# Learning and Study Practices of Postsecondary American Indian/ Alaskan Native Students

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This study examined the learning and study practices of postsecondary American Indian/Alaska Native students attending community colleges in the southwest. Using a survey design, students completed the Kagan Matching Familiar Figures Test, the Schmeck, Ribich, and Ramanaiah Inventory of Learning Processes, and the Weinstein, Palmer, and Schulte Learning and Study Strategies Inventory. Results revealed that students had, at best, average learning and study skill abilities in and outside the classroom. Out of the 14 skills assessed, only four were identified to be at the "moderate or average" ability level. These included information processing, self-testing, use of study aids, methodical study, and elaborative processing. Three of these skill areas bordered "low/moderate" ability. These included level of motivation, ability to select main ideas, and fact retention. Six of these skill areas were identified to be at the "low" ability level. These skills included attitude, use of test strategies, concentration, level of anxiety, time management, and deep processing. Based on the results, recommendations are provided to institutions and faculty for facilitating the improvement of these learning and study strategies.

Minority students account for almost one-quarter (23%) of postsecondary education students with American Indian/Alaska Natives accounting for approximately .9% of this total (National Center for Education Statistics [NCES], 1998). During the period between 1976 and 1994, postsecondary enrollment increased nearly 30% with minority students accounting for more than half of this gain. NCES data (as reported by O'Brien & Zudak, 1998) reveal that in 1994 1,000 institutions enrolled almost two-thirds of all minority students.

In the larger picture of American higher education, community and tribal colleges play a significant role in providing educational access and opportunity to a diverse clientele. Each fall, approximately half of all minority undergraduates enrolled in higher education attend a community college. Arguably, community college campuses reflect the diversity of the American population. Students enrolled come from all ages and from different cultural and ethnic backgrounds.

In fact, among minorities, community colleges are the schools of choice (American Association of Community Colleges, 1998).

According to the American Association of Community Colleges (2000), these institutions saw an increase in enrollments of minority students from 25% in 1992 to 30% in 1997. There were only slight enrollment increases for American Indians/Alaska Natives (from 1.1% in 1992 to 1.3% in 1997). During this same time span, minority enrollment at four-year colleges increased from 21% to 24%. Once again, there were minimal enrollment increases for American Indians/Alaska Natives (from .7% in 1992 to .8% in 1997).

Many of the historical assimilation efforts aimed at increasing American Indian/Alaska Natives' presence within mainstream American systems were double failures. Not only did these efforts weaken the pride and solidarity found among American Indians/Alaska Natives, but also assimilation rarely took effect on mainstream American thought; that is, the general populous and the institutions representing them did not and have not embraced American Indians/Alaska Natives despite attempts toward inclusion.

Given these changes in student demographics, it becomes increasingly important to better understand who these "new majority" learners are in terms of learning styles; reasons for participation and school choice; and attitudes towards learning and education, the world of work, and the link that connects the two (Rendon & Hope, 1996). Equally important is for educators to become more competent in the knowledge, skills, and abilities that in turn can lead to higher retention and learning success for these students (Clark & Cheng, 1993; Wlodkowski, 1999a, 1999b, Wlodkowski & Ginsberg, 1995). According to Clark and Cheng (1993), "In order to effectively educate all student groups, faculty will need to achieve cultural literacy and cross-cultural communicative competency" (p. 5). As we witness the changing profile of students in community colleges, educational programs will need to broaden curriculums to reflect multicultural and linguistic information as language differences, cultural values, principles, and practices become more vivid in today's classrooms. An emerging issue in higher education is the use of learning styles research to create more positive, effective learning environments for all students.

A major limitation, however, of the research and theories surrounding learning styles is that the primary focus is on information processing or cognitive habits (Aragon, 1996; Curry, 1991; Jonassen & Grabowski, 1993). Curry (1991) submits that specific information processing habits is only one factor that influences learning styles and/or successful learning. She posits that in order to adequately design educational programs that lead to successful learning, the constructs of motivation maintenance and task engagement must also be considered.

