Facilitating the acquisition and refinement of a motor skill requires knowledge of presage and contextual variables and, based on that information, using teaching-learning strategies that will enhance skill development. Research has provided support for the notion that time-on-task is a potent factor in facilitating learning (Dunkin & Biddle, 1974). However, it has been shown that teaching-learning success or effectiveness is also content specific and that a given teacher behavior cannot be generalized as appropriate or inappropriate (Medley, 1978). The effectiveness of teacher behaviors depends in part upon the entry characteristics of the learners, the learning task, and the learning environment. Analysis of controlled learning environments and specified teacher behaviors will build the knowledge base from which full scale field studies of the myriad of contexts which characterize physical education can be productive.

The purpose of this paper was to examine the impact of levels of specified teacher and learner behavior on the refinement of a motor skill within a given context.

Procedures

A modified experimental teaching unit (ETU) in which 40 pre-service physical education teachers each taught a 20-minute lesson on the cartwheel to three randomly assigned elementary school pupils from grades three through six provided the context for data collection (Yerg, 1977). Prior to instruction, teachers were given a cartwheel knowledge test and cartwheel performance test. Learners were given a cartwheel performance test. Following instruction the learners were given a performance posttest (Note 1). The Teacher Behavior Observation System (TBOS) was designed to collect data on the frequency and nature of teacher behavior (TB) during instruction. The system specified three generic categories of teacher behavior: task presentation, providing opportunity for practice, and providing feedback plus the category “other” for all behaviors not fitting in the first three. Definitions of the generic categories are presented in Table 1. The TBOS further described the TB with regard to communication mode, target audience, time of delivery, intent, and referent of the communication. Specifics of these level two descriptors are outlined in Table 2. The 20 minute instructional session was time-sampled. Five second segments (from 15 to 20 seconds of each 20-second interval timed by a stopwatch) were observed and categorized. A time-sampling procedure with a sign coding system yielded 60 samples of TB for every instructional session. The sign system procedure (recording an event only once within a time period) was selected over a category system (recording an event each time it occurs) for comparative purposes. The consistency of the time sample and the recording of the dominant TB occurring during that five-second interval produced data that could be compared across teachers and
instructional sessions. Intra-rater reliability on the TBOS was determined by correlating sets of scores obtained from original ratings and the re-scoring of 25% (n = 10) of the instructional sessions. Overall correlation of all categories of the TBOS was 0.95 (t(218) = 45.03, p < .001). Further analysis of video taped instructional sessions were conducted to determine the total number of cartwheels performed by teachers and by learners during instruction.

Table 1
Definition of Generic Teacher Behavior

Task Presentation
Teacher behaviors involved in presenting and analyzing the specific task; giving directions for practice; includes presenting a new task during the lesson which is clearly not prescriptive nor descriptive feedback.

Providing Opportunity for Practice
Teacher behaviors of observation, and supportive behavior such as verbal and/or non-verbal encouragement; moving among students to provide reinforcement for continuation on task; providing manual guidance in the task or ‘spotting’ a move.

Providing Feedback
Teacher behaviors in which information about the task or performance of the task is given to learners to guide adjustment decisions for subsequent response.

Other
All teacher behaviors not included in the other three categories listed above.

Table 2
Definition of Level Two Descriptors of Teacher Behavior (TB)

1.0 Communication Mode: How TB was communicated
1.1 verbal - sent through spoken or written word
1.2 visual — sent by observing students or providing visual stimuli
1.3 tactile — sent by touching; manual guidance
1.4 combination of verbal and visual
1.5 combination of verbal and tactile
1.6 combination of visual and tactile
1.7 combination of verbal, visual & tactile

2.0 Target Audience: To whom the TB was directed
2.1 single student
2.2 more than one student (indicate number of students engaged in physical practice under 2.1 or 2.2)

3.0 Time of Delivery: When TB occurred in terms of pupil response to which it was related
3.1 prior—occurred before student response
3.2 concurrent — occurred during student response
3.3 terminal — occurred after student response

4.0 Intent: Why the TB occurred
4.1 general — motivational behavior; acknowledging pupil response
4.2 specific — informational; providing descriptive, prescriptive, or evaluative information about pupil response.

5.0 Referent: Level of detail to which TB pertained
5.1 general — pertained to whole move or outcome of move; global information
5.2 specific — pertained to speed, power, direction of move; detailed specificity
5.3 none — TB had no referent; did not refer to task