both words and visuals rather than relying on words alone. Research shows that when text is paired with relevant graphics, learners can process content through dual channels (visual and auditory), which reduces cognitive overload and promotes deeper understanding (Mayer, 2021).

As an instructional coach, I often remind teachers that this principle isn't about adding more "stuff" to a lesson—it's about adding the *right* visuals to support meaning. The key is intentionality. A well-chosen image, diagram, or short video clip can spark connections that words alone might not create.

Example

For instance, if a teacher is introducing the concept of plant growth in preschool, showing a time-lapse video of a seed sprouting alongside a simple explanation can make the concept more concrete. Instead of just hearing "seeds grow into plants," children *see* the process unfold. This pairing of narration with visuals helps build a stronger mental model of how growth occurs, while also keeping learners engaged.

Reference(s)

Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge University Press. https://doi.org/10.1017/9781108858986

Signaling

The signaling principle emphasizes that learners understand and retain information better when teachers use cues to highlight essential ideas. Signals can take many forms—arrows, bold or highlighted text, verbal emphasis, or gestures—and serve to guide learners' attention toward what matters most in the lesson (Mayer, 2021). By reducing extraneous cognitive load, signaling helps learners avoid becoming overwhelmed by irrelevant details and instead focus on the critical parts of the instruction (de Koning et al., 2009).

As an instructional coach, I see signaling as a simple but powerful strategy. In classrooms filled with information, children often need that extra guidance to know *where to look* and *what to listen for*. Signals act like a roadmap, ensuring students do not miss the key concepts teachers are trying to emphasize. When coaches encourage teachers to use intentional cues, they help learners process and store knowledge more efficiently.

Example

Imagine a teacher introducing a new letter during small group literacy. Instead of showing an entire alphabet chart, the teacher enlarges the target letter on the screen, circles it in red, and says, "Today we're going to focus on this letter." That visual and verbal cue narrows the children's attention, preventing overload and helping them connect more deeply with the learning goal.

Reference(s)

de Koning, B. B., Tabbers, H. K., Rikers, R. M. J. P., & Paas, F. (2009). Towards a framework for attention cueing in instructional animations: Guidelines for research and design. *Educational Psychology Review, 21*(2), 113–140. https://doi.org/10.1007/s10648-009-9107-7

Mayer, R. E. (2021). *Multimedia learning* (3rd ed.). Cambridge University Press. https://doi.org/10.1017/9781108858986

Chunking

Chunking is the process of breaking down information into smaller, more manageable units so learners can better process and remember it. Research shows that working memory is limited, and when too much information is presented at once, learners experience cognitive overload. By grouping related ideas together into "chunks," teachers can support deeper understanding and longer retention (Miller, 1956; Sweller et al., 2019).

As an instructional coach, I view chunking as a tool for helping teachers pace their instruction and make content digestible for young learners. Children thrive when information is presented step by step, with time to explore and practice before moving forward. Chunking isn't about simplifying content; it's about structuring it in a way that allows learners to build connections without becoming overwhelmed.

Example

For example, when introducing classroom routines at the beginning of the year, a teacher might *chunk* the learning by first teaching how to line up, then how to walk in the hallway, and finally how to transition back into the room. Rather than giving all the directions at once, the teacher breaks the process into small, manageable steps. This approach reduces stress, helps children focus, and increases the likelihood of success.

Reference(s)

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review, 63*(2), 81–97. https://doi.org/10.1037/h0043158

Sweller, J., Ayres, P., & Kalyuga, S. (2019). *Cognitive load theory* (2nd ed.). Springer. https://doi.org/10.1007/978-1-4419-8126-4

Visual Cognitive Load/C-R-A-P

When designing instructional materials, visuals can either support or hinder learning depending on how they are organized. Visual cognitive load occurs when too many competing images, colors, or design elements overwhelm working memory, making it difficult for learners to focus on the essential message (Sweller et al., 2019). The C-R-A-P design principle—**Contrast, Repetition, Alignment, and Proximity**—provides a framework for creating materials that reduce unnecessary cognitive load and guide learners' attention more effectively (Williams, 2015).

- **Contrast** makes key ideas stand out by using differences in color, size, or emphasis.
- **Repetition** creates consistency so learners know where to look for information.
- **Alignment** ensures visuals and text are organized in a clear, logical way.
- **Proximity** groups related information together so learners recognize connections.

As an instructional coach, I encourage teachers to consider how their anchor charts, slides, and handouts align with these principles. A clean, intentional design does not just “look nice”—it helps students process content more efficiently and focus on what matters most.

