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Kindergarten Teachers' College Physical Education Experiences and Self-Evaluation on Early Childhood Physical Education Instruction

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Abstract

The purpose of this study was to explore the relationship between kindergarten teachers' college physical education (PE) experiences and their self-evaluation of effectiveness on early childhood physical education (ECPE) instruction. College PE experiences referred to college common PE courses, pedagogy courses in ECPE, and self-performance in PE.

A pilot study was conducted with 70 kindergarten teachers in order to test the validity of a survey questionnaire developed for this study. This questionnaire included four components which were regarding (1) background information, (2) satisfaction on college PE experiences about common PE, ECPE pedagogy, and self-performance in PE, (3) evaluation on the instruction effectiveness of oneself about developing children's positive learning attitude, physical fitness, and movement skills, and (4) suggestions of improvement needed regarding early childhood teacher education program.

There were 207 effective questionnaires included as survey data in this study. The return rate of this survey reached 90%. The methods used in data analysis were ANOVA, χ^2 test, and correlation. The findings of this study noted that satisfaction of college PE experiences was positively correlated with self-evaluation on ECPE instruction. Among the three satisfaction variables, the self-performance in PE had the highest positive correlation with the total self-evaluation on ECPE instruction. Regarding the priority of improvement needed, ECPE pedagogy, pleasure and success in PE lessons, and college PE instruction methods were ranked in the highest priority more than other suggestion items. Comments made on improvement needed mostly clustered on sports clubs, ECPE pedagogy, and sports events.

Keywords: kindergarten teacher, early childhood, physical education, instruction, teacher education.

Introduction

Statement of Problem

The demands on teachers to develop strong cognitive, physical movement, and social programs for children can often lead to troubling results in the motor area. These programs require special resources, including well designed outdoor and indoor facilities, equipment for all children, precious time to plan and implement activities, and faculty with a variety of areas of expertise. Relegating physical education (PE) program to either a free play or games curricula is unsatisfactory, as the requirements of a quality PE program are too often compromised in these approaches. Such approaches are indeed (a) less demanding on the teacher's planning time, (b) less dependent on high levels of teacher expertise, (c) nearly equipment free, and (d) provide the teacher a low stress break from demands of the day. However, these approaches are not effective in meeting developmental needs of children.

The motor domain presents particular challenges that are difficult to address with unstructured free play and group games. Even when specific services are provided to children, development and remediation in the motor area seems particularly difficulty (Cooper & Hebbler, 1985). As teachers have continues to be asked to "do it all" by administrators, the typically lower demand free play and games approaches continue. It seems as if the classroom teacher-led program is a model that is often viewed as good enough by many administrators. But is it "good enough?" Can a program implemented by a physical education (PE) specialist lead to different results? The model typically found in public elementary schools is a specialist-led program. Can this model make a difference at the preschool level?

The positions of some of our classic developmental theorists, such as Piaget (Piaget & Inhelder, 1969), Montessori (1964), Gesell (1940) and Kephart (1967) should not be forgotten. They all stressed the importance of motor development, and proposed links between early motor development and cognitive development. Regardless of these proposed links, the motor developmental needs of children are important in their own right. A successful mover is a confident mover, is more socially adapt in the world, and uses his/her

motor successes to help developing a more positive self-esteem. The benefits of these programs for children's motor performance are benefits that should be available to all preschoolers. These are powerful argument, rather than leaving it to take chances, and in providing teachers with the support and resources needed to effectively implement these programs.

In general, major problems needed to be solved in this study were described as the following.

1. What is the status of kindergarten teachers' self-evaluation of effectiveness on early childhood physical education (ECPE) instruction?

2. Do kindergarten teachers' college PE experiences relate to their self-evaluation of effectiveness on ECPE instruction?

3. What kinds of improvement were expected by kindergarten teachers in order to enhance their self-evaluation of effectiveness on ECPE instruction?

Purpose

The main purpose of this study was to analyze the relationship between the satisfaction of kindergarten teachers' prior physical education (PE) experiences in the college level and their self-evaluation of effectiveness on early childhood physical education (ECPE) instruction. This main purpose was elaborated as the following objectives.

1. To understand kindergarten teachers' self-evaluation of effectiveness on ECPE instruction.

2. To explore the relationship between kindergarten teachers' background variables and their satisfaction on college PE experiences or their self-evaluation of effectiveness on ECPE instruction.

