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## LEARNING STYLES OF COLLEGE STUDENTS ENROLLED IN AN EXPERIENCE-BASED OUTDOOR LEADERSHIP PROGRAM

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Learning is a complex and multidimensional process. Individuals learn through a variety of techniques and methods, including, but not limited to, lecture, reading, experience, and cognitive process. Research suggests that while individuals may learn in numerous ways, they often exhibit a preferred style of learning (Kolb, 1984; Keefe, 1991; Dunn, 2000; Dunn & Griggs, 1995). This learning preference may vary depending on the type of learning task, the subject matter being studied, the training method, and/or the learning environment or setting. Past research also suggests that preferred learning styles, while relatively stable, may change over time, particularly if the learning environment changes (Vermunt, 1996; Coker, 2000). In 2000, Coker found significant differences in modal preferences across classroom and clinical settings, in which a preference for reflective observation shifted to active experimentation when the learning environment changed from a classroom to a clinical setting.

The purpose of this study was to further the understanding of factors that may influence learning and, more specifically, how certain learning environments may affect individual learning style preferences. As is often the case with many outdoor programs, the emphasis is placed on experiential learning, or learning by doing. This is in contrast to more traditional college learning, which often relies heavily on didactic teaching where the instructor spends much of the time teaching in a lecture format. For this study, the learning style preferences of college students enrolled in an experientially-based outdoor leadership program were compared with those of college students enrolled in more traditional courses.

Kolb's (1993) Learning Style Inventory (LSI) was used to assess the learning style preferences of college students enrolled in a semester-long experience based outdoor leadership program, as well as the learning style preferences of students enrolled in a more traditional didactic learning environment. The LSI measures learning preferences along four dimensions: concrete experience (feeling), reflective observation (watching), abstract conceptualization (thinking), and active experimentation (doing).

This study was designed to assess the preferred learning style of students enrolled in the spring 2003 Conservation and Outdoor Recreation/Education (CORE) program, a semester-long experience-based outdoor leadership program at Indiana University. The CORE group represented the treatment group, while a second group of students, enrolled in traditional classes during the spring 2003 semester, was used as a comparison group. Data were collected in a three-phase process, at the beginning, middle, and end of the spring semester using Kolb's (1993) Learning-Style Inventory IIa (LSI) to identify each subject's preferred style of learning. The purpose of the second data collection was to determine if a three-week field component had any effect on learning style preferences in the treatment group. The survey instrument consisted of twelve sentence-completion items for which respondents were asked to rank order four sentence endings on a scale of one to four, with one representing *least like you* and four

representing *most like you*. Each of the four sentence endings corresponded to one of the four learning preferences, concrete experience, reflective observation, abstract conceptualization, and active experimentation.

The treatment group consisted of 18 college students enrolled in the CORE program and the comparison group was comprised of approximately 120 students enrolled in The Nature of Cancer, an Applied Health Science course offered at the same university. Upon completion of the data collection, surveys were matched using the same unique ID for each respondent at all three collection periods, resulting in 18 matched sets for the treatment group and 35 matched sets for the comparison group.

The following research questions were addressed in the data analysis:

1. Do students in an experientially-based learning environment exhibit different learning style preferences from students in a traditional, didactic-based learning environment?
2. Are there statistically different learning style preferences among male and female learners?
3. How stable are learning style preferences over time?
4. Do learning style preferences differ with age?

Results of the overall multivariate analysis of variance (MANOVA) performed on the data gathered in this study revealed no significant findings ( $p=0.5$ ) across program type, gender, or age. Further analysis was conducted using ANOVA techniques to test the differences in the grouped means. Results of the ANOVA showed a significant difference between the CORE (experiential) group and the comparison (non-experiential) group on the concrete experience variable at the start of the semester, with CORE students exhibiting a greater preference for this learning style when compared to students in the comparison group. A second significant difference was found between students ages 18-20 and students 21+ years of age on active experimentation at the end of the semester, with the younger students indicating a significantly stronger preference for this learning style. Four significant interaction effects were also found: two between program type and gender on concrete experience at the middle and end of the semester; one between age and gender on active experimentation at the end of the semester; and one between program type, gender, and age on concrete experience at mid-semester.

A descriptive analysis revealed that students in the CORE program (treatment group) indicated that their most preferred style of learning was active experimentation ("doing") with 50%, 67%, and 72% of the CORE students indicating active experimentation as the style they most preferred at the beginning, middle, and end of the semester, respectively. Interestingly, students in the comparison group also reported active experimentation as their most preferred learning style throughout the semester with 60% scoring highest on this style at the start of the semester, 40% at mid-semester, and 49% at the end of the semester. Although not significant, when compared with students in the comparison group, students in the CORE program indicated a greater affinity for learning by concrete experience at all three data collection periods. Overall, the results indicated that learning style preferences were relatively stable over the semester.

The results support the notion that learning styles are relatively stable characteristics. Given the complexity of the learning process, and each individual's propensity to learn best in particular

ways, it would appear that the implications are for teachers to employ a variety of teaching strategies. While it may be impractical to teach to each individual's preferred style of learning, it follows that utilizing a wide variety of techniques in teaching practice may help to maximize the number of students being taught in a way that is consistent with their preferred style, at least some of the time. Though further research is necessary to understand the complex ways in which individuals learn, research such as this allows educators to develop a deeper understanding of the learning process, and as a result contributes to a greater ability to facilitate this process in ways that best serve the learner.

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