

Common Learning Theories in Education

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Educational psychology produced influential theories about development and learning. An examination of these theories helps inform the best practices for classroom teachers. The following literature review summarized and evaluated influential educational theories of learning and development. The historical development of formal educational systems created the need for scientific investigations of learning and development. Following Napoleon's defeat of the Prussian army at the win battles of Jena and Auerstedt on 14 October 1806, Fichte (1808/2008) called upon the German people to resist French domination under Napoleon and reclaim their national identity. Furthermore, Fichte highlighted distinctive cultural and linguistic characteristics that set the German people apart from other nations. He wanted to forge German unity through a state operated educational system. Fichte's system of nationalized education established the foundations of German nationalism by celebrating German spiritual and intellectual exceptionalism.

In his vision for German education, Fichte (1808/2008), a German idealist philosopher, who emphasized national identity, moral education, and the role of the individual in shaping society. While influencing German educational reforms, Fichte's views of education also influenced the development of modern educational psychology. Building on German philosophical traditions, such as those developed by Fichte, Willhelm Wundt (1874/1902) incorporated the ideas of idealism and rationalism into the emerging science of experimental educational psychology.

Fichte (1808/2008) developed a system of moral education as the foundation for national unity and social progress, with an emphasis on self-discipline, character development, and the formation of an educated compliant citizenry. In alignment with Fichte's educational vision for cultivating rational collectivist thinkers, Wundt adopted a psychological framework that explored how consciousness, attention, and mental processes develop. Fichte and Wundt saw education as a tool for shaping individuals for the purpose of strengthening society. Wundt examined how cultural and social factors influence the mental processes at work within the educational system. Fichte (1808/2008) called for the development of an educational system focused on idealist philosophy, ethics, and national identity. Wundt (1874/1902) formulated the psychological basis of education predicated upon the experimental exploration of individual cognition and collective cultural behavior. Wundt's experimental psychology reenforced Fichte's vision of education as a tool for shaping thought and identity.

Starting with the contributions of Wilhelm Wundt, this literature review explores influential learning theories in education. Understanding the foundational learning theories helps inform the planning and implementation of learning activities for students. Teachers need a basic understanding of these learning theories and how to apply them to the classroom setting to develop and deliver effective learning activities for their students. Research-based instruction draws upon the understanding of learning and development set forth in fundamental theories about learning and development. Classroom instruction implements combinations of theoretical frameworks of development and learning to deliver educational content to students. Teaching requires an awareness of the theoretical constructs underlying the methodology of classroom education.

This literature review summarized findings from educational research about learning and development. The review evaluated some of the important theories of learning and development.

The theories examined in this literature review included:

Introspection and Sensory Input (Wilhelm Wundt, 1902)

Learning through Independent Learning Activities (Marie Montessori, 1949)

Constructivism (Jean Piaget, 1950)

Behaviorism (B.F. Skinner, 1953)

Cognitivism (Jerome Bruner, 1960)

Humanism (Carl Rogers, 1961)

Social Learning Theory (Albert Bandura, 1977)

Development of the Concept of Learning Styles (20th Century)

Andragogy (Malcolm Knowles, 1980)

Multiple Intelligences (Howard Gardner, 1983)

Characteristics of Adult Learners (Patricia Cross, 1992)

*Experiential Learning (David Kolb, 1984)

Transformative Learning (Jack Mezirow, 1991)

Connectivism (George Siemens, 2005)

Cognitive Domain of Learning Objectives

Affective Domain of Learning Objectives

Psychomotor Domain of Educational Objectives

Introspection and Sensory Input (Wilhelm Wundt, 1902)

Often identified as the *father of experimental psychology*, Wilhelm Wundt (Wundt, 1847/1902) developed the idea of structuralism, which emphasized the study of conscious experience through introspection. Wundt's focus on understanding mental processes—such as perception, memory, and attention—laid the groundwork for cognitive psychology, which significantly influences educational theory and practice today. Wundt's use of controlled experiments to study mental processes introduced scientific rigor to psychology. This approach influenced educational psychologists in designing studies on learning, memory, and student behavior. Through the process of introspection, Wundt studied conscious thought, and this helped psychologists understand how students reflect on their learning experiences. The ideas discovered by Wundt influenced later theories about how sensory input, mental focus, and cognitive effort shape learning outcomes. Wundt (1874/1902) introduced experimental techniques that became pivotal in understanding learning processes.

The main critique of Wundt's structuralism arises from his heavy reliance on highly subjective introspection as a research methodology (Titchener, 1901). The inevitable influence of individual bias in the process of introspection increases the difficulty of achieving reliable and replicable results in psychological studies; additionally, his focus on basic sensory experiences limited the scope of investigation, neglecting complex cognitive processes and unconscious influences on behavior. The process of introspection produces unreliable data and introduces difficulty in comparing results between individuals. Wundt's focus on basic sensory experiences and conscious processes neglected important aspects of human psychology like unconscious motivations, emotions, and complex cognitive functions. The subjective nature of introspection increased the difficulty of drawing generalizations to the wider population from Wundt's

findings. Mental constructs studied by Wundt, such as appreciation and mental elements eluded precise definitions and defied objective measurement. These limitations limited the extent of scientific rigor possible during his experiments. While introspection provided a suitable approach for studying basic sensations, it proved inadequate for investigating higher-level cognitive functions like reasoning, decision-making, or memory. Despite the shortcoming of his research, Wundt still stands as a significant figure in psychology for establishing the first psychology laboratory and laying the groundwork for experimental psychology.

Maria Montessori developed a distinctive educational theory rooted in the belief that children learned best through self-directed activity, hands-on learning, and collaborative play. She emphasized the importance of a prepared environment, where students could explore materials that stimulated their natural curiosity and developmental readiness (Montessori, 1967). Her approach was grounded in scientific observation of children and the belief that learning occurred most effectively when education aligned with developmental stages.