## Problem Statement and Purpose

The current field of adult learning theory has a severe shortage of research that focuses on minority students as the unit of analysis. Rendon and Hope (1996)

have listed research that assesses how students of color learn best as one of the major needs for reforming higher education in lieu of the current demographics. Nearly 14 years ago, Bonham (1988) argued that the previous research in adult learning theory had failed to control for variables such as cultural background and gender. A short three years later, Ross-Gordon (1991) called for a multicultural perspective on learning, stating that while theoretical frameworks of learning did exist, they were often inappropriate for studying minority adults. More recently, Brookfield (as cited in Wlodkowski, 1999a) strongly emphasized the need for a culturally relevant perspective of adult learning by stating that "it is necessary to challenge the ethnocentrism of much theorizing . . . which assumes that adult learning . . . is synonymous with the learning undertaken in university continuing education classes by White American middle-class adults in the postwar era" (p. 7)

Within the context of Indian education, this same need has been expressed by researchers. Pipes, Westby and Inglebret (1993) state that "both students and faculty must have knowledge of both the Native American and mainstream culture if Native American students are to be successful in the university environment" (p. 148). More recently Swisher and Tippeconic (1999) stress that the teaching-learning relationship between students and teachers must be a primary focus of research and practice.

Through a comprehensive meta-analysis, Aragon (1996) found several limitations associated with American Indian/Alaska Native learning styles research, which supported the need for this study. First, the major focus has been on the information processing or cognitive habits of learning. While studies exist that examine learning styles from a cognitive perspective, studies that looked at learning and study strategies were scarce. Second, the bulk of the learning styles research has been conducted with children rather than adults. Consequently, it is unclear how or whether the current findings apply to the field of adult Indian education. Finally, the research reviewed as part of this meta-analysis was found to be weak in terms of describing the method used for the research. Specifically, many of the studies reviewed lacked a discussion on the procedures of the method as well as a description of the instruments and their psychometric ratings. Consequently, this brings the validity of these studies into question:

In response to the current limitations of the learning styles research, this study was initiated to further the development of a theoretical framework of learning for American Indian students in postsecondary classrooms. The purpose of this second descriptive study was to identify the extent to which American Indian/Alaska Native community college students utilize a given set of learning and study strategies to facilitate learning. This study was guided by the following research questions.

1. To what extent do students report the use of given learning and study strategies to facilitate their learning?
2. Which learning and study strategies need further development to promote academic success?

3. What attitudes do students hold in regard to their ability to succeed in college?

## Theoretical Framework

Curry's (1991) Theoretical Model of Learning Style Components and Effects was used as the theoretical framework for the study. She posits that there are three constructs that influence learning styles and/or successful learning. These include the maintenance of motivation, level of task engagement, and specific information processing habits (cognitive control functions).

According to Curry (1991), motivational levels are maintained once the learner establishes preferred environmental and social conditions for learning. Factors contributing to motivation include a general sense of self-efficacy (belief/confidence in oneself) and self-control. However, there may also be an element of biological need for different environmental elements such as quiet, heat, and/or light. Because this component interacts directly with the learning environment, preferences for particular physical environmentals and social conditions can easily be altered in the learning situation and possibly have direct bearing on learner motivation.

The engagement level is defined as "the point of contact between the motivational condition of the learner entering the learning situation and the active processing work required by the new learning task" (Curry, 1991, p. 251). The level of engagement in the intended learning behavior is influenced by the learner's prior history with learning situations similar to the new one encountered. A learner's level of task engagement is reflected in the amount of attention that is paid to features in the instructional situation, how persistent the learner will be, the degree of participation, the enthusiasm, and degree of concentration the learner sustains throughout and beyond the instructional situation.

Cognitive controls refer to the information processing habits or control systems that learners bring to learning situations (Curry, 1991). These controls "represent patterns of thinking that control the ways that individuals process and reason about information" (Jonassen & Grabowski, 1993, p. 83) resulting in their ability to make sense out of the world. In their comprehensive review of the literature, Jonassen and Grabowski (1993) have identified a number of these habits or control systems that have been identified by psychologists studying individual differences. These include field dependence versus independence, leveling versus sharpening, conceptual versus perception, scanning versus focusing, cognitive complexity versus simplicity, reflectivity versus impulsivity, and tolerance versus intolerance. According to Curry (1991) these cognitive controls take place only after the learner becomes engaged in the task.

This model of learning style presents a way in which to link learner motivation, task engagement, and cognitive control. "The suggested connection is that engagement implies intention and willingness to stay focused on a particular learning task in a particular learning situation" (Curry, 1991, p. 252). Motivation must be maintained in order to keep this connection among the three

components maintained. The level of task engagement permits information processing with whatever level of cognitive control the learner has mastered and become accustomed. Learning style itself, therefore, can be thought of as the combination of the learner's motivation, task engagement, and information processing habits.

