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#### An Exploration of Theoretical Constructs Associated with the Spectrum of Teaching Styles

The purpose of this study was to explore the theoretical statements associated with Mosston and Ashworth's (1994) practice (B), self-check (D), and inclusion (E) styles of teaching through the examination of fourth and fifth graders' psychomotor, affective, and cognitive behaviors. Two questions were addressed: (a) what effect do teaching styles B, D, and E have on learner skill performance, learner perceived comfort practicing, and learner skill knowledge?; and (b) what do these findings suggest in terms of the theoretical statements/objectives related to teaching styles B, D, and E?

Associated with Mosston and Ashworth's (1994) Spectrum of teaching styles is the premise of the O-T-L-O. O-T-L-O conceptualizes the relationship among objective (O), teaching (T), learning (L), and outcome (O). The interaction between the teacher (T) and learner (L) reflects particular teaching behaviors and a set of objectives (O) to be achieved. Mosston and Ashworth suggest that each teaching style within the Spectrum is defined by the particular behavior of the teacher, the particular behavior of the learner, and the objectives that this relationship meet (p. 9).

Within this premise, Mosston and Ashworth (1994) suggest that any teacher-learner interaction involves two different sets of objectives (and hence outcomes): subject-matter and behavior. Subject-matter objectives pertain to the particular content of the episode (e.g., striking with a long-handled implement), while behavior objectives pertain to learner behavior (e.g., replication, self-assessment, honesty). The authors state that particular teacher-learner relationships determine the objectives that will be met. Conversely, a particular set of objectives determines a set of teacher and learner behaviors.

Whether the objectives associated with each of Mosston and Ashworth's (1994) different teaching styles are reached is unknown. To inquire and verify the possible experiences of the learner in each of the teaching styles seems critical to the pursuit of knowledge about the Spectrum.

### Methods

#### Subjects

A total of 119 learners from one elementary school (K-5) volunteered to participate in this study. The learners were enrolled in three 4th-grade and three 5th-grade physical education classes. Equal numbers of males and females were distributed across the two grades. For four weeks the learners received instruction on striking with a long-handled implement. No formal instruction in striking occurred during the previous school year.

The learners were all taught by one teacher who had 22 years teaching experience in physical education. This teacher was trained in the appropriate use of Mosston and Ashworth's (1994) Spectrum of teaching styles.

#### Setting

One class from each grade level was randomly assigned to receive instruction in the practice (B), self-check (D), and inclusion (E) styles of teaching. The learners had no previous experience in these teaching styles. For eight 30-minute lessons (two per week), each class received instruction within the assigned teaching style. A lesson began with a short introduction of the subject matter/teaching style and warm-up (3 to 5 minutes). Following the warm-up, the teacher presented (show and tell) the lesson subject matter which the learners then practiced (15 to 20 minutes). A lesson closure that included a review of the subject matter and behavior objectives followed the teaching style episode (1 to 3 minutes). The same number of practice trials were executed by all learners in each lesson regardless of the teaching style imposed. Task sheets that included a description of the task to be completed and critical skill cues specific to striking were used during each lesson in all three teaching styles.

#### Data Collection

Data were collected on (a) learner skill performance, (b) learner perceived comfort practicing in the given teaching style, and (c) learner knowledge of subject matter. Prior to the start (twice) and at the conclusion of the study (once), all learners were skill tested on striking with a racket. Each learner performed 10 trials during each test session. All trials were scored for placement (product) and technique (process). The learners were skill tested twice prior to the beginning of the study (three weeks between) to serve as their own control. No instruction was provided between these two test sessions.

To examine learner perceived comfort practicing in the given teaching style, the learners completed a questionnaire form at the end of the second, fourth, sixth, and eighth lessons. The form included 12 bipolar adjective word-pairs, each of which was scored on a five point scale. Each word-pair reflected a concept related to Mosston and Ashworth's "reproductive" teaching styles.