Learning through Independent Learning Activities (Marie Montessori, 1949)

Montessori viewed the child as a naturally eager learner who thrived in an environment of respect, order, and freedom within limits. She believed in fostering independence and allowing children to make choices in their learning, which encouraged intrinsic motivation and responsibility (Lillard, 2005). Her theory was influenced by her background in medicine and anthropology, which led her to prioritize sensory engagement, movement, and the role of the physical environment in cognitive development.

Although Montessori education theory gets most commonly associated with early childhood and primary grades, her principles also applied to secondary education. She advocated for what she called *the third plane of development* (ages 12–18), emphasizing the need for

adolescents to find purpose through real-world work, moral development, and social responsibility (Montessori, 2007). In the secondary context, her ideas supported project-based learning, mentorship, and environments where students could contribute meaningfully to their communities. These practices aligned with the developmental needs of adolescents to explore identity, purpose, and belonging.

When compared with biblical principles of learning and development, Montessori's theory showed both parallels and contrasts. Biblically, educators build learning on the formation of character and wisdom, beginning with the fear of the Lord (Proverbs 1:7). Like Montessori, Scripture acknowledged developmental stages, with instruction tailored to the maturity of the learner (1 Corinthians 13:11; Hebrews 5:12–14). Both emphasized moral development, though Montessori approached it through natural socialization and autonomy, while the Bible emphasized divine guidance and obedience to God's commandments (Deuteronomy 6:6–9).

A notable difference lay in the source of authority and moral direction. Montessori believed children developed moral judgment through freedom and internal discipline, whereas the biblical model posited that true wisdom and character came from submission to God's revealed truth (2 Timothy 3:16–17). Still, both frameworks valued the dignity of the learner, the importance of a nurturing environment, and the developmental and uniqueness of individuals.

In summary, Maria Montessori's learning theory was centered on child-directed learning within a structured environment that promoted independence and natural development. Her application to secondary education emphasized experiential learning and moral growth, aligning in part with biblical principles of developmental instruction, while differing in foundational views of authority and moral origin. Her contributions continue to influence contemporary

education by emphasizing respect for the learner, the importance of developmentally appropriate practices, and the transformative power of purposeful learning.

Constructivism (Jean Piaget, 1950)

Wilhelm Wundt laid the foundation for the scientific study of the mind, particularly through his emphasis on introspection and the idea of breaking down conscious experience into basic elements (Wundt, 1874/1902). These contributions by Wundt informed Piaget's (1950) focus on studying the development of cognitive structures in children through observation and analysis of their mental processes at different stages. Specifically, Wundt's (1874/1902) exploration of the component of consciousness paved the way for later research in cognitive psychology, such as Piaget's research that became his theory of cognitive development (1950). Piaget followed Wundt's example of using structured methods to study mental processes. Piaget utilized careful observation of children's behavior to identify patterns in their cognitive development. Building on Wundt's idea of breaking down consciousness into basic elements, Piaget developed his theory of different stages of cognitive development. Piaget proposed that learners actively build understanding through their experiences in a process he identified as constructivism.

Piaget's theory of human development suggested that human development follows distinct stages of cognitive development, with each stage representing a qualitatively different way of thinking and understanding the world (1950). Piaget (1950) identified four main stages of cognitive development: Sensorimotor (birth to 2 years), Preoperational (2 to 7 years), Concrete Operational (7 to 11 years), and Formal Operational (11 years and beyond). Piaget believed children actively construct their understanding of the world by interacting with their environment through processes like assimilation and accommodation. Criticisms of Piaget's theory of human

development note that not every individual's development perfectly aligns with the strict age ranges and characteristics outlined in his stages, and observations call into question the universality of his model human development. Furthermore, Piaget's theory of human development lacks consideration of variations in individual development, underestimates children's abilities at certain ages, and neglects the impact of social and cultural factors on cognitive development. Teachers need to use caution in the wholesale application of Piaget's theory of human development in the classroom. The emphasis of discovery learning in Piaget's constructivism risks relativism and the attainment of misconceptions about reality.

Behaviorism (B.F. Skinner, 1953)

Psychologist B. F. Skinner (1953) rejected Wundt's use of introspection and focused on observational behavior. Specifically, Skinner (1953) examined the ways conditioning changes observable behavior. Operant conditioning, also known as instrumental conditioning or Skinnerian conditioning, creates a learning process by modifying behavior using rewards or punishment. Positive reinforcement encourages desired student behaviors through a system of rewards and punishments for specific behaviors. In positive reinforcement teachers either distribute rewards for desired behavior or administer a penalty for undesirable behavior. Negative reinforcement removes an unpleasant task such as a chore for desired behavior or withdraws a privilege for undesirable behavior. Teachers use Skinner's theory (1953) of behaviorism to manage classroom behaviors by reinforcing positive actions and discouraging negative ones. Teachers shape student actions through consequences and promoting learning through a system of rewards and punishments for specific behaviors. Teachers break down complex behaviors into smaller, manageable steps and reinforce each step progressively to teach a new skill.

Varying the timing of rewards helps maintain desired behaviors, such as giving praise sometimes immediately and sometimes after a delay. Immediate feedback allows students to quickly adjust their behavior based on consequences. Students struggling with disruptive behavior sometimes need the implementation of a behavior modification plan.

An over-reliance on rewards and punishments sometimes leads to an extrinsic motivation, potentially undermining intrinsic interest in learning. Customized reinforcement strategies account of students learning in different ways and at different paces. Possible problems arise from behaviorism's emphasis on extrinsic rather than intrinsic motivations. Cessation of positive or negative reinforcements might result in learners reverting to undesirable behaviors. True change of behavior arises from an internal change of mind and heart.

Cognitivism (Jerome Bruner, 1960)

Cognitivism emphasized the role of mental processes in learning. Bruner (1960) believed that learning is an active process in which learners construct new ideas based on existing knowledge. He proposed three key modes of representation: enactive (learning through actions), iconic (learning through images), and symbolic (learning through language and symbols). Bruner also introduced the concept of *scaffolding*, where teachers provide structured support that gradually decreases as students become more independent learners.