The collection of these three components of learning style interact in order to make use of previously learned metacognitive skills such as situational analysis planning; self-pacing; self-evaluation and specific knowledge; and skills learned in the instructional situation in order to produce a detectable learning outcome (Curry, 1990). "By this model, investigators using learning outcomes as dependent variables must simultaneously measure metacognitive skills and the specific levels of required knowledge and skills in order to tease out effects of learning style" (Curry, 1991, p. 252).

The rationale behind the use of this particular framework over others was three-fold. First, the primary focus of learning styles research, both within and outside Native American/Alaska Native populations, has been on the cognitive component of learning style (Aragon, 2002). The Curry model provides researchers with a more comprehensive view of student learning styles by recognizing and accounting for the influence of motivation and task engagement. Second, all instruments used in the framework have been found to have good to strong psychometric ratings (Curry, 1990), which has been a common criticism of past learning styles research. Finally, the model has been previously utilized to provide valid learning style profiles for Native American/Alaska Native adult learners (Aragon, 1996) and Hispanic adult learners (Sanchez, 1996).

**Method**

Research Design

This study utilized a descriptive research design. The goal was to describe the learning and study practices of one sample at one point in time. Gall, Gall, and Borg (2003) state, "Descriptive research is a type of quantitative research that involves making careful descriptions of educational phenomena" (p. 290). This design was appropriate for several reasons. First, in this particular study, the goal was to describe the extent to which Native American/Alaska Native community college students use particular study practices to facilitate their learning. Second, the goal was to generate a description of study practices in order to begin generating a basis for explanation and change. Descriptive research builds the foundation for discovering cause-and-effect relationships through the use of experimental research designs (Gall et al., 2003). Finally, research that generates knowledge about practices helps to "shape educational policy and initiatives to improve existing conditions" (Gall, Gall, & Borg, 2003, p. 290). The intended outcome of this study was to make recommendations in how learning and study practices for these students could be improved.

Participants

A total of 206 American Indian/Alaska Native postsecondary students participated in the study. This convenience sample consisted of students in attendance at community colleges in the southwest. Out of the four participating sites, one community college was a tribally controlled college. The demographics that follow are based on 199 reporting cases. Seven students chose not to complete the demographic information form for reasons unknown to the researcher.

A total of 53% ($n = 105$) of the participants were male and 47% ($n = 94$) were female. The age range spanned 16 to 60. Forty-nine different Indian tribes were represented by the sample with 99 participants reporting membership in two or more tribes.

Instrumentation

A total of three learning style instruments were used in the study to answer the research questions. The purpose for using three instruments was to establish the additional validity of the results through triangulation of the data. All instruments had acceptable levels of internal and temporal reliability as well as construct and predictive validity as previously found through available psychometric evidence, reviews of written documentation, and extensive discussion with the instrument developers (Curry, 1990). The three instruments used to measure Level of Task Engagement included the Schmeck, Ribich, and Ramanaiah (1977) Inventory of Learning Processes, the Weinstein, Palmer, and Schulte (1987) Learning and Study Strategies Inventory, and the Kagan (1964) Matching Familiar Figures Test. These instruments are briefly described in the following paragraphs.

The Inventory of Learning Processes (ILP) consists of 62 written items in true-false format designed to examine everyday learning tactics that might be used to meet university degree requirements. These 62 items are arranged into four scales: synthesis-analysis (deep processing), study methods, fact retention, and elaborative processing (see Table 1). The ILP was developed to assess "the behavioral and conceptual processes which students engage in while attempting to learn new material" (Ribich & Schmeck, 1979, p. 515).