Immediately following the first and third skill test administrations, the learners were interviewed (individually). The interviews were conducted to determine their knowledge of striking before and after the study. During each interview, the learners observed (from videotape) two of their own test trials and then were asked to respond to two statements: (a) Tell me what you really did well when you hit the ball; and (b) Tell me what you would do to make it a better hit. The interviews were audiotaped and the tapes transcribed. Data reduction techniques were employed to categorize the learners' transcribed statements.

### **Coder Reliability**

All lessons and skill test sessions were video-audiotaped and the tapes were subsequently used to (a) examine learner skill performance, (b) determine coder reliability (skill process), and (c) ascertain the level of fidelity between the teacher's instructional behaviors and style specific behaviors. Percentage scores of no less than 86 were obtained for coder agreement and teaching style verification. A coder agreement score of 92% was yielded for the categorization of the interview statements.

### **Data Analysis**

The data derived from the skill tests, post-lesson questionnaire form, and interviews were employed. Descriptive statistics (means and standard deviations) were computed for all dependent measures. Analysis of covariance (ANCOVA) was used to analyze the posttest scores of the process and product skills test and the knowledge of subject matter data derived from the post study interview. The independent variable was treatment and the covariate the process and product pretest scores for skill performance and the prestudy skill element frequency scores for learner knowledge of subject matter. The dependent variable was the adjusted posttest scores for learner process and product skill performance and the adjusted poststudy scores for learner knowledge of subject matter.

Dependent t-tests were used to examine the prestudy skill performance scores (process and product) of the learners before receiving treatment. The learners were skill tested twice, the first time three weeks prior to receiving treatment and the second time two days prior to receiving treatment.

Separate 3 x 2 (Treatment Group x Tests) repeated measures ANOVAs were used to determine improvement of learners in each group from pretest to posttest for skill performance and knowledge of subject matter.

For learner perceived comfort performing in the various teaching styles, a 3 x 4 (Treatment Group x Questionnaire Scores) repeated measures MANOVA was used to determine the extent of influence of the independent variable (treatment) on the dependent variable (12 bipolar adjective word pair scores) over the eight lesson unit.

## **Results and Discussion**

### **Skill Performance**

Several significant findings were revealed for learner skill performance. The learners showed significant improvement from pretest to posttest (ANOVA) in both the process,  $F(1, 111)=136.77, p<.01$ , and product,  $F(1, 107)=117.24, p<.01$ , skill performance scores. This was apparent for each teaching style (see Figure 1). A significant difference was also found in the adjusted posttest means (ANCOVA) for skill product scores,  $F(2, 118)=4.65, p<.01$ . Post hoc analysis (Scheffe) revealed that learners in style E had significantly higher product scores than learners in styles B and D.

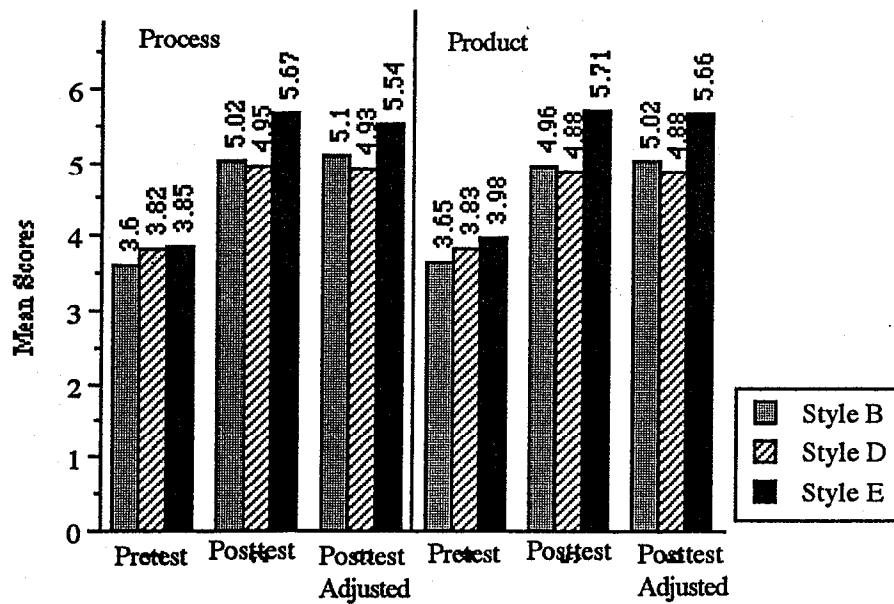


Figure 1. Skill performance test scores.