Kilpatrick (1929) and Bruner (1960) emphasized the importance of student engagement in learning. Kilpatrick (1929) favored learning through the completion of real-world projects. In the Project Method, students select meaningful tasks, plan, execute, and reflect on their work. The focus is on collaboration, creativity, and practical application (Kilpatrick, 1929). Bruner (1960) proposed that learning occurs as students link new information to prior understanding. Bruner's approach depends upon teachers providing structured guidance that gradually decreases

as students gain independence (1960). The Project Method emphasizes hands-on, real-world tasks and encouraged student-driven exploration (Kilpatrick, 1929). Cognitivism emphasizes internal mental processes and used structured guidance, known as scaffolding (Bruner, 1960).

Cognitivism shaped modern instructional strategies like concept mapping, inquiry-based learning, and discovery learning. Teachers use scaffolding techniques to support student learning, gradually transferring responsibility to the learner. Cognitivism works well for teaching foundational skills like math, reading, and science concepts. Kilpatrick's Project Method works well for interdisciplinary learning, teamwork, and creative problem-solving. Both approaches can be blended effectively — scaffolding students through complex projects can support deeper understanding and skill development.

While effective in promoting deeper understanding, cognitivism may overlook emotional and social influences on learning. Ertmer & Newby (2013) argued that Cognitivism places too much emphasis on internal thought processes without addressing environmental factors. Students need to guidance to absolute knowledge, and they need to learn the application of knowledge through wisdom.

Humanism (Carl Rogers, 1961)

Through the application of humanism to learning, Rogers (1961) Focuses on personal growth, autonomy, and intrinsic motivation in learning. Maslow (1943 & 1954) presented self-actualization as the highest human need. Rogers (1961) applied Maslow's idea of self-actualization (1943 & 1954) to the learning process to create an intrinsic motivation for learning. Lewis (2022) documented a lack of research literature to empirically support Maslow's hierarchy of needs as psychology textbooks usually present the theory. Any approach to human self-actualization needs to consider the limitations of human flourishing.

Carl Rogers suggested that using a student-centered approach to achieve personal growth, autonomy, and intrinsic motivation in learning through the use of the following principles:

1. Self-Directed Learning

Rogers championed the idea that learners thrive when they take responsibility for their own learning. By empowering students to explore topics of personal interest, they develop autonomy and intrinsic motivation. This may be accomplished by providing learners with choices in projects, reading materials, or assessment methods.

2. Facilitative Teaching

Rogers emphasized the role of the teacher as a facilitator, not a director. Facilitators create an environment where students feel safe, valued, and encouraged to explore. The key strategies for facilitating instead of directing learning include:

Show empathy — understand the learner's perspective.

Practice congruence — be authentic in interactions.

Offer unconditional positive regard — accept and respect students without judgment.

3. Creating a Positive Learning Environment

For learners to engage deeply, they must feel emotionally safe and psychologically free.

According to Rogers a positive learning environment includes:

Mutual respect between teacher and learner.

Encouragement of risk-taking without fear of failure.

Opportunities for creativity and self-expression.

4. Relevance and Meaning

Rogers believed learning is most powerful when students see its relevance to their lives. Connecting content to real-world applications and personal experiences fuels intrinsic motivation. For example, investigate environmental issues affecting their community, allows students to see the impact of their learning.

5. Experiential Learning

Rogers stressed that true learning happens when learners engage with real-life problems and experiences rather than rote memorization. Rogers suggested that role-playing, project-based learning, and hands-on activities deepen understanding.

6. Encouragement of Reflection

Rogers believed reflection is key to growth. By encouraging students to analyze their experiences and thoughts, they gain self-awareness and build motivation. For example, journaling or guided self-assessment can foster deeper insight and personal responsibility for learning.

In short, Rogers' approach emphasizes empathy, freedom, and personal connection — creating an environment where learners feel empowered to explore and grow. Does this align with your teaching philosophy or leadership approach?

Social Learning Theory (Albert Bandura, 1977)

Bandura (1977) developed his social learning theory which emphasized learning through observation, modeling, and imitation. Bandura (1977) introduced the concept of vicarious reinforcement, where learners adopt behaviors by observing the outcomes of others' actions. Vicarious reinforcement, a concept from Bandura's Social Learning Theory, involves learning through observing the consequences of others' actions. While powerful, this method has some

notable challenges: Learners sometimes misread the observed consequences. For instance, a student may incorrectly conclude that undesirable behaviors result in positive outcomes if they see peers rewarded despite misconduct. Furthermore, learners often focus on behaviors that align with their interests, ignoring important social cues or moral lessons. Additionally, observing outcomes indirectly may not evoke the same emotional connection as direct reinforcement, reducing the strength of the learned behavior. A dependence on social learning theory may make learners dependent on external role models rather than developing self-regulation or intrinsic motivation. Skills learned through vicarious reinforcement may not translate well to new contexts if learners fail to generalize the observed behavior effectively. In educational settings, teachers must be mindful of these limitations by reinforcing positive behaviors directly and providing clear explanations of observed outcomes.

Bandura's theory highlights the role of attention, retention, reproduction, and motivation in learning. Teachers apply the social learning theory by modeling positive behaviors, encouraging peer collaboration, and using role-play to reinforce learning. Social-emotional learning programs often integrate Bandura's principles. While effective in explaining observational learning, Social Learning Theory may oversimplify complex cognitive processes and underestimate individual differences in learning styles.

Development of the Concept of Learning Styles

The concept of learning styles emerged in the 20th century as researchers and educators sought to understand the individual differences in how people absorb, process, and retain information. The underlying premise suggested that tailoring instruction to individual preferences improved learning outcomes. Over time, researchers proposed numerous models, each model contained its own classification of styles and contemplated educational implications.

Carl Jung (1921), whose psychological types laid the groundwork for later learning style theories, emphasized personality differences in cognition. David Kolb (1984) adapted Jung's typologies to produce his Experiential Learning Theory. Kolb's Experimental Learning Theory described learning as a cyclical process involving four stages: concrete experience, reflective observation, abstract conceptualization, and active experimentation. Kolb identified four corresponding learning styles: Converger, Diverger, Assimilator, and Accommodator: Convergers excelled at solving problems and applying ideas in practical, technical tasks, favoring abstract thinking and active experimentation. Divergers applied imagination and viewed situations from multiple perspectives. They preferred concrete experience and reflective observation. Assimilators exhibited strength at understanding and organizing vast amounts of information, thriving on abstract conceptualization and reflective observation. Accommodators preferred hands-on experiences and relied on intuition rather than logic, combining concrete experience with active experimentation.

