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Instructional Perspectives: Theoretical Framework of Interdisciplinary Instruction

Educators have a responsibility to understand the mental processes that define intelligence, recognize the power of experiential influences in shaping cognition, and respond to these notions with the development and implementation of instructional practices that are conducive for all learners. Constructivist and brain compatible theories support differentiating instruction and recognize the existence of multiple intelligences and varying learning profiles among a heterogeneous population of students. Interdisciplinary instruction as a differentiated approach to curriculum delivery is a plausible teaching strategy for consideration. With the use of thematic units of study, students are provided with theme-based instruction across multiple curricular domains while strengthening fundamental skills that are reinforced through curriculum overlapping. Similar to Kovalik and Olsen's (1994) integrated instructional model, Parker (2005) described an integrated instructional approach as a curriculum that

> draws together knowledge, perspectives, and methods of inquiry from more than one discipline to develop a more powerful understanding of a central idea, issue, person, or event. The purpose is not to eliminate the individual disciplines, but use them in combination. (pp. 452-453)

Interdisciplinary thematic instruction relies on instructional activities that are related to a central theme that makes them meaningful and organized across subject content disciplines. The concept behind this approach affords educators an opportunity to structure the study of standards imposed by the components of multiple curriculums

(Gardner et al., 2003). Integrating the curriculum is no easy feat for educators in a general education setting and is an even greater task for educators in the inclusive setting. The integration of subject disciplines with consideration given to content standards, IEP objectives, and the vast range of student ability levels require much preparation and knowledge of student learning and instructional methodology (Brodesky, Gross, McTigue, & Palmer, 2007; Hinde, 2005). Attention must be given to the multiple intelligence and modality characteristics of the student population. Further, integration must include differentiated learning opportunities supported by collaboration and experiences which foster motivation for performance.

Learning Styles

The process by which information is received and internally processed from the external environment defines an individual's learning style (Pym, 2007). Multiple models exist for classifying learners according to how they engage in the learning process (Price, 2004; Saddler-Smith & Smith, 2004). Generally, individuals rely on the three predominant modalities for acquiring information—auditory, visual, and tactile or kinesthetic. The variation in processing modes for making sense of the information is defined as learning styles (Silverman, 2006). Among the literature that contributes typologies by which to characterize learning processes there is agreement that it is optimal to support a range of learning styles with a synchronized instructional approach (Pym, 2007). Research has shown that attention to representation and students' processing variation elicits optimal opportunities for knowledge attainment by all students (Olson, 2006), supporting the need to examine student learning styles when considering instructional strategies. Providing a range of experiences for students to

attain content knowledge and choices to demonstrate skill attainment supports the diversity of learning styles present in the heterogeneous inclusive setting (Tomlinson, 2001).

Multiple Intelligences and Differentiated Instructional Theories

Recognition of the various levels of cognitive ability and learning preferences that each individual hones supports the methodology of providing instructional variances that honor diversity. While learning styles describe the process by which individuals process an experience and thus implicate the need to consider instructional methodologies, "Multiple intelligences claim that we respond individually, in different ways to different kinds of content" (Gardner, 1999-2000, p. 100). Multiple intelligence theory has roots in neurodevelopment and recognizes various intelligence profiles that individuals can hone. Gardner defined these intelligences as logical-mathematical, musical, spatial, linguistic, intrapersonal, interpersonal, bodily-kinesthetic, existential, spiritual, and naturalistic. Individuals display various degrees of each profile as demonstrated by their cognitive strengths and weaknesses. To facilitate cognitive development, instructional practices must reflect authentic experiences, enabling students to connect personally with their learning in a meaningful, rather than abstract, manner. Educators must be sensitive to the individual learning styles of students to support their intelligence attributes (Jones, 2005). McCoog (2007) emphasized that the most effective utilization of multiple intelligence theory is through differentiated instruction in the shared setting. Moran, Kornhaber, and Gardner (2006) further noted that within the inclusive community, learning opportunities often occur that emphasize multiple learning profiles simultaneously across subject

disciplines. This idea supports instructional delivery practices that are differentiated and interdisciplinary.

Differentiated instruction, as defined by Tomlinson (2004), provides multiple opportunities for students to attain content, comprehend concepts, and produce outcomes ensuring that every child can learn successfully. Differentiated instruction promotes the skill development of learners of all ability levels and styles. Like Gardner's (2006) theory of multiple intelligences, differentiated instruction reinforces a student-centered approach to learning that honors individuality. Teachers who use this approach must get to know their students and understand their learning profiles to prepare lessons that will support the range of aptitudes and experiences of a given classroom. Thus, differentiated instruction encourages the modification of curriculum to accomplish many goals at one time, representing different learning experiences for each individual. It is necessary for teachers in differentiated settings to pay particular attention to the range of student levels of readiness, interests, and learning preferences (intelligence profiles), which may be much broader than in the general grade-level classroom (Tomlinson, 2004; Tomlinson & McTighe, 2006).