Given this similarity across the three teaching styles studied (i.e., the importance of replicating a model), it seems consistent that the learners would improve at the same rate. Perhaps having learners choose an appropriate level of difficulty was the reason why the learners within style E performed better than the learners in styles B and D as reflected by the product scores.

#### Learner Perceived Comfort

No significant results were revealed for learner perceived comfort over the length of the study (see Figure 2). Learners felt that they were relatively free, included, comfortable, relaxed, successful, powerful, good, and active during their unit of instruction. They also felt that the subject matter presented was relatively challenging, meaningful, easy, and possible to perform. Although no significant results were found, a pattern emerged across the 12 bipolar adjective word pair scores. The highest scores (which always related to the positive adjective in each pair) were reported by style D learners while the lowest scores were reported by the style B learners. Those in style E reported scores that fell between styles D and B. The major difference between styles B and D is in the assessment of skill performance. In style B the teacher assesses each learner's skill performance, whereas in style D the learners assess their own skill performance. Given this difference in teaching styles, it is plausible to think that learners in style D perceived having more control over their own skill performance because of shouldering more of the class decision making responsibilities.

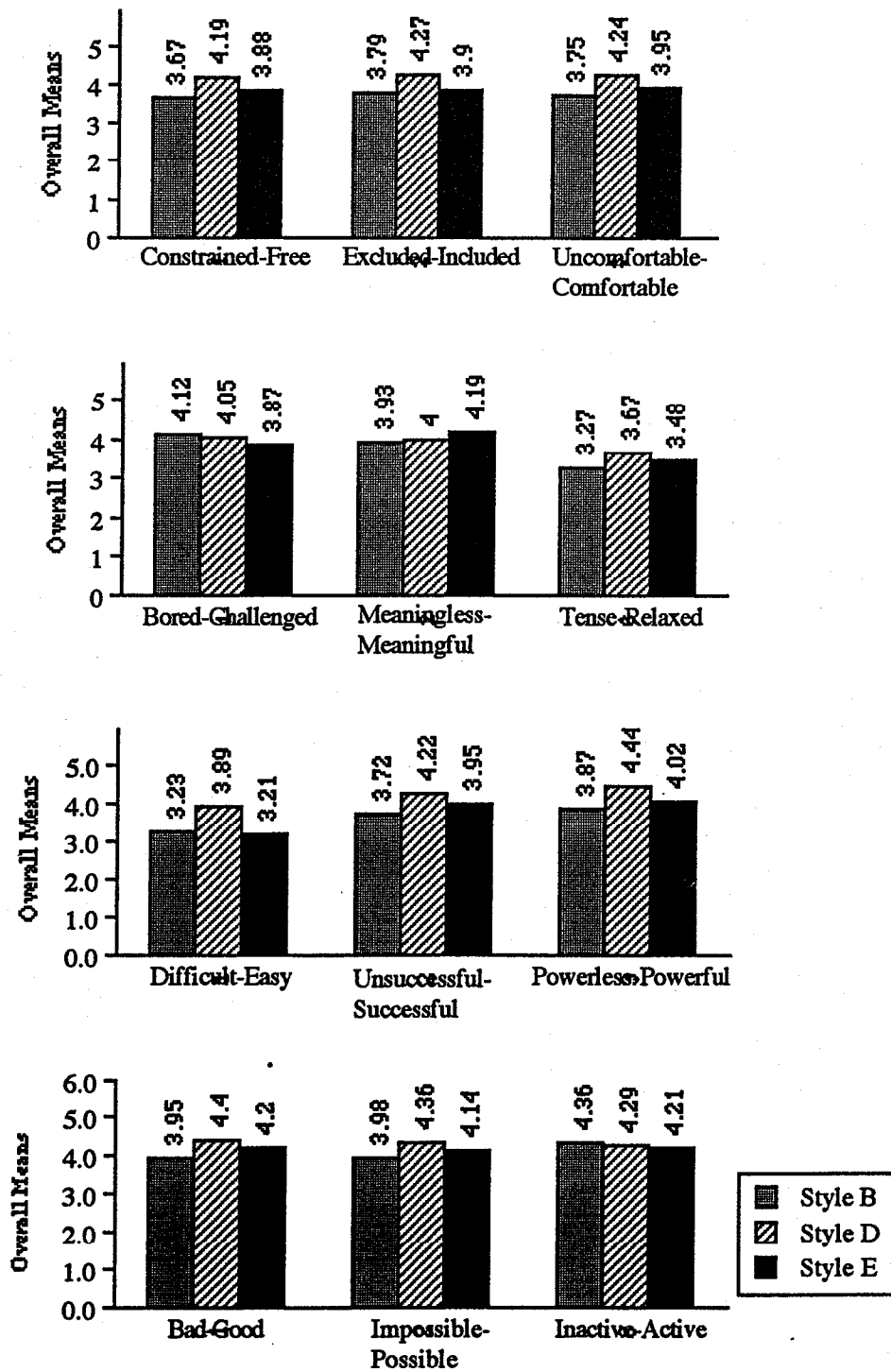


Figure 2. Learner perceived comfort as measured by bipolar adjective pairings.