Honey and Mumford (1986) built on Kolb's work and created a model tailored to the business training context, identifying four learning styles: Activist, Reflector, Theorist, and Pragmatist. Their Learning Styles Questionnaire (LSQ) became widely used in organizational and educational settings. Activists learned best through new experiences and challenges, thriving on involvement and spontaneity. Reflectors preferred observation and thinking carefully before acting, valuing thorough analysis and consideration. Theorists liked to understand the underlying principles and concepts, favoring logical structures and rational thinking. Pragmatists focused on practical applications and enjoyed experimenting with ideas to see if they work in real-world settings.

Neil Fleming (1992) introduced the VARK model, which categorizes learners based on their sensory preferences: Visual, Auditory, Read/Write, and Kinesthetic. VARK became popular among teachers and students for its simplicity and accessibility, despite limited empirical validation. Visual learners preferred information presented in diagrams, charts, and other visual formats that helped them understand and retain concepts. Auditory learners grasped information best through listening to spoken explanations, discussions, and lectures. Read/Write learners learned most effectively through reading and writing texts, lists, and notes. Kinesthetic learners understood material best through hands-on experiences, movement, and physical activity.

Rita and Kenneth Dunn (1978, 1992) developed a comprehensive learning styles model incorporating environmental, emotional, sociological, physiological, and psychological factors. Their work emphasized the complexity and individuality of learning processes, especially in K–12 settings.

Despite the popularity of learning styles in education, critics argued that the theory lacks empirical support. Multiple systematic reviews and meta-analyses (e.g., Pashler et al., 2008) failed to find robust evidence that matched instructional methods to a learner's preferred style improved learning outcomes. Critics also highlight that many learning styles assessments lack validity and reliability, and some claim that the application of the theory of learning styles inadvertently limited students by encouraging fixed mindsets, rather than instructional diversity. Moreover, cognitive psychologists found that the nature of the content and evidence-based strategies like retrieval practice and spaced repetition more strongly influenced the effectiveness of learning than the use of diversified learning styles. While learning styles theory contributed to awareness of individual differences in learning, the weakness of empirical evidence supporting the theories of varied learning styles made application of the theory controversial. Research the

best practices in education encouraged the use of instructional approaches that engaged multiple modalities of learning, rather than tailoring instruction to strictly assumed learner preferences.

Andragogy (Malcolm Knowles, 1980)

Knowles (1980) developed andragogy as an adult theory of learning, known as andragogy, that complimented the theory of children's learning known as pedagogy (Dewey, 1897). Knowles (1980) identified essential adult learning principles such as self-direction and life experiences, emphasizing the role of the adult learner's agency in the learning process. In the Formal Operational Stage (starting around age 11 and continuing to age 15), students begin thinking abstractly, engaging in hypothetical reasoning, and using metacognitive strategies (Piaget, 1950). An individual student's cognitive development, life experiences, and educational exposure influences the development of adult learning capabilities. This shift aligns with key developmental changes identified in educational psychology. Around adolescence, students develop greater awareness of their thought processes (metacognition), learning preferences, and strategies—key characteristics of self-directed learning. As students gain life experiences, they can better connect new information to prior knowledge, a core aspect of andragogy (adult learning theory, as described by Knowles, 1980). By middle adolescence (13–15), students increasingly respond to intrinsic motivation, goal-setting, and personal responsibility, aligning with adult learning behaviors. While adolescent learners start demonstrating adult-like traits, full adoption of self-directed learning, critical reflection, and strategic thinking is most common in late teens to early adulthood (ages 16–21), when executive functioning skills mature.

Knowles' Andragogy theory (1980) emphasized that adult learners are self-directed, goal-oriented, and bring prior experiences to their learning. He outlined key principles: adults need to know why they are learning something, prefer experiential learning, and are motivated by

immediate application. While Andragogy is primarily aimed at adult learners, its principles can be adapted for older students in high school through self-directed projects, real-world applications, and student choice in learning activities. Critics argue that andragogy may not fully apply to younger students who lack the maturity and life experience necessary for fully self-directed learning.

Multiple Intelligences (Howard Gardner, 1983)

Howard Gardner (1983) introduced the theory of Multiple Intelligences as a model that expands the traditional view of intelligence beyond a singular, general ability. Gardner (1983) initially proposed the existence of seven intelligences: linguistic, logical-mathematical, musical, bodily-kinesthetic, spatial, interpersonal, and intrapersonal. MI theory acknowledges God's unique design for individuals (Psalm 139:14) but should avoid labeling that limits growth. As Multiple Intelligence Theory became popular in education and other fields, Gardner (1995) reflected on the impact of Multiple Intelligence Theory and addressed some of the misunderstandings about his theory.

While student learning may improve with learning through different intelligences, it is not necessary to teach every topic using every intelligence. Teachers need to strategically select which intelligence works most effectively to teach a topic and which intelligence aligns best with their students' strengths. While learning styles describe preferences for processing information, multiple intelligences describe distinct cognitive capabilities. Furthermore, instead of replacing the development of core academic skills, Multiple Intelligence Theory supports these developments. Gardner emphasized these messages for educators:

Educators optimize classroom instruction by leveraging students' strengths to support learning while addressing their weaker areas. Traditional tests sometimes only partially capture a student's capabilities. Gardner (1995) encouraged varied assessments, such as portfolios, projects, and performance-based evaluations. In a multi-cultural classroom, teachers should understand how intelligence manifests differently across cultures and social environments. Gardner (1995) advocated flexible, encouraging teachers to explore creative strategies that connect with multiple intelligences. He emphasized the value of nurturing student potential beyond traditional academic benchmarks. Gardner urged educators to apply MI theory thoughtfully. Rather than treating it as a rigid framework, he encourages its use as a flexible guide to enhance learning experiences, tailor instruction, and foster student success.

