

Analyzing Preservice Physical Educators' Teaching Behaviors through PETAI Systematic Observation

Min-hua Chung*

ABSTRACT

The purpose of this study was to analyze the preservice physical education teachers' teaching behaviors in their field teaching experience. The subjects were 25 preservice students enrolled in the physical education teacher training program at the University of Northern Colorado. Each subject was videotaped twice during their field teaching experience. Twenty-two subjects completed lesson plans, teaching procedures, and videotape evaluations for teachers' teaching behaviors. Twenty-four subjects completed those processes for students' participation time and management time.

Physical Education Teacher Assessment Instrument (PETAI; Phillips, Carlisle, Steffen, & Stroot, 1992) was used to analyze each teaching videotape. Descriptive data were recorded to show the percentage of time in each behavioral category. Within the limitations of this study, the findings were:

1. The average for preservice physical educators' instruction time was 78.97 percent of the total class period. The most frequent behaviors were monitoring and planned presentation.
2. The average for preservice physical educators' management time was 21.03 percent. The most frequent behaviors were organization and equipment management.
3. The students' average participation time was 83.90 percent. The most frequent behaviors were engaged skill learning time and listening.
4. The students' average management time was 15.67 percent. The most frequent behaviors were organization and equipment management.

Key words: PETAI, preservice teacher, systematic observation

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Introduction

A teacher must have the capacity to identify and plan quality instructional programs (Byra & Coulon, 1994). Over the past two decades, teachers' instructional behaviors have been studied in classroom and gymnasium settings to better understand what makes some teachers more effective than others. Through field teaching experience, the supervisors and preservice physical educators can find their strengths and weaknesses in their teaching behaviors.

A major goal of teacher education programs has been to develop future teachers who can demonstrate effective decision-making tendencies and instructional behaviors in an interactive teaching environment (Brawdy & Byra, 1995). In the past decade, teacher educators have consistently added early field teaching experience to provide the future physical educator the opportunity to practice different teaching strategies. From a teacher education perspective, it is important to know preservice teachers' teaching behaviors. This information can provide insights regarding whether programmatic conceptions of effective teaching are being internalized by students (Graham, French & Woods, 1993).

There are many ways to practice teaching skills. The development of teaching skill will progress more rapidly if those who practice have a clear goal and ample opportunity to practice and regularly receive feedback about how they are progressing. Most of the suggestions for improving teaching skills require the collection and analysis of some data in order to assess the skill development goals.

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Teaching can be viewed partially as a set of skills and strategies that can be practiced. These skills and strategies can be set, and feedback can be provided for preservice teachers so they can improve their performance. Before the preservice teachers can become master teachers, they must develop the basic skills that provide a foundation for skilled performance in real educational settings. Full-class, real-student teaching is the final kind of practice that preservice teachers can obtain before they get into the actual teaching setting. In the mean time, systematic feedback is necessary for teaching skill development (Siedentop & Tannehill, 2000). The major feature of this study is that it will provide a systematic approach to the development of teaching skills. This study was designed to analyze preservice teachers' teaching behaviors during their field experience. The research questions are as follows:

1. What were the preservice physical educators' teaching behaviors in instruction time?
2. What were the preservice physical educators' teaching behaviors in management time?
3. What was the students' participation time in preservice physical educators' classes?
4. What was the students' management time in preservice physical educators' classes?

Limitations

1. Observation system has the limitation on specific categories and observation behaviors. Those behaviors not included in the observing categories and study area's behaviors will not be recorded.
2. The results of this research were to analyze and describe the facts of the real teaching experience of those preservice physical educators. These results may not be generalizable to other teachers, other teaching settings and other teaching contents.

Definition of Terms

1. Preservice physical educators: The senior students enrolled in the University of Northern Colorado (UNC) physical education teachers training program.
2. Teaching behaviors: Teachers' behaviors in the real physical education

teaching classes. They included teacher instruction time, teacher management time, student participation time, and student management time (Phillips & Carlisle, 1983a).

3. PETA I (Physical Education Teacher Assessment Instrument): Dr. D. Allen Phillips and Dr. Cynthia Carlisle created this observation system at the University of Northern Colorado in 1983 and revised it in 1992. It was designed to measure six alterable teacher and student behaviors which appear to be related to student achievement in physical education (Phillips & Carlisle, 1983a; Phillips, Carlisle, Steffen, & Stroot, 1992). (see Appendix)

4. Teacher instruction time: The total time the teacher utilized in present, monitor, and provide feedback to the students (Phillips, Carlisle, Steffen, & Stroot, 1992).