### Learner Knowledge of Subject Matter

Several significant findings were revealed for learner knowledge of subject matter (see Figure 3). The learners showed significant improvement from prestudy to poststudy (ANOVA) in the number of specific skill elements identified,  $F(1, 114)=6.91, p<.01$ . This was apparent for each teaching style. A significant difference was also found in the adjusted posttest means (ANCOVA) for specific skill elements identified,  $F(2, 119)=4.08, p<.02$ . Post hoc analysis (Scheffe) revealed that learners in styles D and E reported a significantly greater number of specific skill elements than learners in style B. Following is an example of a specific skill element: "I have to move my racket from high to low." This finding seems to support Mosston and Ashworth's (1994) suggestion that in styles D and E learners use higher order cognitive operations (comparing, contrasting, and evaluating) than learners in style B (recall) because they analyze their own skill performance. In style B, the teacher provides the learner with skill feedback.

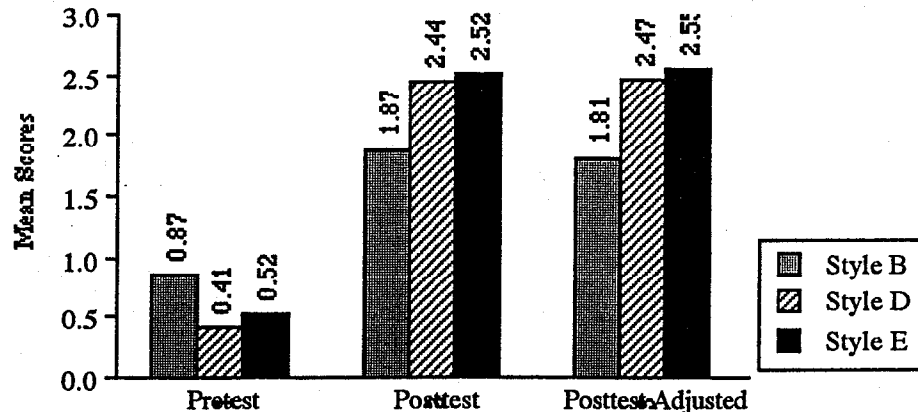


Figure 3. Specific skill elements reorted by the learners during the pre and posttest interviews.

### Educational Importance

This study provides evidence to support Mosston and Ashworth's (1994) theoretical assumption about the interaction between teacher and learner always reflecting "a particular teaching behavior, a particular learning behavior, and particular sets of objectives to be learned" (p. 9). Learners are different and they learn in different ways. Physical education encompasses a wide range of objectives. Thus, meeting the needs of a diverse population and wide range of objectives requires a range of teaching styles.

### Reference

Mosston, M., & Ashworth, S. (1994). Teaching physical education (4th ed.). New York, NY: Macmillan College.