Example

For instance, imagine a teacher creating a slide to introduce shapes. Without the C-R-A-P principles, the slide might include multiple fonts, random colors, and shapes scattered across the page—leaving children unsure where to look. By applying the principles, the teacher could:

- Use **contrast** to highlight the target shape in bold color.
- Apply **repetition** by using the same font and style across all labels.
- Ensure **alignment** so text and visuals line up cleanly.
- Group (**proximity**) the shape and its name together, so children can easily connect the word to the image.

This thoughtful design reduces cognitive load, making it easier for children to connect new vocabulary with its visual representation.

Reference(s)

Sweller, J., Ayres, P., & Kalyuga, S. (2019). *Cognitive load theory* (2nd ed.). Springer. https://doi.org/10.1007/978-1-4419-8126-4

Williams, R. (2015). *The non-designer’s design book* (4th ed.). Peachpit Press.

Strategies for Student Learning

Scaffolding

Scaffolding is an instructional approach where teachers provide temporary support to help learners accomplish tasks they might not yet be able to do independently. As students gain confidence and skill, those supports are gradually removed, allowing them to take on more responsibility for their learning. Rooted in Vygotsky’s concept of the *zone of proximal development* (ZPD), scaffolding ensures that children are challenged just enough to grow while still feeling supported (Vygotsky, 1978; van de Pol et al., 2010).

As an instructional coach, I often encourage teachers to think of scaffolding as a “bridge.” Just as a bridge connects where students are to where they need to go, scaffolding provides the structure that guides them across. Effective scaffolding strategies can include modeling, prompting with guiding questions, providing visuals, or breaking tasks into smaller steps.

Example

For example, if a preschool teacher is introducing story retelling, they might begin by modeling the process with a familiar book, using pictures to help sequence the events. Next, the teacher could ask children to retell the story together as a group, pointing to pictures for support. Finally, once the children are ready, they could retell parts of the story independently or with a partner. Each step gradually removes support while still setting learners up for success.

Reference(s)

van de Pol, J., Volman, M., & Beishuizen, J. (2010). Scaffolding in teacher–student interaction: A decade of research. *Educational Psychology Review, 22*(3), 271–296. https://doi.org/10.1007/s10648-010-9127-6

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

Levels of Challenge

The strategy of using levels of challenge is about offering tasks that are appropriately demanding—pushing learners just beyond what they can easily do, without overwhelming them. This aligns closely with Vygotsky's concept of the *zone of proximal development* (ZPD), where the most significant learning happens when children engage in activities that are slightly above their current skill level but achievable with support (Vygotsky, 1978). When teachers thoughtfully scaffold these levels of challenge, students build persistence, problem-solving skills, and confidence (Hammond, 2015).

As an instructional coach, I often encourage teachers to think about levels of challenge like a staircase. Each step should be close enough for children to reach but still require them to stretch. By calibrating tasks to be "not too easy and not too hard," teachers set up learning experiences that keep children motivated and engaged.

Example

For instance, during a block play center, some children may be stacking two or three blocks successfully. To increase the level of challenge, the teacher might encourage them to build a bridge or create a structure that can hold a toy car. The new challenge requires problem-solving and experimentation, but is still within reach. This keeps the learning dynamic and allows children to apply and extend what they already know.

Reference(s)

Hammond, Z. (2015). *Culturally responsive teaching and the brain: Promoting authentic engagement and rigor among culturally and linguistically diverse students*. Corwin.

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

Active Learning

Active learning is an instructional approach in which students engage directly with the material, rather than passively receiving information. Research indicates that when learners engage in activities such as discussing, exploring, problem-solving, or creating, they process information more deeply and retain it longer (Bonwell & Eison, 1991; Freeman et al., 2014). Instead of simply listening, students are invited to do something with what they are learning, which fosters critical thinking, collaboration, and independence.

As an instructional coach, I encourage teachers to see active learning as a way to give children ownership of their learning. Young learners thrive when they have opportunities to move, talk, explore materials, and make choices. These experiences not only deepen understanding but also support engagement and joy in the classroom.

Example

For example, rather than just reading a book about habitats, a teacher could set up an inquiry-based activity where children sort animal pictures into different environments (forest, ocean, desert) and then explain their thinking. This hands-on sorting task allows children to actively apply their knowledge, talk through their reasoning, and build stronger connections to the content.

Reference(s)

Bonwell, C. C., & Eison, J. A. (1991). *Active learning: Creating excitement in the classroom*. ASHE-ERIC Higher Education Report No. 1. George Washington University.