5. Teacher management time: The total time the teachers is engaged in class organization , not directly related to teacher instruction (Phillips, Carlisle, Steffen, & Stroot, 1992).

6. Student participation time: The total time allocated to the student for participation in warm-up and review, skill learning time or game playing time (Phillips, Carlisle, Steffen, & Stroot, 1992).

7. Student management time: The total time the student is engaged in class organization not directly related to skill learning time or game playing time (Phillips, Carlisle, Steffen, & Stroot, 1992).

Methodology

Sample

The subjects of this study consisted of preservice physical education teachers in UNC and the students whom they taught. Total subjects for the teaching behaviors were twenty-two preservice teachers. Twenty-four preservice teachers were the subjects for students' participation time and students' management time. All subjects should completed content knowledge and pedagogical content knowledge courses, peer teaching lessons, lesson plans, teaching procedures, personal PETA I analysis, and peer evaluations of PETA I analysis results. Subject characteristics are found in table 1.

Table 1: Subjects Characteristics

Gender	Male	Female	Total
Items	(n)	(n)	(n)
Teachers behaviors	14	8	22
Students behaviors	15	9	24

Variables

The variables of this study are: preservice teachers' teaching behaviors (teacher instruction time; teacher management time), students' participation time, and students' management time. Each of the variables was measured by the PETAI, which is a computerized teaching behaviors evaluation instrument in physical education.

Instrument

The data for this study was collected through the use of the PETAI checklist sheet. The subjects were each videotaped twice during the field teaching. Video camera recorder and wireless microphone were used to videotape each class and subject. Computers connected with television screens were used to analyze the teaching procedures.

Validity of the most observational instrument in their initial stages was verified using content or construct procedures. Test-retest and inter-rater reliability for the behaviors was established by four trained observers who viewed from 18 physical education classes. Test-retest correlations were found to range from 0.76 to 0.98 for the four observers. The inter-rater coefficients between the four observers ranged from 0.77 to 0.95.

Data Analysis

Each videotape was analyzed and coded by the subject to record their teaching behaviors. Each subject was assigned a peer preservice teacher to check their analysis results. Observers reliability were above .83 in this study. The observer recorded the class continuously from beginning to end. Each category change of

teacher behavior is recorded on the teacher observer coding sheet. Each category change of student behavior is recorded on the student observer coding sheet. The teacher behaviors and student behaviors may be recorded together or separately.

All behaviors of the subjects were converted to percentages by the PETAI. Each behavior recorded in percentages of time provided a continuous temporal design for statistical analysis.

Results

Teachers' Instruction Time

The average of teachers' instruction time in this study was 78.97 percent of total teaching time. The lowest percentage was 46.5 and highest percentage was 95.29. The highest behavior for teachers' instruction behavior was monitoring. The second behavior for teachers' instruction behavior was planned presentation.

Teachers' Management Time

The average of teachers' management time in this study was 21.03 percent of total teaching time. The lowest percentage was 4.71. The highest percentage was 53.49. The highest behavior for teachers' management time was organization. The second behavior for teachers' management time was equipment management. The average of teachers' teaching time was shown in figure 1.

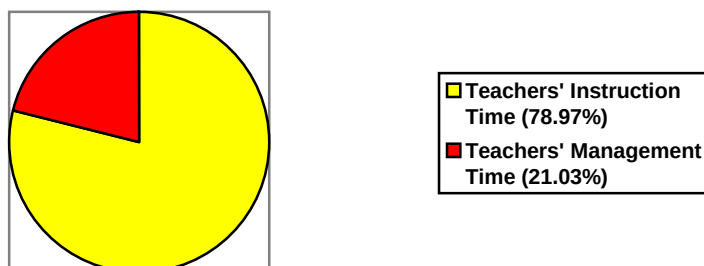


Figure 1 The Average of Teachers' Teaching Time

Students' Participation Time

The average of students' participation time in this study was 83.90 percent of total teaching time. The lowest percentage was 59.38. The highest percentage was 97.89. The highest behavior for students' participation time was engaged skill learning time. The second behavior for students' participation time was listening.

Students' Management Time

The average of students' management time in this study was 15.67 percent of teaching time. The lowest percentage was 2.11. The highest percentage was 40.62. The highest behavior for students' management time was organization. The second behavior for students' management time was equipment management. The average of students' allocation time was shown in figure 2. The average percentage and factors were shown in table 2.

