

Cognitive Educational Models of Assessment, Programming and Instruction for Native Learners

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The article examines issues related to assessment and instruction for Native North American learners. The inappropriateness and inadequacy of assessment instruments normed on the majority population is demonstrated for Inuit learners. Bias in favor of the majority culture, in both assessment and curriculum content, has been identified as leading to low academic achievement of Native students. A number of approaches to Native assessment and instruction are examined, particularly attempts to identify Native learning styles and to adapt curriculum and instruction to match Native learning styles. A cognitive educational model of assessment, programming, and instruction is proposed to meet the instructional needs of individual Native students for development of each student's full potential.

The purpose of this article is to examine issues related to low academic achievement, including the issue of bias in norm-referenced assessment and curriculum content, of Native North American children. Available evidence on learning characteristics of Native children and alternative instructional models that offer promise for interrupting the pattern of low achievement are also examined.

Larose (1991) draws attention to the fact that about 78% of Native young people drop out of school before the end of high school. As well, Krebs, Hurlburt, and Schwartz (1988) report high unemployment rates for Native people, with few completing postsecondary programs of study. Such evidence of low achievement has led writers (e.g., Obiakor, 1992) to note that misidentification, misassessment, misdiagnosis, and misinstruction have plagued many at-risk and disadvantaged students for whom new educational strategies are required. Numerous writers focus specifically on the problem of bias in assessment of culturally different individuals. For example, Tallent (1992) makes reference to the test taking disadvantage of such individuals, which can result in inequities in, or denial of, educational opportunities.

Wilgosh, Mulcahy, and Watters (1986) examined data from a project that involved renorming the WISC-R for Inuit children from the eastern Arctic. This norming project addressed an immediate concern with bias in the educational assessment of Inuit children by developing local norms for the WISC-R. Wilgosh et al. (1986) attempted to quantify the amount of bias present when inappropriate WISC-R (US majority population) norms are misapplied to culturally different minority children, such as the Inuit children involved in the norming project.

For the 366 Inuit students in the norming project, Wilgosh et al. (1986) found that, using the US norms, 282 students obtained a Verbal Scaled Score of less than 70 (77.04% of the sample), and 118 students (32.24%) obtained a similar Full Scaled Score. As the researchers state, "Thus 77.04% of the norming sample would be misclassified as 'retarded,' based on the Verbal Scaled Score, and a total of 118 cases would be so misclassified based on the Full Scaled Score" (p. 273). The nonverbal Performance Scaled Scores resulted in far less misclassification of the Inuit children. On the Verbal and Full scales, none of the Inuit children scored above an IQ score of 120, so that none would have been classified as gifted using the US norms. A linear transformation of the data to a mean IQ of 100 resulted in a shift in the proportions of the Inuit sample scoring at the extremes of the distribution, more closely approximating Wechsler's (1974) 2.2% of the distribution scoring below an IQ of 70, with 9.02% falling at or above an IQ of 120, compared with Wechsler's 9.7%.

Wilgosh et al. (1986) comment that renorming to a local standard of performance does not adequately resolve the problem of bias in Native assessment. "If the child is being educated with the goal of remaining within, or moving beyond his local culture, then some comparison with national norms is indeed relevant" (p. 275). Although these data rather dramatically illustrate the misapplication of standardized tests to culturally different children and the potential for misclassification of these children, the above quotation raises two critical issues. Merely renorming the biased tests will mask, but will not solve, the problem of misclassification, because it perpetuates the usage of inappropriate test content for placement and instruction of culturally different, minority children such as Native children. Furthermore, such solutions do not address the issue of cultural milieu and curricular content for such children. Do we want to limit their academic success to their own cultural context, or should our goal be to develop skills and knowledge that will allow them to move readily into and within the broader cultural context?

McShane (1988) confirms that the vast amount of research on assessment of Native cognition has demonstrated inadequacies of assessment instruments and procedures and provided little information on Native cognition. Persi and Brunatti (1987) contend that "The different fund of knowledge acquired by traditional Native children is relatively unmeasured by such tests" (p. 15), but that poor performance on majority-norm-referenced tests is a good predictor of poor performance on non-Native curricula. Thus there is a need both for more appropriate measures of thinking skills for Native students and curricular revisions for Native students.

Native Learning Style

Some researchers have attempted to identify a "Native learning style" and matching curricular strategies as a means of improving academic achievement for Native students. Browne (1990) reviewed the literature on learning styles, concluding that there are a great number of different ways of describing learning styles. She concluded that the hemisphericity model of learning style was most useful, because her research with the WISC-R has led her to believe that Native Americans are encouraged by their culture to develop a "right hemisphere dominant learning style" (p. 28). Learning qualities she identified with "right hemisphericity" include a preference for a personal and informal relationship with authority figures and group work toward common goals. She cautions that

we cannot objectively assess learning styles and do not want to dichotomize children as right- and left-brained. Nevertheless, she provides a variety of suggestions for reaching each student, "regardless of his or her hemispheric preference" (p. 32), including recognition that Native children come to school with developed, holistic learning strategies based in personally meaningful experience, which should be incorporated into the learning environment.