Gardner (1999) added an eighth intelligence – naturalist and began exploring the possibility of an additional intelligence – existential. He stopped short of including the existential intelligence in his revised model. Howard Gardner (2004) reflected on how his Theory of Multiple Intelligences has been interpreted, adapted, and applied by various audiences since its introduction. He outlined key groups that have engaged with his theory and provides insights into their differing perspectives and uses. Gardner identifies several distinct groups that have adopted and interpreted MI theory, including:

Educators: Teachers and school administrators have been the most active audience, applying MI principles to create more personalized and engaging learning environments. Gardner highlighted innovative approaches in classrooms, such as project-based learning, flexible assessment methods, and curriculum designs that reflect students' diverse intelligences.

Psychologists and Cognitive Scientists: While some researchers have critiqued Multiple Intelligence Theory for lacking strong empirical support, others have explored its implications for cognitive development and learning processes.

Parents and the General Public: Gardner notes that parents are often drawn to MI theory's emphasis on recognizing and valuing their children's unique strengths.

Policy Makers and Educational Reformers: Multiple Intelligence Theory has influenced educational policy, particularly in promoting broader definitions of student success.

Challenges and misinterpretations about MI theory abound with the ways many educators apply the MI guide within their classroom. Some educators reduced MI theory to a checklist or rigid framework rather than viewing it as a flexible guide (Gardner, 1995, 2004, 2006).

Confusion with Learning Styles: Gardner (2006) reiterates that MI theory describes distinct forms of intelligence, not individual learning preferences. Furthermore, the application of MI theory in the classroom requires a balance of innovation and evidence-based practices. Gardner (2006) encouraged continued research and thoughtful application of MI theory.

Gardner (2006) responded to critiques regarding minimal empirical evidence supporting MI theory by emphasizing its purpose as a framework for understanding human potential rather than a rigid scientific model of intelligence and learning. Teachers need to consider this distinction as they seek ways to apply MI theory in their classrooms.

Lesson designs incorporating differentiated instruction, aligned with various intelligences, enhanced engagement and understanding. Performance-based assessments allowed students to demonstrate understanding through diverse methods, such as artistic expression, role-

play, or problem-solving activities. Using diversified assessments also provided opportunities for students to explore and strengthen their use of diverse intelligences. MI theory encouraged educators to recognize and nurture individual student strengths.

Beyond its application in education, MI theory influenced the practices of business, leadership, and personal development. Gardener (2006) discussed how understanding multiple intelligences can improve teamwork, communication, and workplace innovation. The application of MI theory in the classroom allowed teachers to improve teamwork, communication, and learning innovation among their students.

Gardner (2006) attributed the popularity of MI theory to its empowering message — that intelligence is diverse, multifaceted, and capable of growth. Rather than reducing education to rigid labels, the use of MI theory in the classroom calls for thoughtful and innovative implementation that enriches each student's learning experience. Gardner (2006) revisited and expanded his Theory of Multiple Intelligences (MI), offering updated insights based on over two decades of research and practical application, reflecting a deeper understanding of intelligence, learning, and education. Specifically, Gardener (2006) reaffirms the original seven intelligences (1983), and expanded the explanation of Naturalistic Intelligence (1999). He continued exploring the possibility of Existential Intelligence as a ninth category but stopped short of officially including it, noting its abstract nature. Gardener (2006) explained how brain research suggested the possibility of distinct neural pathways associated with different intelligences. Brain research also discovered the fluid nature of intelligence and found a potential relationship between intentional learning experiences and the cultivation of multiple intelligences. Gardner (2006) reaffirms the enduring value of MI theory in promoting diverse learning strategies and fostering individual growth. He encourages educators, parents, and leaders to view intelligence as

multifaceted and adaptable, with the potential to flourish in different environments. MI theory provides important strategies that empower students to explore new ways of knowing and learning. Teachers need a well-informed and thoughtful approach to using multiple intelligence theories in their instruction.

Characteristics of Adult Learners (Patricia Cross, 1992)

Patricia Cross (1992) articulated a comprehensive framework for understanding how adults engage in learning differently from children. Drawing on and expanding Malcolm Knowles' theory of andragogy, Cross emphasized that adult learners bring unique psychological, social, and experiential characteristics to the educational setting. Her work established the groundwork for adult education, instructional design, and workforce training and remains foundational in understanding lifelong learning. Cross proposed two main categories of factors that shape adult learning: situational characteristics and dispositional characteristics. Situational characteristics refer to external conditions affecting learners, such as age, employment status, family responsibilities, and time constraints. Dispositional characteristics, in contrast, refer to internal attitudes and motivations—such as a learner's self-perception, confidence, and orientation toward learning.

Cross identified the self-directed and goal-oriented nature of motivations for adult learning that produced a preference for learning immediately relevant to their personal or professional lives. Cross also found that adult learners often possessed rich prior experiences that served as both a resource and a filter for new knowledge. Because of these traits, adults thrived in learning environments that respected their autonomy, provided flexible structures, and allowed for the application of real-life contexts.

While Cross's theory primarily addressed postsecondary and adult education, there emerged an interest in when students begin developing adult learning characteristics. Research suggests that elements such as self-direction, intrinsic motivation, and reflective thinking begin to emerge during late adolescence, particularly in upper secondary school (high school). As students encounter more autonomy and responsibility in learning, they gradually begin to exhibit behaviors aligned with adult learners. Scholars like Knowles (1980) and Merriam and Bierema (2014) noted that secondary students can benefit from instructional strategies rooted in adult learning theory when properly scaffolded.

Applications of Cross's framework to secondary education included project-based learning, service learning, and career and technical education (CTE) programs. For example, a study by Illeris (2004) found that adolescents responded positively to learning experiences that mirrored real-world tasks and allowed them to take ownership of their work. Similarly, classroom models that emphasize relevance and responsibility—such as flipped classrooms or inquiry-based learning—reflected the adult learner's emphasis on purpose and application. In a flipped classroom, students engaged with instructional content (like videos or readings) at home and use class time for active, collaborative problem-solving and application (Bergmann & Sams, 2012). Inquiry-based learning encourages students to explore questions, investigate problems, and construct knowledge through guided discovery and critical thinking (Hmelo-Silver, *et al.* 2007 & Joyce *e. al.* 2015).