Table 1
**Description of Scales for the Inventory of Learning Processes (ILP)**

| Scale | Description of Scale |
|---|---|
| Deep processing | Extent to which students are able to search out, compare and contrast different information sources, extract new concepts, critically evaluate, and hierarchically organize concepts. |
| Elaborative processing | Extent to which students interrelate new and old information. |
| Fact retention | Extent to which students are able to retain detailed factual information such as prepared statements, summaries, definitions, formulae, etc. |
| Methodical study | Extent to which students rigidly adhere to study techniques. |

The Learning and Study Strategies Inventory (LASSI) contains 83 items. Participants are asked to respond to the items on a five-point Likert scale. The items are sorted to ten variables including anxiety, attitude, concentration, information processing, motivation, scheduling, selecting the main idea, self-testing, study aides, and test strategies. Table 2 describes these scales. Weinstein (1987, p. 2) describes the LASSI as an assessment tool designed to measure students' use of learning and study strategies and methods. As a diagnostic and prescriptive measure, it assesses both covert and overt thoughts and behaviors that relate to successful learning and that can be altered through educational interventions. Evidence exists that these thought processes and behaviors contribute significantly to success in post secondary educational and training settings and can be learned or enhanced through educational interventions.

Table 2
**Description of Scales for the Learning and Study Strategies Inventory (LASSI)**

| Scale | Description of Scale |
| --- | --- |
| Attitude | Extent to which students have positive attitudes and motivation for succeeding in school. |
| Motivation | Extent to which students accept responsibility for performing specific tasks related to school success. |
| Time management | Extent to which students are able to create and use schedules. |
| Anxiety | Extent to which students are anxious or worry when approaching academic tasks. |
| Concentration | Extent to which students are able to concentrate and devote attention to school and school-related tasks. |
| Information processing | Extent to which students are able to create imaginary and verbal elaborations and organizations. |
| Select main ideas | Extent to which students are able to select main ideas and recognize important information. |
| Study aids | Extent to which students are able to use or create study aids that support and increase learning and retention. |
| Self-testing | Extent to which students are aware of the importance of self-testing and reviewing. |
| Test strategies | Extent to which students are able to utilize test preparation and test-taking strategies. |

The Matching Familiar Figures Test (MFFT) is composed of 12 visual items. Each item contains meaningful line drawings and requires the respondent to match the drawing to a meaningful target. Responses are timed and scored for the accuracy of the match. The scoring places respondents on a bipolar scale that

measures conceptual tempo or a tendency to venture hasty or superficial answers as opposed to answers based on careful thought and search. The MFFT reports differences in learning style on a bipolar scale of reflectivity versus impulsivity. The test was developed to "reflect the degree that people will reflect on the validity of solution hypotheses in problems that contain response uncertainty" (Curry, 1991, p. 253). The explanations for these scales, as described by the instrument developer, are presented in Table 3.

Table 3
**Description of Scales for the Matching Familiar Figures Test (MFFT)**

| Scale | Description of Scale |
|---|---|
| Reflective-impulsive | Extent to which students tend to venture hasty or superficial answers over answers that are based on careful thought and search. |

Procedures

Data collection occurred during multiple sessions at the various sites throughout the spring, summer, and fall semesters of one calendar year. During the initial contact with each group of participants, consent was secured, explanation of the study was provided, and demographic data obtained. All instruments received subject codes prior to the start of data collection. The instruments were randomized using a Greco-Latin square design to ensure that the nonessential test order effect was randomly distributed across participants

Research assistants were recruited to help during the data collection sessions. Research assistants were trained by the researcher prior to the sessions to ensure their understanding of the proper procedures for instrument administration.

It was realized that certain words and phrases on the various instruments might not be understood due to possible language barriers as English was not the first language for many of the participants. In order to help reduce this variance within the data set, three steps were taken.

First, the sample for the study was selected only from community college settings. It was assumed that these individuals would have a higher reading level due to the completion of a high school or GED program. Consequently, the sample did not include participants from community education or adult education programs.

Second, the readability of each instrument was assessed through a group of three American Indian/Alaska Native adult educators. This process allowed the researcher to be informed, prior to testing, about any potential misunderstanding of words or phrases within the various instruments. This step provided the researcher with an understanding of how the participants might interpret certain words and phrases. It also allowed the researcher to clarify the definition and meaning of these potentially problematic words and phrases with participants prior to the start of the data collection sessions. All definitions and meanings were provided from the *Merriam-Webster Collegiate Dictionary* (1995).

Third, participants were provided with the *Merriam-Webster Collegiate Dictionary* (1995). This allowed participants to look up additional words that they did not understand and helped them consistently obtain a reliable definition. It was realized that it was impossible for the readability assessment group to identify all of the possible misunderstandings that could be faced by the participants. This step prevented participants from receiving different definitions for the same word. It was expected that a higher percentage of the variance within the data set could be accounted for by taking these steps.

