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Universal Design and Multiple Literacies: Creating Access and Ownership for Students With Disabilities

Given the prevalence of reading and writing difficulties among students with disabilities, coupled with the high number of these students accessing the general education curriculum and instruction for the majority of their school day, providing access to general education curriculum and grade level academic content is a challenging task for general and special education teachers alike. In this article, we explore the concept of universal design and multiple literacies as a means of not only providing equal access to general education curriculum and instructional goals, but also providing opportunity for the development of literate thought for all students. We explore the use of both technological- and nontechnological-based strategies and methods of instruction and discuss the impact of using universal design as a means of providing educational justice for all students.

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LITERACY SKILLS, considered essential for success at the secondary level, are particularly difficult for students with disabilities to master, as evidenced by lower scores in nearly every written language area measured by norm-referenced tests. Students with cognitive, processing, sensory, or cultural language differences often struggle to obtain complex information through the reading process and/or struggle to express their knowledge through writing. These students must be able to obtain the same critical and complex information and share their intellectual insights through other means and options, as well as through reading and writing print text, described here as *script literacy processes* (Scherer, 1999).

According to the most recent information available from the National Center for Educational Sta-

tistics (2005), approximately half of all students 6–21 years old with documented disabilities spend 80% or more of the school day in the general education classroom. Given the prevalence of reading difficulties among students with disabilities, coupled with the high number of these students accessing the general education curriculum and instruction for the majority of their school day, identifying provisions of access for these students to the general education curriculum and grade level academic content is imperative. Furthermore, once accessed, opportunities must be provided for the multidimensional cognitive use of concepts acquired, or in other words, performance of literate thought.

In an equitable classroom, teachers and students regard one another as capable of learning both basic and high-level concepts, and there is equal access to tasks demanding higher order thinking. Students are not blocked from participation because they are not *ready* (Cohen, 1997). A major premise of the multiliteracies group is that the mission of education is "to ensure all students benefit from learning in ways that allow them to participate fully in public and economic life" (Cope & Kalantis, 2000, p. 9). We propose that accessibility of complex information and opportunity for literate performance for all students is a matter of social or, more specifically, *educational justice.* Therefore, we believe it is necessary to prepare teachers so that they have the ability to not only ensure equal access to academic content for all students, but equal opportunity for performance of higher order thought.

We represent a situated cognitive approach to understanding multiple literacies and use the term to describe alternative means of accessing information and demonstrating metacognition beyond the use of traditional forms of reading and writing. While the modes of access and presentation provide the pathways, the term *multiple literacies* denotes the interactive use of language in and through metacognitive tasks with others, and thus the situated cognition approach (Lave & Wenger, 1991). From our perspective, the purpose of expanding the definition of literacy is to provide access to general education curriculum, instruction, and, ultimately, literate thought for students with disabilities. In our view, *literacy* as a construct has an intake or access component, as well as an external or affective result as public performance, concluding in a state of epistemic ownership by the learner (Giroux, 1992; Wall & Datillo, 1995). Therefore, by focusing our discussion on the concept of universal design and the application of this concept to differentiating access and performance, we believe that educators can provide educational justice for all students.

Universal Design

The ultimate goal of literacy instruction is to foster comprehension, promote the use of higher order thinking skills, and develop literate thought (Olson, 1989; Snow & Dickenson, 1991). According to Paul (2001), literate thought is defined as "the ability to think reflectively, logically, rationally, and creatively" (p. 72). It is not, therefore, a unidimensional construct, but one that involves not only comprehension but also synthesized metacognition recognized in and through performance. Unfortunately, many students with disabilities are unable to develop these abilities because information presented in schools, particularly at the secondary level, is primarily presented in the form of script literacy. It is proposed that if access to concepts at the secondary level is expanded to include alternative means of acquisition beyond the form of script literacy, then more students, especially those who struggle with reading and writing skills, will have the potential to develop comprehension and multidimensional metacognitive skills or literate thought.

Universal design is the application of an architectural concept in which the designers of architectural spaces planned and created their products with *all* persons in mind, rather than adapting to personal needs and strengths after the fact. In the early 1980s, this concept was coined *accessible design* (Bauer & Kroeger, 2004, p.44). This concept has recently been applied to schools and classroom curricula where all students' needs are taken into account during the curriculum planning stages, to design an egalitarian and accessible con-

tent delivery system for all learners (Meyer & Rose, 2000).