Cross's model of adult learners highlighted the importance of aligning educational strategies with the unique needs, motivations, and life circumstances of learners. While her work focused on adults, its insights are increasingly recognized as valuable for secondary educators seeking to prepare students for lifelong learning and post-secondary success. As students

transition into adulthood, incorporating adult learning principles supports more meaningful, relevant, and empowering educational experiences.

Experiential Learning (David Kolb, 1984)

David Kolb's Experiential Learning Theory (ELT), developed in 1984, presented learning as a continuous, transformative process grounded in experience. Kolb defined learning as “the process whereby knowledge is created through the transformation of experience” (Kolb, 1984, p. 38). His model consisted of a four-stage learning cycle: (1) Concrete Experience, (2) Reflective Observation, (3) Abstract Conceptualization, and (4) Active Experimentation. Learners could enter the cycle at any point but needed to engage all stages for effective learning.

Kolb also identified four learning styles—Diverging, Assimilating, Converging, and Accommodating—based on how individuals preferred to perceive and process experiences. These styles corresponded to the learner's orientation to feeling vs. thinking and watching vs. doing (Kolb, 1984). The theory emphasized that learning is personalized and shaped by one's background, social environment, and cognitive development.

In secondary education, ELT offered practical guidance for designing instruction that engaged students actively and met diverse learning needs. High school students, in particular, benefited from project-based learning, simulations, internships, and service-learning—activities that align with Kolb's emphasis on applying knowledge in real-world contexts (Wurdinger & Carlson, 2010). Teachers applying ELT could structure lessons to move students through the four stages, encouraging reflection and critical thinking while integrating abstract content into meaningful tasks. This approach helped adolescents connect academic concepts with personal experiences, thereby enhancing engagement and retention.

Kolb's theory aligns partially with biblical principles of learning, especially in its emphasis on experience, reflection, and transformation. Scripture affirms that true understanding often arises through life experiences, particularly when they are reflected upon through the lens of God's truth (James 1:2–4; Romans 5:3–5). Jesus Himself used experiential learning when He taught through parables, hands-on acts (e.g., washing the disciples' feet), and real-life application (John 13:12–17). Similarly, biblical discipleship involved learning by doing, including service, correction, and relational mentoring (2 Timothy 2:2).

However, a key difference lies in the philosophical foundation. Kolb's model is largely humanistic and constructivist, emphasizing self-guided meaning-making. In contrast, biblical learning is theocentric: knowledge and wisdom originate from God, not solely from personal experience (Proverbs 9:10). While ELT values personal reflection and subjective interpretation, biblical learning places emphasis on aligning understanding with God's revealed Word (2 Timothy 3:16–17). Furthermore, biblical education often includes moral and spiritual formation as central goals, not just cognitive or skill development.

In conclusion, David Kolb's Experiential Learning Theory provided a dynamic framework for understanding how individuals transform experience into knowledge. In secondary education, it promoted active, reflective, and adaptive learning strategies well-suited for adolescent development. While ELT shares some principles with biblical learning—such as growth through lived experience and the importance of transformation—it diverges in its source of truth and ultimate learning goals. Biblical education anchors learning in God's character and purposes, offering a broader spiritual dimension beyond the self-directed inquiry emphasized by Kolb.

Transformative Learning (Jack Mezirow, 1991)

Mezirow (1991) introduced the idea of transformative learning. The theory explained how adult learners changed the way they see themselves and their world through critical reflection. Mezirow proposed that learning in adulthood extended beyond the acquisition of information or skills to involve a deep and structural shift in one's worldview or a transformation of perspective. Mezirow's theory described the concept of meaning structures as the frames of reference through which individuals interpreted their experiences and learning. Cultural, social, and personal influences shape these frames, and limit or distort perceptions over time. Transformative learning occurred when individuals critically examined and revised these frames, often in response to a disorienting dilemma—an experience that challenged their previously held beliefs, assumptions, or expectations. In the context of Christian education, transformative learning emphasized change, aligning with the Bible's focus on repentance and renewal (2 Corinthians 5:17).

The process of transformative learning involved several phases, beginning with a disorienting dilemma, followed by self-examination, critical assessment of assumptions, recognition of shared experiences, exploration of new roles or actions, and reintegration of new perspectives into one's life. Mezirow emphasized the importance of critical reflection, which allows learners to evaluate the validity of their beliefs and to become more autonomous thinkers.

Mezirow grounded his work in constructivist epistemology, which held that knowledge is constructed through experience and dialogue rather than transmitted by authority. He drew from the work (rooted in Critical Theory) of Jürgen Habermas (1984 & 1987), particularly the idea of communicative action, to stress the role of dialogue and rational discourse in facilitating

transformation. In this model, rational discourse with others who offer diverse perspectives becomes a catalyst for examining and reshaping one's assumptions.

Transformative learning is most often associated with adult education, where learners bring rich life experiences and pre-existing beliefs to the learning environment. It is especially relevant in settings where the goal is not just skill acquisition but personal or social changes such as in higher education, professional development, or community education programs. The application of transformative learning theory to secondary education fosters critical thinking, reflective dialogue, and perspective transformation among adolescents as they mature cognitively and socially (Cranton, 2006 & Dirkx 2001).