All completed instruments were returned to the researcher. Those instruments that were completed inaccurately and/or were missing data were discarded. The researcher and the assistants scored the usable instruments. As with the data collection, research assistants were trained by the researcher on how to score the different instruments. Instruments were randomly selected and rescored by the researcher to check for accuracy. The data from the scored instruments were entered into an Excel data file and verified for accuracy. The data set was then transferred to the Statistical Package for Social Science (SPSS) for analysis.

Data Analysis

Data were analyzed in two ways. The data were first analyzed descriptively according to the scoring protocol for each instrument. For two of the instruments (ILP and LASSI), the mean scores were calculated and the frequency of reported use was determined based on the total score range possible for that variable. If the mean score represented 61% or more of the total range possible, it was considered a "high use" strategy. If the mean score represented 41–60% of the total range possible, it was considered a "moderate use" strategy. If the mean score represented 40% or less of the total range possible, it was considered a "low use" strategy.

The scoring for the MFFT of impulsivity and reflectivity requires a split plotting of data on two medians simultaneously: the time elapsed to match and the accuracy of the matches. Two quadrants are used in interpretation and explanation of the results: high time and high accuracy define the reflective quadrant while low time and low accuracy define the impulsive quadrant. Data from individuals in the other two quadrants (high time, low accuracy and low time, high accuracy) are ignored.

The data set was also subjected to the multivariate analysis of multidimensional scaling (MDS) as the purpose of the study was to discover new constructs and help in theory development. While the MDS procedures bear a certain conceptual similarity to techniques such as factor analysis, the advantage was that it is more applicable to a wider variety of data (Fitzgerald & Hubert, 1987). This technique is explicitly directed toward the task for spatial representation and, in many cases, it is capable of providing lower dimensional solutions that are substantively interpretable.

# Results

<u>Measures of Central Tendency</u>

Table 4 presents the measures of central tendency for the Schmeck et al. Inventory of Learning Processes. Examining the means within the context of the frequency distribution, study participants report a "moderate" use of these particular task engagement strategies.

Table 4
**Measures of Central Tendency for the Inventory of Learning Processes (ILP)**

| Factor | N | Mean | SD |
|---|---|---|---|
| Reflective-impulsive | Extent to which students tend to venture hasty or superficial answers over answers that are based on careful thought and search. | | |
| Deep processing | 189 | 9.55 | 3.73 |
| Elaborative processing | 189 | 8.88 | 2.80 |
| Fact retention | 187 | 5.59 | 1.72 |
| Methodical study | 189 | 11.79 | 4.32 |

The measures of central tendency for the Weinstein et al. Learning and Study Strategies Inventory are presented in Table 5. According to instrument scoring protocol, participants' ratings of attitude, motivation, and test strategies

Table 5
**Measures of Central Tendency for the
Learning and Study Strategies Inventory (LASSI)**

| Factor | N | Mean | SD |
|---|---|---|---|
| Reflective-impulsive | Extent to which students tend to venture hasty or superficial answers over answers that are based on careful thought and search. | | |
| Attitude | 190 | 30.09 | 5.78 |
| Motivation | 189 | 29.32 | 5.52 |
| Time management | 189 | 23.82 | 5.89 |
| Anxiety | 190 | 24.71 | 5.90 |
| Concentration | 189 | 25.35 | 6.28 |
| Information processing | 190 | 28.03 | 5.77 |
| Selecting main ideas | 190 | 17.53 | 3.65 |
| Study aids | 190 | 25.70 | 5.66 |
| Self-testing | 190 | 25.97 | 6.38 |
| Test-strategies | 190 | 26.70 | 6.03 |

are considered low. In addition, anxiety levels for the students are considered high. (It should be noted that a low score on this scale indicates high anxiety. This is the only scale that has this inverse relationship.) The remaining factors are ranked at the moderate level although it should be noted that the factors of concentration and selecting main ideas do border the cutoff point between low and high use.

The final instrument was the Kagan Matching Familiar Figures Test. The measures of central tendency are presented in Table 6. The response time and error rate scores clearly identify these American Indian students as reflective learners.