Differentiated instruction presents a challenging task for educators of mixed-ability classrooms. Tomlinson and Eidson (2004) suggested the use of varied activity levels, student groupings, materials, and assessments, and the establishment of content connections to reinforce concepts at multiple levels. Using students' interests, experiences, and backgrounds to develop key ideas or themes provides motivation and confidence as learners feel personally connected to their learning (Tomlinson & Jarvis, 2006). By presenting students with key ideas or themes and providing multidisciplined

activities, educators support the learning levels of all individuals by reinforcing connections between new knowledge and prior learning across subject disciplines (Barton & Smith, 2000).

Cooperative Learning

Differentiated instruction provides many opportunities for cooperative learning that support student strengths and weaknesses through a social support system. Research on social learning (Lave & Wenger, 2001; Slavin, 1987; Vermette, Harper, & DiMillo, 2004; Vygotsky, 1978) emphasized that social exchanges in classroom instruction benefit all learners. Incorporating the philosophy of Vygotsky's learner-centered and socially interactive model into their work, Lave and Wenger's situated learning theory posited that a community of practice is established through social interactions in which learning occurs. This community models the principles Vygotsky described where learning results from social experiences of exchange within an authentic context and environment. These communities in today's classrooms are often referred to as cooperative learning groups.

Slavin (1987) defined a model of cooperative learning as instructional strategies that grouped students for the purpose of accomplishing academic tasks and a common goal, while assisting each other in understanding new ideas. Instructional arrangements that support cooperative relationships and collaboration among peers provide multiple models and experiences to practice emerging skills (Baglieri & Knopf, 2004). Like Vygotsky, Slavin emphasized the value of learning through interactions and added that the most effective way of developing one's ideas is through the act of communicating and discussing with others (Fore, Riser, & Boon, 2006). The dialogue that exists among individuals assists in the construction of new meaning and the development of

relationships between prior knowledge and new experiences. If student achievement is measured by individual growth, then all students within a group, regardless of ability level, are provided with an opportunity to thrive (Fore et al., 2006). For the students with a higher level of content mastery, collaboration with peers may yield deeper understanding and expanded connections as they explain material to others. For the students who may have difficulty understanding a concept, peer support through explanations and modeling yield a chance for greater comprehension. For many students with special needs included in the general education setting with their peers who are not disabled, engaging in social learning experiences promotes opportunities for learning through peer modeling, discussion, and positive reinforcement.

Academic activities that require collaborative student participation and that incorporate small group assignments and whole-class activities provide students with a greater opportunity to learn from a sharing of distributed knowledge among the learning community (Coke, 2005). Activities can include group projects, educational games, math teams, and literacy groups. These cooperative engagements require each individual to contribute to a group utilizing an area of strength, while learning and developing an area of weakness from the contributions of group members (Coke, 2005). Further, cooperative learning opportunities demonstrate benefits on social skill building in support of cognitive development (Slavin, 1987). An integration of curricular standards and social learning strengthens the likelihood of developing skills in all areas (Kress, Norris, Schoenholz, Elias, & Seigle, 2004). As students with special needs improve self-esteem and self-confidence, supported by peer interactions, they experience higher levels of motivation for learning.

Motivation and Student Achievement

When struggling students are provided with experiences to participate in the learning environment at a level that demonstrates their self-confidence, they evidence greater levels of motivation to pursue new opportunities (Marzano, 2003). Brophy (1988) defined motivation to learn as "a tendency to find academic activities meaningful and worthwhile and to try to derive the intended academic benefits from them" (pp. 205-206). For over 20 years, researchers have examined motivation as a factor that impacts the learning environment (Edmunds & Bauserman, 2006; Kluth et al., 2003; Marzano, 2003; Whitehurst & Howells, 2006). Studies demonstrated that motivation affects the type of learning that occurs inside and outside of the classroom. Higher levels of motivation have been linked to internalized learning that is permanent (Dweck & Elliot, 1983).

Researchers (Emmons & Thomas, 2008; Glynn et al., 2005) adopted multiple orientations of motivation to explain their impact across various constructs. Cognitively, a lack of motivation leads to negative thinking and minimal self-belief, resulting in a behavioral context of inactive participation or task avoidance behaviors. Psychologically, heightened levels of arousal can lead to stress factors, nervous responses, and anxieties. Affectively, students may experience feelings of fear, apprehension, and shame that could lead to anger and aggression. Students with special needs often experience a combination of these orientations, impacting their ability to equitably participate in the inclusive community. Research demonstrates that increased levels of motivation, supported by factors of the inclusive environment, affect the students with exceptionalities' feelings of acceptance and validity in their contribution to the learning community (Carpenter & Dyal, 2007; Whitehurst & Howells, 2006). Carter and Kennedy (2006) asserted that the

absence of instructional strategies that support motivation for participation in learning leaves students' with disabilities disengaged and isolated from their peers. Students with disabilities' perceptions of belonging, social validity, and confidence for academic goal achievement affect their motivation to participate in learning, resulting in higher levels of academic performance.

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