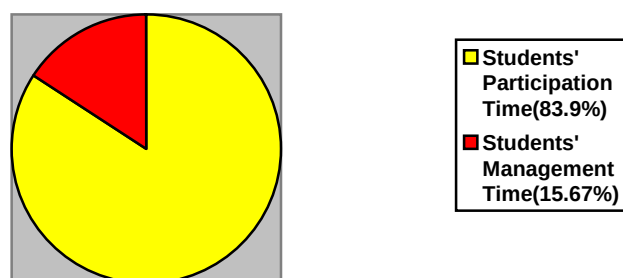


Figure 2 The Average of Students' Allocation Time

Table 2 The Average Percentage and Factors

Items	(%)	Range (low % - high %)	Factors
Teachers' Instruction Time	78.97	46.5 - 95.29	1.monitoring 2.planned presentation
Teachers' Management Time	21.03	4.71 – 53.49	1.organization 2.equipment management
Students' Participation Time	83.90	59.38 – 97.89	1.engaged skill learning time 2.listening
Students' Management Time	15.67	2.11 – 40.62	1.organization 2.equipment management

Discussions and Conclusions

Teacher behaviors

In this study, the preservice physical educators' teaching behavior involved more instruction time (78.97%) than management time (21.03%). Phillips and Carlisle (1983b) found that teachers categorized as most effective spent less time in management tasks and provided more practice time than teachers categorized as average or poor. So one can conclude that these preservice physical educators in allocating teaching time were practicing effective teaching characteristics.

The most frequent factors of teachers' instruction behaviors in this study were monitoring and planned presentation. Many studies (Good & Grouws, 1977; Evertson, Emmer, & Brophy, 1980; Phillips & Carlisle, 1983b) found that effective teachers provided more performance feedback and less behavioral feedback than teachers who were categorized as ineffective. It could be suggested that these preservice physical educators in their instruction behavior should modify this monitoring behavior to provide more feedback, especially in providing performance feedback and motivation feedback during students skill learning.

The most frequent factors of teachers' management behaviors in this research were organization and equipment management. This result was the same as Curtner-Smith (1996) research findings. Her research found that with preservice for physical educators in their thoughts and perceptions the first concern was management. And in management category the most frequently mentioned topics were behavior management and organization. The management problem is an issue for preservice physical educators to concern. This topic could be taught and discussed in training programs and field teaching experiences.

Students behaviors

In this study, students' participation time (83.90%) was higher than students' management time (15.67%). Many studies (Phillips & Carlisle, 1983b; Curtner-Smith, 1996; Phillips, Carlisle, Hautala, & Larson, 1985) found that the most effective teachers provided more engaged skill learning time and success time during engaged

skill learning than the least effective teachers. We find that these preservice physical educators were showing effective teaching characteristics.

The most frequent factors of students' participation behaviors were engaged skill learning time and listening. The most frequent factors of students' management behaviors were organization and equipment management. We find that those students whom preservice physical educators taught were busy in practicing, learning, and organization. The research results (Napper-Owen & Phillips, 1995; Placek, 1983) found that teachers believed they were effective when their students were "busy, happy, and good." Those preservice physical educators in this research truly have the ability to be effective physical education teachers.

Conclusions

In general, these preservice teachers' teaching behaviors in quantity analysis were effective teaching characteristics. These teachers spent more teaching time in instruction than management. They offered students more participation time than management time. This is good news for their training program, because they are performing like effective physical educators during their field teaching experience. Sebren (1995) mentioned that in the beginning of the semester or class, the preservice teachers had no sense or image of where the movement content they were teaching was going. They were just beginning to integrate their separate schemata for knowledge of subject matter and knowledge of the learner. So the supervision system and analysis results are the best methods to provide the preservice teachers' teaching behaviors feedback. Phillips and Carlisle's (1983b) research supported the concept that training can significantly improve the teachers' teaching skills.

In this study, subjects could modify their monitoring instruction behavior to provide more performance feedback and motivation feedback. That could increase the preservice physical educators' interaction with students. Through theories learning to their field teaching experience, some feedback offers to help preservice physical educators to improve their teaching behaviors. Those preservice teachers will find as Curtner-Smith (1996) said that early field experience could be utilized to help physical education preservice teachers to focus on teaching effectiveness in terms of promoting students learning.

Following Research

This research found the management problem was a concern of many preservice teachers on their recording sheet and teaching reflection notes. As supervisors we could review our training program. As training programs' faculties we might find that the management problem appeared in most classrooms and we need to provide effective methods to deal with it. Thus our preservice physical educators can easily face their real teaching environment and enjoy their teaching experience.