Swisher and Deyhle (1989) attempted to illustrate Native learning styles from classroom examples on the premise that "The approach to learning and the demonstration of what one has learned is influenced by the values, norms, and socialization practices of the culture in which the individual has been enculturated" (p. 2). Their list of learning style qualities of Native learners includes thinking before doing, observational learning, and cooperative learning, and they encourage teachers to adapt their teaching style to the learning style of students.

Swisher (1990), from a review of the relevant literature, identifies a number of instructional practices congruent with Native learning style, including cooperative learning, avoidance of competition, and observational learning, and states "a need to examine practice, and document in an empirical manner the successful (instructional) strategies that are culturally congruent and achievement oriented" (p. 42). In a subsequent document, Swisher (1991) strongly emphasizes that educators must not lose sight of individual differences, rather than focusing on group characteristics (e.g., learning style) that can lead to stereotyping and discriminatory practices.

Foreman (1991), discusses the appropriateness of drama as an approach well-suited to Native learning style, and affirms such learning style characteristics as listening and observational learning. She identifies two steps in learning: "for learners to gain confidence in their ability to learn successfully within the school setting" (p. 79), and "to provide opportunities for learners to learn using other methods that challenge and develop their potential" (p. 79). According to Foreman, teaching/learning activities from drama that apply to Native learning style include drama strategies of watch-then-do, listen-then-do, think-then-do (reflection); non-direct questioning directed to the group, not to individuals; sharing of leadership/authority; experientially-based activities; cooperative, project-oriented learning tasks; and nonverbal communication.

Larose (1991) has taken issue with Native school failure as being a direct function of lack of adaptation of school procedures to match Native learning styles, due to lack of any empirical evidence of uniform Native learning styles, particularly the "'right-brained Indians' theory" (p. 82). "If there are any behavioural learning styles related to specific Native enculturative patterns, they vary at the individual and group level" (p. 82). He suggests that modification of teacher behavior and curriculum organization, and the relationships between content areas, is an important step in reaching Native students.

Sawyer (1991) also questions the validity of the Native learning style concept, and reinforces identifying those teaching strategies that have been effective with Native students rather than making stereotypic assumptions about Native learning and behavior patterns. From the research literature (e.g., Swisher & Deyhle, 1989), Sawyer lists 42 suggestions for effectively teaching Native students, including the following: sharing classroom control by allowing students to retain control over their learning, allowing for visual learning preferences and private rehearsal, reducing lecturing and allowing student-directed small-group learning, deem-

phasizing competition in favor of cooperation, using holistic learning approaches integrating and synthesizing learning with prior experience, using experiential learning, multimodal instruction, and a warm teaching style with emphasis on development of self-esteem. Similarly, Krebs et al. (1988), who found low self-image and lack of vocational confidence for Native students, advocate teaching decision making and problem solving skills to build self-confidence for those students.

Native education reviews, such as that done in Alberta (I.D. Systems Ltd., 1992), have explored the extent to which special curricula, materials, and courses are in use in programs for Native learners. The reviewers note a lack of school district initiatives in developing resources, and that Native families had considerable concern about low achievement levels of students. "It is necessary to utilize the abilities, interests, and background of the student along with providing for parental and community involvement, in order to address the problem of underachievement" (p. 30), necessitating research in the learning processes of Native children. The reviewers found that Native parents wanted academic standards maintained so that their children could compete in "the white man's world" (p. 197). There was consensus among Native professionals "that a unique 'native way of thinking' must be accommodated in the programs for native students" (p. 204), with the development of appropriate curricula and resource materials.

Cognitive Strategies Instruction

Given the problem of bias in norm-referenced assessment instruments and documented low classroom achievement (e.g., Persi & Brunatti, 1987) of Native learners, one must look beyond adapting norm-referenced assessment instruments and curriculum content for Native learners. To deal with the identified problems and issues, some researchers are suggesting radically different approaches to assessment, teaching, and learning. For example, Hilliard (1992) proposes that to be of real value to culturally diverse groups of children any educational intervention must "produce significant and meaningful change in students' cognitive and academic functioning" (p. 170). To that end, he cites the effectiveness of Feuerstein's Dynamic Assessment and Instrumental Enrichment program (Feuerstein, Rand, Hoffman, & Miller, 1980) with cultural minority groups.

Mulcahy and Marfo (1987) state that assessment of cognitive ability in all populations should emphasize cognitive processes underlying learning, and should be individualized much more than is done at present. Rather than analyzing scores attained on standardized tests, the strategies, or processes, that the individual has used to arrive at a particular product should be evaluated; then one can teach learning-thinking skills to children in a direct way in order to increase their cognitive functioning. This approach would apply to all children, but those from culturally different subpopulations such as Native students would receive particular benefit from such an approach to instruction and assessment. The focus on learning-thinking skills, rather than a specific, culture-bound curricular content, addresses concerns expressed earlier in this article.