Freeman, S., Eddy, S. L., McDonough, M., Smith, M. K., Okoroafor, N., Jordt, H., & Wenderoth, M. P. (2014). Active learning increases student performance in science, engineering, and mathematics. *Proceedings of the National Academy of Sciences, 111*(23), 8410–8415. https://doi.org/10.1073/pnas.1319030111

Problem-Solving Tasks

Problem-solving tasks are learning activities that encourage students to apply knowledge and skills to real or meaningful challenges. Rather than memorizing facts, learners are asked to think critically, test ideas, and try multiple approaches until they find a solution. Research indicates that problem-solving fosters a deeper understanding, as it requires learners to connect prior knowledge with new concepts while also developing persistence and critical thinking (Hmelo-Silver, 2004; Jonassen, 2011).

As an instructional coach, I see problem-solving as a powerful way to nurture independence and resilience in young learners. These tasks provide children with opportunities to practice reasoning, collaboration, and creativity—all skills that are foundational to lifelong learning. The role of the teacher is to guide and scaffold without simply giving the answer, allowing children to take ownership of their thinking process.

Example

Imagine a preschool classroom where children are given a basket of different building materials and asked to design a bridge strong enough to hold a toy car. This task requires them to predict, test, and adjust their designs. They may need to problem-solve together by deciding which materials are strongest or how to balance the structure. The teacher’s role is to encourage reflection by asking guiding questions such as, *“What happened when the car rolled across?”* or *“What could you change to make it stronger?”*

Reference(s)

Hmelo-Silver, C. E. (2004). Problem-based learning: What and how do students learn? *Educational Psychology Review, 16*(3), 235–266. https://doi.org/10.1023/B:EDPR.0000034022.16470.f3

Jonassen, D. H. (2011). Supporting problem solving in PBL. *Interdisciplinary Journal of Problem-Based Learning, 5*(2), 95–112. https://doi.org/10.7771/1541-5015.1256

Knowing the Learner

Module 4

Learner and Context Analysis

Dick and Carey Model

The Dick and Carey model, also known as the Systems Approach Model, represents a comprehensive and systematic framework for instructional design first introduced in 1978 in "The Systematic Design of Instruction" (Instructional Designers of Penn State, 2018). This influential model stands apart from earlier linear approaches by emphasizing the interconnections between all design elements and incorporating crucial feedback loops throughout the process.

This model's iterative nature makes it particularly effective—instructional designers can continuously refine and modify components based on evaluation data, ensuring the entire instructional system evolves to better meet learner needs. Rather than viewing instruction as simply delivering content, the Dick and Carey model conceptualizes instruction as a complete system aimed at helping learners achieve specific outcomes (Dick & Carey, 2015).

Steps	Definition/Description
1. Identify Instructional Goals	Determine what learners should be able to do after completing instruction by analyzing needs, examining existing goals, or conducting needs assessments.
2. Conduct Instructional Analysis	Break down the instructional goal into specific component skills and knowledge required for successful performance.
3. Analyze Learners and Contexts	Identify characteristics of target learners, including prior knowledge, skills, attitudes, and the learning environment where skills will be used.
4. Write Performance Objectives	Specify exactly what learners can do, under what conditions, and to what standard after instruction.
5. Develop Assessment Instruments	Create assessments directly tied to performance objectives that measure learner achievement of each objective.
6. Develop Instructional Strategy	Plan the specific instructional activities, including pre-instructional activities, content presentation, learner participation, assessment, and follow-through.
7. Develop and Select Instructional Materials	Create or select instructional materials based on the instructional strategy, including instructor guides, student materials, and media.
8. Design and Conduct Formative Evaluation	Test instructional materials with representative learners to identify areas for improvement before full implementation.
9. Revise Instruction	Use data from formative evaluation to improve the effectiveness of instruction through targeted revisions.

This comprehensive understanding of learners, including their academic motivation, learning preferences, and contextual needs, enables instructional designers to create targeted, effective learning experiences that align with performance objectives while accommodating the specific characteristics of the learner population.

Example

As an instructional designer at a mid-sized university, I was tasked with developing a new online graduate course in educational leadership. Rather than diving straight into content creation, I employed the Dick and Carey model to ensure a systematic approach.

I met with the subject matter expert to identify the core instructional goal: preparing students to develop data-driven school improvement plans. Through careful analysis, we determined the essential skills students would need and examined the unique characteristics of our working professional student population.

With established, clear performance objectives, I developed authentic assessments that measure students' ability to analyze school data and create implementation plans. These assessments directly informed my instructional strategy, which balanced theoretical foundations with practical applications relevant to the students' professional contexts.

As I developed the course materials, I maintained focus on the interconnected nature of the Dick and Carey model. When initial testing with a small student group revealed confusion around data analysis procedures, I quickly revised those specific modules while ensuring the changes aligned with the established objectives and assessments.

This systematic, iterative approach allowed me to create a cohesive learning experience that addressed the specific needs of the graduate students while maintaining rigorous academic standards—demonstrating the practical value of the Dick and Carey model in higher education instructional design.