Universal design for learning addresses the design of curriculum delivery in which students who struggle to gain information through the reading process or who have difficulty writing to express their thoughts are provided with alternative means to not only assist their labor, but allow expression in a form of preference, consistent with true intentionality and ownership (Mastropieri et al., 2001). Using these alternative means, available cognitive energy may be used for higher order thought, rather than on the script literacy skills some students struggle to apply. In a universal design learning environment, instructional methodology caters to the individual needs and strengths of the students at the initial planning stage, rather than as afterthoughts.

The three essential qualities inherent in universal design are representation, expression, and engagement (Orkwis & McLane, 1998). These essential qualities can be interpreted to mean (a) providing authentic or situated language learning opportunities for students to learn and acquire complex information in a variety of multisensory formats or representations (e.g., Web sites, video, performances, etc.) and through a variety of means (e.g., discussion, learning in coteaching settings, reciprocal teaching, reflection, project-based assignments); (b) providing opportunities for students to express what they know in a variety of multisensory formats and through a variety of means; and (c) designing the course content to address various skill levels, learning style preferences, and interests from the outset (Tomlinson, 1999, 2001). This, then, levels the playing field in the beginning, so that in the end there is equitable learning, termed *equifinality* by Chow, Blais, and Hemingway (1999).

This focus on the use of differentiated instructional techniques is a crucial ingredient to providing access for all participants in an authentic and situated learning environment. In essence, this allows students to flourish in terms of performance as a part of a supportive setting conducive to learning in the style, mode, and presentation most comfortable to them, and in which they are, or may become, most literate, if, in fact, script literacy is a difficult endeavor. These principles not only add to the richness and effectiveness of teaching critical and complex academic content, but provide students with choices about how they learn, how they share what they have learned, and how they are ultimately assessed (Marzano, 1992; Wall & Datillo, 1995). In addition, these principles are responsive to student preference as well as need, and address the affective domain essential to cognitive development (Bruner, 1990; Denton, 2005; Given, 2002).

This application not only benefits students who have difficulties with content taught in traditional ways, but is also effective with students who typically do not experience difficulties learning through the traditional methods of primarily reading and writing. This means that teacher preparation programs must include a variety of multiple literacy methods of *how* to teach content effectively and flexibly, with the focus not being on content and content coverage alone. Rather, the focus should be on developing overall meaning and mediating individual student learning by encouraging deep, reflective, and evaluative thought (Feurenstein, 2000; Reis et al., 1998; Vygotsky, 1978).

Universal Design and Differentiating Access to Content

Using universal design learning provides a conceptual framework that may include differentiating complex content to be acquired and used based on learning systems, approaches and styles, and multiple intelligences, as well as varying cognitive, physical, sensory, motivational, cultural, gender, and language ability levels (Gardner, 1993, 1999; Given, 2002; Sternberg & Grigorenko, 2004). It is only when employing these concepts as a basis for responsive instructional practice that educators can begin to address all students and their inherent unique and interacting qualities. Using universal design, general and special educators can rely on both technological and nontechnological strategies and methods to differentiate the curriculum and instruction for students who typi-

cally struggle to acquire and synthesize information using traditional reading and writing activities.

Technologically Based Strategies and Methods

Augmenting the curriculum can involve creating learning experiences or illustrative resources to be presented electronically (e.g., graphics with spoken word) and may offer students who are fluent in *reading* graphics and listening to text the ability to more effectively gain complex information from required text (O'Brien, 2000). Other examples of curriculum augmentation that employ instructional technology include the use of audiocassettes of a given text, videocassettes of related content, or those that parallel material presented in texts and other print materials, such as videos presenting information translated in American Sign Language (ASL).