Activities such as journals, debates, and Socratic seminars helped secondary students evaluate their assumptions, values, and beliefs. The introduction of real-world problems, moral dilemmas, or controversial topics challenge students' existing perspectives. The exploration of issues such as climate change, social justice, or historical injustices prompted transformative thinking among students. Classroom practices that emphasized open dialogue and diverse perspectives—such as Socratic seminars, peer teaching, or literature circles supported the development of deeper understanding through respectful interaction. Socratic seminars occurred as structured discussions where students explore complex ideas through open-ended questions and dialogue, encouraging critical thinking and deep understanding. Peer teaching involved students taking on instructional roles to explain concepts to classmates, reinforcing their own learning and promoting collaborative knowledge-building. Literature circles occurred as small, student-led discussion groups where each member assumes a role to analyze and discuss a shared text, fostering engagement, accountability, and interpretive skills. Transformative learning empowered students to take ownership of their learning. For example, project-based learning,

inquiry-based learning, and student-led research all encourage decision-making, problem-solving, and reflection—hallmarks of transformative growth. Project-based learning engaged students in exploring real-world problems and creating meaningful products, fostering critical thinking, collaboration, and sustained inquiry. Inquiry-based learning centered on student-driven questions and investigation, encouraging curiosity, deep understanding, and ownership of the learning process. Student-led research empowered learners to design, conduct, and present investigations on topics of interest, promoting autonomy, analytical skills, and academic confidence. During the adolescent developmental stage, identity and values begin forming. Educators supported this development through service-learning, reflective writing, and mentorship, helping students connect personal experiences with broader social and ethical issues.

Service-learning combined community service with classroom instruction and reflection, helping students apply academic skills to real-world challenges while developing civic responsibility. Reflective writing encouraged students to examine their thoughts, experiences, and growth, deepening self-awareness and critical thinking. Mentorship involved supportive guidance from a more experienced individual, fostering personal development, confidence, and goal setting in students.

Dirkx (2001) & Tisdell (2003) argues that Mezirow's focus on rationality and critical reflection underemphasizes the emotional, cultural, and relational dimensions of learning. Taylor (2001) called for a more holistic view that integrates affective and experiential aspects of transformation. Despite these critiques, Mezirow's model remained one of the most extensively studied and applied theories in adult education. Mezirow's theory of transformative learning presents learning as a dynamic, reflective process that leads to profound personal change. As transformative learning challenges learners to question and revise their assumptions it fosters

greater autonomy, critical thinking, and openness to new perspective, skills essential for growth in a rapidly changing world.

Connectivism (George Siemens, 2005)

George Siemens (2005) introduced the learning theory of Connectivism as an explanation of how learning occurs in the digital age. Through its emphasis on the role of technology, social networks, and digital information in the learning process, connectivism expanded on the theories of behaviorism (Skinner, 1953), cognitivism (Neisser, 1967), and constructivism (Piaget, 1950). While traditional models of learning focused primarily on individual cognition and internal knowledge, connectivism argued that learning occurred outside the individual—in devices, databases, and social or digital networks (Siemens, 2005). Connectivism suggested that knowledge exists within systems, and learners access knowledge when they connect with the systems containing knowledge. Connectivism defines learning as the process of creating and navigating connections that grant access to knowledge. Siemens (2005) considered the ability to know more as more important than ascertaining the current pool of knowledge. Connectivism transformed learning from the static accumulation of facts to a dynamic process influenced by the capacity to find, evaluate, and apply information as it becomes relevant.

By highlighting the social context of learning, Vygotsky's (1978) sociocultural theory established essential foundations for the theory of connectivism. In his theory on social learning, Bandura (1977) emphasized active knowledge construction, which became an indispensable attribute of the theory of Constructivism (Siemens, 2005). The conceptional foundation of Constructivism, an emphasis on knowledge construction, came from the works of Piaget (1952) and Bruner (1960). Siemens (2005) shifted from the internal mental processes found in previous learning theories to the external, networked environment in which modern learners operate.

The theory of Connectivism offers valuable insights into learning within the K-12 context. The modern K-12 classrooms increased the use of digital tools such as learning management systems, online collaborative platforms, and social media. Teachers applying the theory of Connectivism in the K-12 classroom encouraged their students to understand how to navigate, evaluate, and contribute to digital networks. Project based learning (Kilpatrick, 1929) now includes mastery of online research, blogging, or participation in digital communities. Teachers hold the responsibility of helping students curate information, develop digital literacy, and build personal learning networks.

While the Bible predated modern learning theories, it offered enduring wisdom about knowledge, community, discernment, and the purpose of learning, which can be used to evaluate connectivism. The Bible often affirmed the value of community and shared learning as effective collaborative learning and spiritual growth. The Bible calls on Christians to grow in wisdom together, supporting the idea that learning can and should happen through connections (Proverbs 27:17, Colossians 3:16).

While Connectivism assumes a world of abundant and constantly shifting information (Siemens, 2005), the Bible placed a strong emphasis on discernment and truth, which must guide how believers navigate networks of knowledge (Proverbs 1:7, 1 Thessalonians 5:21). While connectivism promoted accessing knowledge from multiple sources, the biblical perspective called for careful evaluation of those sources. Christian learning extends beyond connecting to learners evaluating what they learned through the lens of Biblical truth.

Like many other secular theories of learning, Connectivism focused on knowledge acquisition as the ends to the means. The Bible describes learning as an agent of transformation, godliness, and spiritual growth (Romans 12:2, 2 Timothy 3:16). The proper implementation of

Connectivist learning needs guidance by the Biblical goals of learning. Whereas connectivism often overlooks disparities in access to digital networks, the Bible calls repeatedly for justice and care for the marginalized (Proverbs 31:8–9). The Biblical response to connectivism calls for teachers to provide equitable learning, not just efficient or innovative learning.

The Biblical perspective on learning affirms connectivism’s emphasis on community and lifelong learning and also includes the moral and theological mandates to help students understand Biblical truth, purpose, and equity. Biblical equity differs from secular equity because of its foundation in the doctrine of Imago Dei. Christians access digital networks and other learning resource, not as an end to gaining knowledge, but rather as a means of mental, physical, and spiritual growth harnessed to bring glory to God. The use of networks, relationships, and shared knowledge for learning aligns with the Biblical framework for learning and growing within a community of Christians for the purposes of mutual edification and glorifying God (Proverbs 27:17; Ecclesiastes 4:9-10; Hebrews 10:24-25). True education concludes with the sound application of knowledge, in the form of wisdom (Proverbs 1:7; Ecclesiastes 12:12). The biblical perspective on learning values discernment and wisdom over the sheer quantity or accessibility of information. While connectivism focuses on navigating digital networks, Scripture calls believers to seek truth rooted in God's character and Word. While connectivism suggests that knowledge exists in networks and is often distributed across people and systems, the biblical view recognizes the absolute nature of divine and Biblical truth, as anchored in God’s revelations: nature, the Bible, and Jesus Christ (Romans 1; Psalm 19; John 14:6; 2 Timothy 3:16-17). Relying on human truths instead of the truths revealed by God produces perilous circumstances. While technology sometimes facilitates human flourishing, the overuse of technology makes it a distraction or idol if not used wisely (Romans 12:2; 1 Corinthians 10:23).