Reference(s)

Dick, W., & Carey, L. (2015). *The systematic design of instruction* (8th ed.). Pearson.

Instructional Designers of Penn State. (2018). Dick and Carey model of design. *Pressbooks*. https://psu.pb.unizin.org/idhandbook/chapter/dick-carey/

Sociocultural Factors

Sociocultural Theory

Sociocultural Theory, introduced by Lev Vygotsky, reminds us that learning is never a solitary act; it is a profoundly social process. We build knowledge through our interactions with others, shaped by the cultural tools, language, and social norms around us. A central piece of this theory is the Zone of Proximal Development (ZPD), which is the “sweet spot” between what a learner can do independently and what they can accomplish with the right guidance or collaboration (Vygotsky, 1978).

As an instructional coach, I see this play out every day. Just like children grow through scaffolded learning experiences, teachers also thrive when they have intentional support, clear modeling, and opportunities to reflect within a safe and trusting community. Learning rarely occurs in isolation; it comes alive when we engage in dialogue, collaboration, and share meaning making with others (Lantolf, 2000).

Example

Imagine a preschool teacher introducing a new math concept, such as sorting by attributes. On her own, she may feel unsure how to make the lesson engaging. As her coach, I could model a hands-on activity—using colored blocks and guiding students to sort by size, shape, and color. Together, we co-teach the lesson, reflect on it afterward, and discuss how the children responded. Over time, the teacher gains confidence and independence in applying this strategy.

This example mirrors Vygotsky's ZPD. The teacher was capable of some aspects of the task, but, with coaching support, stretched her practice further. Just as children internalize strategies through guided participation, teachers also grow professionally when provided with scaffolds. whether that involves co-planning, modeling, or reflective dialogue (Hammond et al., 2020).

Reference(s)

Hammond, L. D., Hyler, M. E., & Gardner, M. (2020). *Effective teacher professional development*. Palo Alto, CA: Learning Policy Institute. https://learningpolicyinstitute.org/product/effective-teacher-professional-development-report

Lantolf, J. P. (2000). *Sociocultural Theory and Second Language Learning*. Oxford University Press.

Vygotsky, L. S. (1978). *Mind in society: The Development of Higher Psychological Processes*. Harvard University Press.

Universal Design for Learning

Universal Design for Learning (UDL)

Universal Design for Learning (UDL) is all about creating classrooms where every learner has a fair chance to succeed. Instead of waiting until barriers show up, UDL encourages teachers to design lessons from the start with flexibility and accessibility in mind. Grounded in research on how the brain learns, UDL emphasizes three big ideas: offering multiple ways to engage learners (the "why"), presenting information in different formats (the "what"), and giving students options in how they express what they know (the "how") (Meyer, Rose, & Gordon, 2014).

As an instructional coach, I see UDL as more than a framework; it is a mindset shift. It asks us to plan proactively for diversity, rather than reacting after the fact. I notice this same principle applies to adult learning, too. Just like children, teachers benefit when they are given choices in how they access information, reflect on their practice, and share their growth. Coaching becomes most effective when it honors those unique preferences and needs (Rao & Meo, 2016).

Example

During a coaching cycle, I worked with a preschool teacher who was introducing a new storybook about community helpers. Instead of reading the book the same way to every child, we designed the experience through a UDL lens:

- **Multiple Means of Engagement (the *why*)**: Some children were invited to choose props (like a firefighter hat or a stethoscope) to act out parts of the story, while others joined a small discussion group about the helpers they see in their neighborhood. This gave children different entry points into the lesson, based on their interests.
- **Multiple Means of Representation (the *what*)**: The teacher read the story aloud, showed illustrations on the smartboard, and played an audio version with sound effects. For children who needed extra support, we added visual cue cards with pictures of community helpers.
- **Multiple Means of Action and Expression (the *how*)**: To share their understanding, some children drew pictures of a community helper, others role-played the job with peers, and a few dictated their ideas to the teacher, who wrote them down.

As an instructional coach, I encourage teachers to see UDL as a way to anticipate learners' needs instead of reacting later. The same principle applies to adult learning: when I meet with teachers, I might provide a visual infographic, a short video walkthrough, and space for reflective conversation. This way, each teacher can connect with the content in a way that feels meaningful and accessible to them.

Reference(s)

Meyer, A., Rose, D. H., & Gordon, D. (2014). *Universal Design for Learning: Theory and Practice*. CAST Professional Publishing.

Rao, K., & Meo, G. (2016). *Using Universal Design for Learning to Design Standards-based Lessons.* SAGE Open, *6*(4), 1–12. https://doi.org/10.1177/2158244016680688