Additional instructional technologies that can be utilized with students include hypertext/hypermedia programs that provide learning alternatives in nonsequential and nonlinear formats for mastering content. In addition, CDs and DVDs can be used for recording activities such as teacher demonstrations in Physical or Biological Science or a lecture presented in ASL that may be referenced at a later date. The use of digital still or video cameras allows students to document fieldwork or a certain process (e.g., dissection) that can be reorganized in Web pages, pod cast, or printed and added to student permanent products (Lazarus, 1998). Smart Boards are being used in schools to retain all notes and illustrations presented during class instruction that can be distributed to students after class or at a later date, and/or placed online. This technology also allows a student to manipulate the text and pictures using a touch screen approach. Finally, Cleveland Public Schools are providing real time video feeds for virtual field trips. For example, the high school students in one school witnessed an actual heart surgery being performed at the Cleveland Clinic with the physician verbalizing the procedure and answering questions.

Alternative methods for inputting information into computers are also readily available for students who cannot type or write to document what they know or have learned. There are programs that recognize speech, as in the Dragon Speaking Naturally, version 9.0 (Scansoft, Inc.: Burlington, ME); or those that give speech feedback and provide word prediction, as in Co: Writer 4000 (Don Jonston, Inc.: Volo, IL). The Kurzweil 3000 (Cambium Learning Technologies Co.: Bedford, MA) has features for reading, scanning, accessing electronic information, and writing. The reading component combines audible and visual feedback reference tools. The writing component has a built-in word processor with an audible spell check. Software such as Clicker 5 and ClozePro (Crick Software, Inc.: Redman, WA) and Inspiration (Inspiration Software, Inc.: Beaverton, OR) are designed to assist students in writing by including graphic organizers that organize vocabulary. Talking word processors can *read* text from the computer screen and enlarged print systems are available for students with visual, as well as reading, disabilities. There are also modality translation services on demand using wide-area, high bandwidth networks, and wireless communication technologies making world information more accessible to all (O'Brien,1998; Zimmerman, Vanderheiden, & Gilman, 2002).

Nontechnologically Based Strategies and Methods

Universal design techniques do not necessarily need to rely on technology in order to be successful. Graphic texts are a perfect example of a nontechnological means of melding print and illustration in all genres of literature that can assist learners in visualizing textual material. Still another method, based on Socratic dialogue, is reciprocal teaching. This instructional design strategy promotes the thinking and evaluation of complex ideas through inquiry-driven discussions between students and teachers and amongst students themselves (Palincsar, Brown, & Campione, 1991). In using reciprocal interaction, a teacher can rely on students' prior knowledge and experiences to add a context that emphasizes and incorporates language development and use (Alexander, 1997). The curriculum and teaching then focus on meaningful, authentic activities related to students'

lives, targeting higher level critical thinking skills, and providing a dynamic assessment arena in which to discern needs and strengths (Ivey, 2000; Sternberg, 1997).

Experiential learning opportunities that are kinesthetic and tactile can also help students retain information for further synthesis through episodic memory, since many students, particularly those with disabilities, are kinesthetic learners (Greenleaf, 1999, 2002; Jensen, 1998). In addition, students who have difficulty demonstrating knowledge and insight through writing should be given *options* for expressing knowledge that are as equally valued by teachers and peers as are traditional writing exercises (Levine, 2003). For example, students who have acute verbal skills, but have difficulty writing, need an alert teacher who can invite them to interview others, contrast and compare their answers, make graphs, debate, provide content in recorded news story format for the class, and so forth. The students can then synthesize their findings in a format that is appropriate to their individual literacy needs and move past mere writing. This would augment their learning, visual and graphic skills, comprehension, and, ultimately, literate thought, while at the same time reducing the anxiety created during writing-only activities. It would most assuredly affect the perceived status of an individual both from an external, as well as an internal, point of view (Cohen, 1997; Sternberg, 1997).

In a classroom at a high school in Ohio, the first author observed another example of an augmented and differentiated curriculum that addressed the individual needs and strengths of a ninth grader who had difficulty reading and presenting orally to the class. In this classroom, the student was given the option to create a video, with claymation figures, depicting *The Odyssey*, which his class was reading in Language Arts. The short video demonstrated not only the student's comprehension of material and literacy with content, but was translated into artistic and visual media. Since the student struggled to read and was reluctant to present orally, developing action with created figures and then filming it resulted in an excellent short film reflecting his understanding of part of the story of Odysseus' travels and the inner struggle he experienced.

This option strengthened and deepened the student's interaction with the content of the story and, subsequently, his understanding. We would argue that in the translation to visual and artistic media, the student performed a form of multidimensional synthesized thought. Without such an option, this student would not have been able to demonstrate his unique strength and motivation to create. It definitely astounded his teachers and classmates, and enhanced his status as an individual within the class. This is just one example of utilizing multiple literacies at the secondary level to enhance comprehension and foster higher order thinking skills.