From a biblical perspective, connectivism rightly emphasizes collaborative learning, shared growth, and the importance of community—all themes affirmed in Scripture. However, it needs correction in areas where it may overvalue networked knowledge, ignore absolute truth, and assume neutral or beneficial uses of technology. A Christian view of learning should always prioritize wisdom, character, and alignment with God's truth above digital connectivity.

One major criticism of Connectivism arises from the lack of empirical validation and a clear theoretical framework (Kerr, 2007). Downes (2007) and Kerr (2007) described Connectivism as more of a pedagogical approach than a formal theory of learning. Downes (2007) and Kerr (2007) noted their concern that Connectivism overemphasized the role of technology at the expense of foundational cognitive and developmental processes, especially in younger K–12 learners who still require structured, scaffolded instruction. Bell (2011) raised concerns that connectivism overemphasized technology at the expense of foundational cognitive and developmental processes—particularly for younger K–12 learners who require structured or scaffolded instruction. Selwyn (2011) raised concerns about possible inequities of access to digital tools and the internet, a problem ignored in the theory of Connectivism. Nevertheless, connectivism highlights the need for a paradigm shift in how we conceptualize knowledge and learning in a connected world. Siemens (2005) challenged educators to evaluate their roles in the classroom and move beyond enabling students to attain content knowledge to master the skills required to thrive in a digital, information-rich society.

LEARNING DOMAINS

Cognitive Domain of Learning Objectives

The cognitive domain of learning, first articulated by Bloom et al. (1956), pertains to mental skills and the acquisition of knowledge. It is the most widely emphasized domain in formal education and focuses on intellectual development. The original taxonomy consisted of six hierarchical levels: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. These levels were later revised by Anderson and Krathwohl (2001) into:

Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating. Each level builds on the previous one, requiring greater cognitive complexity and abstraction.

Students best learn in the cognitive domain through a combination of instructional strategies that match their developmental readiness and cognitive level. At lower levels, effective strategies include direct instruction, repetition, and mnemonic devices to support remembering and understanding. As learners progress, strategies like case studies, problem-solving, debates, and project-based learning help students apply and evaluate information.

Constructivist methods—where learners actively construct knowledge through exploration and reflection—are particularly effective. Scaffolding, feedback, and formative assessment are essential for guiding students through increasingly complex tasks (Bransford, Brown, & Cocking, 2000). Cognitive engagement deepens when students are encouraged to transfer learning across contexts and disciplines.

1. **Remembering** – recalling facts and basic concepts
2. **Understanding** – explaining ideas or concepts

3. **Applying** – using information in new situations
4. **Analyzing** – breaking information into parts to explore relationships
5. **Evaluating** – justifying decisions or actions
6. **Creating** – generating new ideas, products, or ways of viewing things

Affective Domain of Learning Objectives

The affective domain, developed by Krathwohl, Bloom, and Masia (1964), addresses emotions, values, attitudes, motivation, and interpersonal relationships. This domain is essential for moral education, emotional intelligence, and developing the dispositions needed for lifelong learning. The affective taxonomy consists of five hierarchical levels: Receiving, Responding, Valuing, Organization, and Characterization by a Value or Value Complex.

Students best learn in the affective domain when educators create environments that support emotional safety, relevance, and personal engagement. Techniques such as discussion, role-playing, service learning, journaling, and reflective exercises foster internalization of values and beliefs. Instructors must model attitudes and behaviors consistent with learning goals to reinforce credibility and influence.

Unlike the cognitive domain, affective learning cannot be forced; it requires invitation and student willingness. Learning is most effective when students feel respected, connected, and see personal meaning in the material. Educators can assess growth in this domain through observation, self-reporting, and authentic assessments like portfolios or service reflections.

1. **Receiving** – awareness and willingness to hear or attend to stimuli
2. **Responding** – active participation through reactions or feedback

3. **Valuing** – attaching worth to a belief, behavior, or object
4. **Organization** – integrating values into a system and resolving conflicts between them
5. **Characterization by a Value Complex** – consistently acting according to internalized values

Psychomotor Domain of Educational Objectives

The psychomotor domain focuses on physical movement, coordination, and the use of motor skills. Although Bloom did not originally publish a taxonomy for this domain, later educators such as Simpson (1972), Dave (1970), and Harrow (1972) developed taxonomies to address motor learning. Simpson's taxonomy includes: Perception, Set, Guided Response, Mechanism, Complex Overt Response, Adaptation, and Origination.

Learning in the psychomotor domain is best supported through demonstration, practice, repetition, and feedback. Students benefit from observing a skill, imitating it with guidance, and gradually performing it independently with increasing complexity. This domain is essential in physical education, vocational training, laboratory science, performing arts, and technical education.

Instruction should allow time for muscle memory development and fine motor control. Kinesthetic learners thrive when instruction includes movement, modeling, and sensory interaction. Frequent and specific feedback enhances performance and encourages self-monitoring. Competence develops over time with meaningful practice and scaffolded progression toward mastery.

:

1. **Perception** – using sensory cues to guide motor activity
2. **Set** – readiness to act, including mental, physical, and emotional states
3. **Guided Response** – early stages of learning a skill through imitation and trial
4. **Mechanism** – intermediate proficiency and confidence in performance
5. **Complex Overt Response** – skillful performance of complex movement patterns
6. **Adaptation** – modifying skills to meet new situations
7. **Origination** – creating new movement patterns to fit a situation or problem

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