Table 6
**Measures of Central Tendency for the Matching Familiar Figures Test (MFFT)**

| Factor | *N* | **Mean** | *SD* |
|---|---|---|---|
| Response time (in seconds) | 150 | 30.80 | 18.80 |
| Error | 150 | 1.59 | .85 |

Multidimensional Scale

The two-dimension solution for the task engagement construct is presented in Figure 1. Normally, solutions can be found using two dimensions and, as Everitt and Dunn (1991) report, two dimensions are usually most practical because of their simplicity. Using Fitzgerald and Hubert's (1987) criteria, the two-dimension MDS solution had a "good" goodness-of-fit at 6% stress. The RSQ for this scaled accounted for 99% of the variance in the data set.

For this scale, the horizontal axis (dimension 1) was labeled *Strategy Type*. The vertical axis (dimension 2) was labeled *Level of Performance*. Dimension 1 defines the learning and study strategies as either concrete or abstract. Dimension 2 identifies students' ability levels in relationship to each strategy. This solution visually represents the concrete and abstract skill area strengths as well as the skill area strengths that need development.

Strategy type (dimension 1) identifies the concrete and abstract study strategies (–2.5 to 2.5). Level of performance (dimension 2) identifies the level at which students use the learning and study strategies. This scale would be interpreted from high frequency (2.5) to low frequency (–2.5). Quadrants I (upper right) and II (upper left) represent the concrete and abstract strategies students use more frequently while learning new material. Quadrants III (lower left) and IV (lower right) represent the concrete and abstract strategies that students do not use frequently while learning new material.

The abstract learning and study strategies that students use more frequently (quadrant I) include methodical study, elaborative processing, and fact retention. The concrete learning and study strategies that students use more frequently (quadrant II) include information processing, self-testing, and use of study aids. The concrete learning and study strategies that students use less frequently (quadrant III) include time management, concentration, and test strategies. The
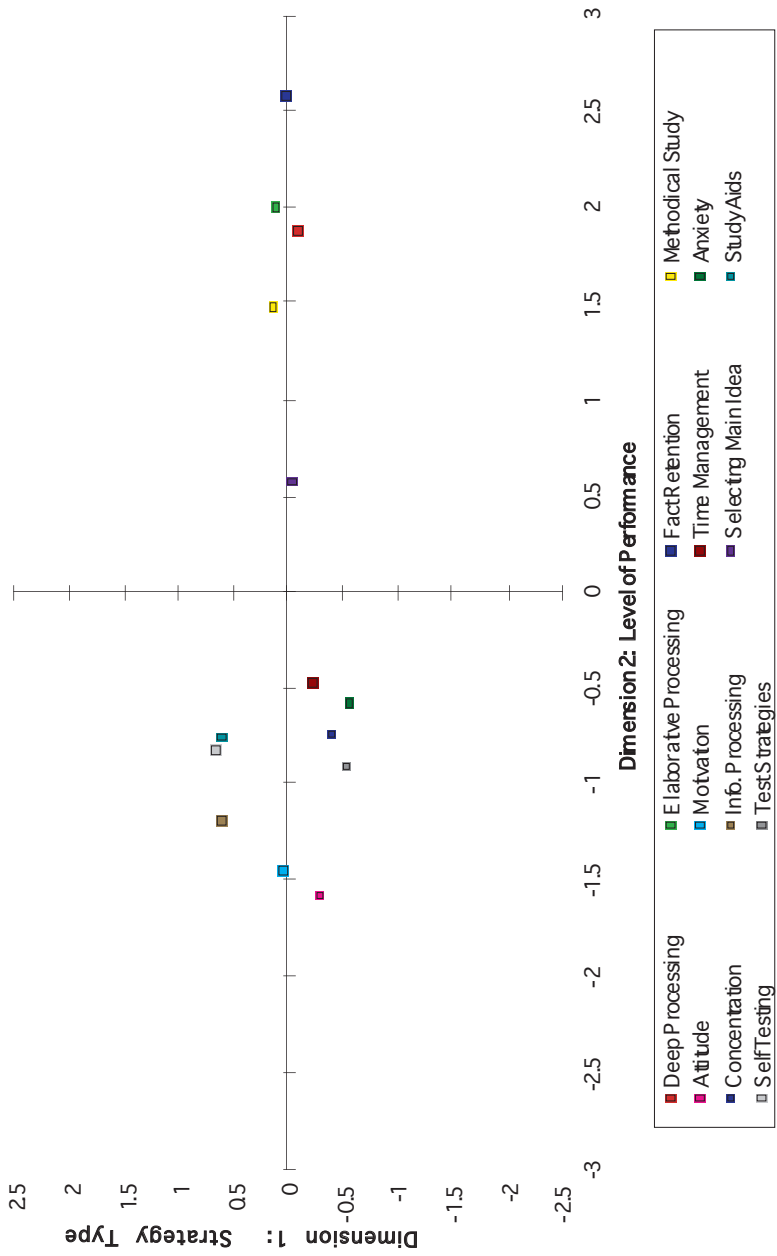
Figure 1. Two-dimension MDS solution for task engagement

abstract learning and study strategies that students use less frequently (quadrant IV) include selecting the main idea and deep processing.