A number of cognitive strategies programs are currently being developed and evaluated in educational contexts. The Strategies Program for Effective Learning and Thinking (SPELT), developed by Mulcahy and his associates (e.g., Mulcahy & Marfo, 1987), is designed to have the child learn how to learn through spontaneous

use of self-generated learning-thinking strategies in the school and in the broader social context. Students are actively involved in the learning program to raise their awareness of their own cognitive processes and how to control those processes, to lead the students to discovery learning rather than teaching facts to them, and to challenge them to be critical, systematic, and strategic in their attitude and behavior toward learning and problem solving. In addition, a set of recommended and teacher-generated strategies is taught to the children, and they are taught personal control and generation of effective strategies. To date, the program has been used successfully with learning disabled, average, and gifted achieving and underachieving children, but not specifically with culturally different underachieving children in North America.

Two programs with similar goals, Feuerstein's Instrumental Enrichment (Feuerstein et al., 1980), and Adams and Wallace's (1989) Thinking Actively in a Social Context (TASC) project have been used successfully with the latter group of children. Issues described by Adams and Wallace (1989), for example, related to development of potential for Black South African children are similar to those discussed earlier for Inuit children and other culturally different, underserved groups of children.

Feuerstein's Instrumental Enrichment program and the Strategies Program for Effective Learning and Thinking appear to be particularly suitable for Native North American youngsters because of their focus on the development and nurturing of the cognitive skills and competencies that are crucial to success both in and out of school, and because of the kinds of interactions they foster between teacher and student. Instrumental Enrichment was originally developed with culturally disadvantaged adolescents in mind and SPELT is being developed within a Canadian context (rural and urban north-central Alberta). Instrumental Enrichment has been used successfully with academically underachieving Native adolescent students (Carnew, 1985). However, the paper-and-pencil tasks typically used in Instrumental Enrichment were adapted to computer tasks that proved more successful with the Native students. There is a need for more direct validation of the two programs, particularly SPELT, with Native samples.

The emphasis of SPELT on the development of learning/thinking strategies directly within the curriculum seems to make it particularly appropriate for children who by virtue of their different cultural experiences may have difficulty coping with the mainstream curriculum. The use of cooperative learning principles in the teaching of metacognitive and cognitive strategies would be ideally suited for children who prefer a collaborative model of learning. Also, as the program is designed to teach children how to learn, not necessarily what to learn, it could be applied within the context of any specific curriculum or content area for any given group of children. Because it is designed to capitalize on each individual student's repertoire of cognitive strategies, it will not impose strategies that may be counter to effective strategies already in use by any particular individual or group of individuals. The program recognizes that children, depending on their unique learning preferences, cultural experiences, and prior knowledge, may possess a variety of strategies that work for them. The program builds on those strategies that work, while providing the context for learning new strategies or modifying existing inefficient strategies. For example, the "Breaking a Normal Pattern" and "Concentration" strategies (Peat, Mulcahy, & Darko-Yeboah, 1989) may be particularly useful in modifying inefficient strategies for Native youngsters.

The emphasis on teaching both social and academic cognitive and metacognitive strategies is crucial. The ultimate goal for all strategy instruction is to put the student in control of the learning process, critical for youngsters who have difficulty learning or are poorly motivated. A basic rationale underlying this goal is that, as students gain more and more control over the learning process, they become increasingly motivated to learn and to perform. As these programs are geared to developing intrinsic motivation and internal locus of control, they may be one step toward alleviating significant absenteeism in many contexts. This effect of strategy instruction is particularly important in light of our knowledge that the high drop-out rates among school-age Native youngsters may be partially linked to motivational problems.

Conclusion

In light of the concerns with the traditional psychometric approaches to the assessment of cognitive ability for culturally different students such as Native students, these instruments are of limited utility for instructional programming and remediation. As well, attempts at identifying Native "learning style" have been ambiguous.

In presenting an alternative to current assessment practices, we have adopted a cognitive process approach that emphasizes learning and thinking strategies. Programs such as those described have been designed to make individual strategy assessment an integral part of the instructional process. Preliminary results from our ongoing evaluation of the SPELT and Feuerstein programs are encouraging; both programs appear in the short term to lead to increased self-esteem and perceived competence. Data from direct student assessment and from teacher and parent perceptions of student change all point to a positive affective impact. These results are important because of the known relationship between affective variables and school achievement and point to the potential efficacy of the programs in the long term. Such cognitive processes approaches, focusing on learning/thinking strategies, seem particularly relevant for enhancing the abilities of Native youngsters to function effectively in their often ambiguous, culturally confusing, and rapidly changing surroundings.

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