Educational Justice

The lack of access to script literacy, and therefore the development of literate thought, limits opportunity and keeps those who *know* from those who cannot access this *knowing*, because of this limitation. It is a political and social reality that the current educational system is failing a portion of the population (Friere, 1970). In the Western Hemisphere, educational value emphasizes individualism and therefore "education must be used for individual development and to foster freedom from dominance of systems" (Jennings & Purves, 1991, p. 8). The question then arises that if literate thought is limited to script literacies by education institutionalism, are we not restricting free, creative, and multidimensional thought of those who struggle with script literacy? And, what kind of talent may be lost through such a restriction?

If we want all our students to be able to participate in all aspects of society, why are some—in fact, why are *any* students—left out of the general educational vision of literacy we hold as fundamental to human success and progress? The developmental psychology model supports the notion that a student, trapped by chronology, who cannot read ninth grade material is not *ready* for ninth grade; such a model ignores the emotional, cultural, sensory, social, physical, motivational, and gender needs and/or strengths of such a young person. Our proposition here is to ask how we, as educators, can support these students, or any students in ninth grade for that matter, by augmenting diffi-

cult and complex textual materials. How can we provide an environment conducive to the development of metacognition that is not restrictive? This can be accomplished through a variety of multiple literacy presentations that would support and differentiate how learning, understanding, and multidimensional synthesized thought occurs for not only the struggling ninth grader, but all ninth grade students.

Second, how can language learning be more authentic and involve situated practice to engage students in language as a means for development of literate thought? How can we support students to develop their metacognitive strengths in authentic and supportive environments without fear of ridicule or loss of status? We know that fear can debilitate and restrict the engagement of students, a component essential for universal design (Sousa, 2001). Our proposed premise is that there is a need to differentiate content for students with limited script literacy proficiency so that the development of literate thought is not diminished for them (Lenz, Ehren, & Deschler, 2005; Marzano, Pollock & Pickering, 2001). In addition, using universal design to address multiple literacies, we can strive to provide creative and multiple pathway options for access and for expression of knowledge for all students, thus empowering them to become active in acquisition and metacognitive application (Kuhn & Dean, 2004).

Conclusion

Differentiating the curriculum is an ardent task, especially if undertaken lesson by lesson. It is suggested that teachers differentiate in broader terms for units, plan curriculum with their colleagues, and then provide a variety of options within each lesson for students to access and use pertinent and complex content in multidimensional literate ways. Students should also be encouraged to develop their own options for learning. At the secondary level, cooperative and authentic projects and inquiry-based units that connect content from different disciplines are the most appropriate. This approach to curriculum is sequenced and can easily meet state content standards.

A paradigm shift is needed to move from standardized traditional teaching focused on script literacy to teaching that focuses on multiple literacies. This shift is necessary for secondary educational reform to occur, not only in terms of reading and writing, but in terms of thinking and doing or alternative and multiple literacy performance (Lenz et al., 2005; Simon, 2001). Literate thought does not imply that one must be able to read well or write well in order to think, reason, and contribute information through performance (Gee, 1996, 2001; Kellner, 2001; Paul, 2001). In fact, would we not say that the bards of old who traveled and shared their stories verbally were not literate? Once the stories were written down they could be read, but they had begun as folklore, told from person to person. Would we say that persons with significant visual disabilities are not literate because they do not read script, but rather decode through the symbol system of Braille? Although fluent in ASL, should we assume that a person who is deaf or hard of hearing is not literate because his rich and expressive manual language does not have a parallel written counterpart?

It is time to reconceptualize the term *literacy* to include multiple literacies. By employing universal design instructional strategies, we, as educators, can provide equal access to complex curriculum typically only afforded to those students who read and write well enough to access the content and provide demonstration of knowledge and literate thought via these traditional methods. Through curriculum planning and the use of authentic and relevant learning situations, general and special educators can collaboratively develop instructional methodologies using knowledge gained from assessment and student involvement, to structure opportunities for the access and ownership of multifaceted material, ultimately leading to educational justice for all students, including those with disabilities.

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