The results of the MDS analysis continue to reveal motivation (quadrant II), attitude (quadrant III), and concentration (quadrant III) to be low. Anxiety (quadrant III) was once again found to be high (based on using the inverse interpretation for this variable).

## Conclusions

The purpose of this study was to examine the learning and study strategies that American Indian postsecondary students engaged in while completing course activities and requirements. The significance of this study lies in the fact that the research on American Indian learning styles has focussed primarily on cognitive processing habits (see meta-analyses by Aragon, 1996; Irvine & York, 1995; Lomawaima, 1995). While some of these studies have used the high school student as the unit of analysis, the main focus has been on elementary students. To date, we know very little regarding the specific, day-to-day learning strategies that are used by these students, particularly at the postsecondary level. Through this study, educators of postsecondary American Indian students have concrete areas in which they can focus some of their development initiatives.

From this study, the researcher draws the following conclusions. First, the results indicate that this particular group of American Indian students has, at best, average learning and study skill abilities in and outside the classroom. Out of the 14 skills assessed, only four were identified to be at the "moderate or average" ability level. These include information processing, self-testing, use of study aids, methodical study, and elaborative processing. Two of these skill areas bordered "low/moderate" ability. These include ability to select main ideas and fact retention. Six of these skill areas were identified to be at the "low" ability level. These skills include attitude, use of test strategies, concentration, level of anxiety, time management, and deep processing.

Second, the results identified these students as reflective learners rather than impulsive. Characterized by low error rates and high response times, these students base their responses and approaches on careful thought and search. This finding supports the "watch-then-do" or "listen-then-do" learning style that has been found by previous research (see meta-analyses by Aragon, 1996; Irvine & York, 1995; Lomawaima, 1995; Nelson-Barber & Estrin, 1995).

Third, there are four variables that fell into the low category that deserve attention. These include attitude, anxiety, concentration, and motivation. While not specific study strategies, they do directly impact a student's ability to be a successful learner. Based on the distribution of the scores, the results tell us that these American Indian/Alaska Native students (a) have negative attitudes about their abilities to succeed in college; (b) have high levels of anxiety and worry when approaching academic tasks; (c) have low levels of concentration and attention to college and college related tasks; and (d) accept little responsibility for performing tasks leading to school success. This is of significant concern to

this researcher as the other skill areas can be taught and subsequently developed over time. This is not the case for attitude, anxiety, concentration, and motivation. These characteristics relate to one's sense of self-efficacy related to educational success. The perceptions or beliefs that one has associated with these variables have been developed over a number of years at home, through past educational experiences, and through other social relationships. They are perceptions and beliefs that highly affect student performance yet are quite difficult to change. Further attention is devoted to this finding in the next section.

Discussion and Implications

It is obvious that students not engaged in educational activities through well developed learning and study strategies are not learning effectively and possibly not at all. Even when we learn informally, we are still engaged in the task through some means. Therefore, it is crucial for school success that these skills be well developed and used appropriately. This applies across all educational settings including elementary, secondary, and postsecondary; in both formal and informal settings. It is well documented that due to multiple risk factors, students of color are more likely to drop out or stop out or college if the educational experience is not a positive one (Astin, 1975; Cohen & Brawer, 1996; Koltai, 1993; Levine & Nidiffer, 1996; O'Brien & Zudak, 1998; Pascarella & Terenzini, 1991). Not being well engaged or not knowing how to be well engaged in the learning task or activity could certainly create negative experiences for students. The following recommendations are offered to educators of American Indian/Alaska Native students for improving their learning and study strategies.