Phillips et al. (1985) found personality influences teachers teaching behaviors and decision making. And teachers' personality is a link between teacher behaviors, time on task and student achievement. This is a good topic to find how the teachers' background factor influences the students' learning results. It can be a method to select an effective teacher in the future or a check item to find a suitable teacher. Winitzky (1992) found that teachers with more complex knowledge structures have a greater ability to reflect at a variety of levels. The following study can focus on the change or improvement of these preservice physical educators' teaching behaviors. Do they really modify their teaching behaviors? What kind of teaching behaviors are easy to change? What kind of systematic observation feedback is easily accepted by preservice teachers?

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APPENDIX

The specific definitions for the Physical Education Teacher Assessment Instrument (PETAI):

1. Teacher instruction time

- (1) Planned presentation: The time the teacher utilizes to present planned instructional material to the students.
- (2) Response presentation: The time the teacher utilizes to restate, emphasize, or summarize information relative to the aspects of a performance.
- (3) Monitoring: The time the teacher utilizes to observe the learning environment.
- (4) Performance feedback: The time the teacher utilizes to provide information relative to the aspects of a performance that is specific to the immediate execution of a skill.
- (5) Motivation feedback: The time the teacher utilizes to provide general responses to a skill attempt.

2. Teacher management time

- (1) Beginning, Ending class: The time the teacher utilizes to begin class, record tasks, and end class.
- (2) Equipment management: The time the teacher utilizes to obtain, distribute, setup or return equipment.
- (3) Organization: The time the teacher utilizes to organize for allocated skill learning time or allocated game play time.
- (4) Behavioral management: The time the teacher utilizes to provide feedback relative to student behavior.
- (5) Other tasks: The time the teacher utilizes for tasks other than class management or instruction.

3. Student participation time

- (1) Warm-up/Review activities time: The time the students utilizes in warm-up activities or exercises, or in review of previous material.
- (2) Allocated skill learning time: The time available to the students to learn or practice skills.

- (2)-1 Engaged skill learning time: The time the student utilizes in directly learning or practicing skills, and experiences success.
- (2)-2 Listening: The time the student is listening to instruction or directions or watching a demonstration of the skills to be learned.
- (2)-3 Assisting: The time the student is assisting in practicing or reviewing skills.
- (2)-4 Waiting: The time the student is waiting to practice or assist with learning a skill.
- (3) Allocated game playing time: The time available to the students to play the game.

4. Student management time

- (1) Beginning/Ending class: The time the student takes to begin and end class. The recorded time should reflect the actual scheduled class time.
- (2) Equipment management time: The time the student utilized to obtain, set up and return equipment.
- (3) Organization: The time the student utilizes to organize for allocated skill learning time or allocated game playing time.
- (4) Behavioral management: The time the student is engaged in unapproved behavioral or fails to be engaged in expected behaviors.
- (5) Other tasks: The time the student utilizes in tasks other than allocated skill learning time, allocated game playing time or in specific student management time.

運用 PETAI 系統觀察法分析 實習體育教師之教學行為

鐘敏華*

摘 要

本研究之目的在分析實習體育教師於教育實習時的教學行為。二十五位美國北科羅拉多大學主修體育之實習教師為本研究的受試者，每位受試者於教育實習期間皆需接受二次教學過程之錄影；最後，有二十二位受試者完成教學計劃、教學過程錄影、及教學錄影帶分析的研究流程。體育教師評估工具（Physical Education Teacher Assessment Instrument, PETAI）的類目被運用於分析本研究教學過程錄影帶的教學行為，時間百分比的描述統計則計算出每一教學行為類目與全課程時間的比率。基於上述的內容，本研究的發現如下：

1. 實習體育教師的平均教學時間佔 78.97% 的全課程時間，最普遍的教學行為類目是監看學生練習（monitoring）及準備教學示範（planned presentation）。
2. 實習體育教師的平均管理時間佔 21.03% 的全課程時間，最普遍的管理行為類目是組織班級（organization）及管理器材、設備（equipment management）。
3. 實習體育教師的學生平均參與活動時間佔 83.90% 的全課程時間，最普遍的參與活動行為類目是參與技能練習（engaged skill learning time）及聽講（listening）。
4. 實習體育教師的學生平均管理時間佔 15.67% 的全課程時間，最普遍的參與活動行為類目是組織（organization）及設備管理（equipment management）。

關鍵字：PETAI、實習體育教師、系統觀察法

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