First, community colleges are highly encouraged to design and implement student success courses, also referred to as the freshman seminar. These courses (formally known as orientation courses) have been suggested to be the most effective intervention to enhance student success as well as "indicate to students the college's willingness to make student success a priority" (Stovall, 2000, p. 52). As Stovall (1999) states, these types of courses "provide support to facilitate students' transitions to college and promote their academic and social integration into the college by helping them develop the information, skills, and behaviors needed for academic success" (p. 43). Improved academic performance and increased retention among minority students have been found to be results of implementing such a course. Topics of such courses directly related to the development of the learning and study strategies include (a) the value of education; (b) study, note taking, and test taking strategies; (c) motivation, decision-making, and goal setting; (d) self-assessment and goal setting; (e) career exploration; (f) career, academic, and life planning; (g) time management; (h) establishing rewarding relationships; and (i) stress management for a healthy lifestyle (Stovall, 1999). For a comprehensive review of the literature on success courses and suggestions for design, development, and implementation see Stovall (1999) and Stovall (2000).

Second, in situations where it may not be possible to implement success courses, faculty members can help students continually develop their learning and study strategies. Faculty members are knowledgeable in their content areas but oftentimes see the delivery of content as being synonymous with facilitation of learning. These are two totally different processes that occur in the classroom. No matter how good a faculty member may be at delivering their material, if students do not have the skills or know which skills to use to process the material, learning will not take place. Instructional sessions need to be organized in such a way that allows students time to comprehend, apply, analyze, synthesize, and evaluate material rather than serving as information dumps. This means not delivering as much content in a given period of time, using more application exercises, and methodically teaching in a way that allows students to engage and continually develop strategies that facilitate learning.

Third, educators working with these students need to keep in mind they are reflective thinkers. This means these individuals need the time to put thought and search into their responses. However, when instructional sessions are organized around the idea of trying to cover as much material as possible for the given time period, this learning characteristic of reflectivity is negated. In fact, it is logical to conclude that many learning and study strategies are being negated because many emerge and develop directly as a result of reflectivity (i.e., deep processing, elaborative processing, and information processing).

Finally, it is critical the educators of these students examine the messages they are sending out through their verbal and non-verbal and formal and informal communication. Related to the finding that these students lack feedback (Aragon, 2002), somewhere along the way, these individuals have come to believe they cannot be successful in school. This is a distressing finding as this is something that is learned as a result of past negative experiences and interactions. This is by no means intended to suggest that faculty members solely have created this impression for these students. This impression has likely been created by numerous sources. However, faculty members have a great amount of power when it comes to shaping a student's attitude towards his or her ability to be successful. Faculty members have an obligation to encourage rather than discourage students. Therefore, we all need to be conscious of the messages we send out.

Implications for Future Research

While it is recognized and acknowledged that within and between group differences may be beneficial, the primary study this research suggests is one which identifies the factors influencing students' beliefs that they cannot be successful in school. Learning and study skills can be taught. Positive attitudes towards education and the belief in one's self must be created by those that the individual positively looks to for guidance, acceptance, and approval. Therefore, understanding where both positive and negative attitudes originate is crucial for school and life success. Because this study has revealed the "what" in terms of

students' beliefs, we now need studies that uncover the "why" and "how" of these beliefs. Consequently, qualitative case studies should be conducted to further increase our understanding of where these beliefs originate.

Directly related, a better understanding of academic success is needed as defined by students, faculty, and family members. It may very well be that the definition found in this study towards what it means to be successful in school is due to an incongruence in how these three groups of individuals define this construct. Consequently, if multiple definitions are at play, it is likely that the students could and would wonder about their abilities.

Finally, this research suggests studies that examine what American Indian/Alaska Native students believe the purpose of education to be in relationship to their short- and long-term goals. We look at the data presented in this study and perceive it as possibly painting a not-so-favorable picture of learning and study strategies—especially since these individuals are attending community and tribal colleges. However, if students see education and educational settings as social contexts, ways to escape boredom, and/or get away from home, the results might not look all that bad. The point is, without the context as defined by the ones who live in it, interpreting quantitative research will always be tricky.

## Summary

As Grubb (1999) states, a good portion of today's community college students are lacking the competencies necessary to attend college. Many of these competencies are associated with study skills. With the risk factors facing today's community college student, especially the minority student, this finding is not surprising. The present research study appears to support Grubb's finding for American Indian/Alaska Native students. Therefore, educators of these students need to take conscious and deliberate action to help facilitate the development of these competencies. Education is about becoming productive citizens of society. If we fail to take this responsibility seriously, we end up failing society and ourselves.

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