2-1 To understand kindergarten teachers' satisfaction on college PE experiences.

2-2 To analyze the relationship between kindergarten teachers' satisfaction on college PE experiences and their self-evaluation of effectiveness on ECPE instruction.

2-3 To analyze the relationship between kindergarten teachers' background variables and their satisfaction or self-evaluation.

3. To explore the relationship between kindergarten teachers' priority of improvement needed within pre-service teacher education program and their background variables, satisfaction of college PE experiences, or self-evaluation of effectiveness on ECPE instruction.

3-1 To understand kindergarten teachers' priority of improvement needed within teacher education program in order to enhance teachers' self-evaluation of effectiveness on ECPE instruction.

3-2 To analyze the relationship between kindergarten teachers' priority of improvement needed and their background variables, satisfaction, or self-evaluation.

Definitions and Limitations

The definitions of some terms used in this study were described as the following.

1. "College common PE" refers to the graduation requirement of physical education credits for every college student.

2. "ECPE pedagogy" refers to classes focus on curriculum contents and instruction methods in physical education especially for young children.

3. "College PE experiences" refer to summated experiences of the aforementioned college common PE, ECPE pedagogy, as well as self-performance in PE during college lives.

The limitations of this study would be that most of the participants of this study were ever to be students in the same one teachers college, the similarity of living and learning experiences might had effects on their opinions. Results of this study might not be applied to kindergarten teachers had their education experiences in other colleges.

Literature Review

This literature review discussed themes regarding physical education (PE) in the college level, PE pedagogy in teacher education, and PE in early childhood.

Physical Education in College

Kerr (1998) surveyed first and second year students enrolled in a four-year movement education based university Physical Education program regarding their expectations on entering university. In addition, graduates of the program were interviewed, one year after graduation, with regard to their understanding of and attitude towards movement education and how these had developed relative to their overall degree program. Finding of Kerr's (1998) study proposed that, one of the underlying concerns reflected in the change of emphasis seen in this PE program was an acknowledgment that the current system (curriculum) was not meeting its educational objectives. In particular, students were dropping out of physical education at the earliest opportunity and participation in extracurricular activities was declining (Hay, 1996). It was felt that, in part, the emphasis on sports tended to exclude those who were less skilled and create a negative attitude towards physical activity. Consequently, the movement education approach which emphasized working with students at alternative was more valuable to the future society. In summary, the strengths of the movement education program are evident in that it provides (a) a strong philosophical base which places the focus on the individual's development rather than developing specific skills, and (b) a process which allows a group of individuals to be treated as individuals rather than only as a group.

Morrison & Harrison (1997) presented a study on college PE instruction. In this study the following themes were investigated: approaches to PE, video and conceptual approaches to PE, value of instruction in sports classes, proposal for the integration of qualitative analysis into the university undergraduate PE curriculum, model for integration, and sample activities for a sports class. Morrison & Harrison (1997) divided instruction methods in PE into two major approaches, one was called technical approaches and the other was called conceptual approaches.

The various technical approaches to instruction (Gangstead & Beveridge, 1984; Kelly,Walkley & Tarrant, 1988; Morrison & Harrison , 1985; Wilkinson, 1991) share a number of features and differ in others. All these approaches are sport-specific, and skill-based. They contain performance examples of either elementary, junior high or high school students in natural settings. Each specific sports skill is broken down into its critical

features and their sequence. The producers of the videos derived the skill components and their sequences for the different instructional modes from biomechanics and motor development literature; they also consulted with movement specialists. Feedback in each case is provided during instruction to help the students develop their analysis abilities.

Investigators have examined qualitative analysis continuously for about 20 years, and research seems to indicate the value of such instruction. Subjects have demonstrated significantly improved skill knowledge and analysis performance after instruction. A brief summary of the research findings indicates that: (1) Specific instruction leads to an improvement in the ability to discriminate between correct and incorrect performances (Gangstead & Beveridge, 1984; Hoffman & Armstrong, 1975; Kniffin, 1985); (2) Information processing plays an important part in analysis (Morrision & Reeve, 1989; Morrison & Reeve, 1992); (3) Correct and incorrect performance examples lead to improvements in qualitative analysis (Gangstead, 1984; Morrison & Reeve, 1988); (4) Instructors can teach qualitative analysis using several methods (Bayless, 1980; Knudson, Morrison, & Reeve, 1991; Gangstead & Beveridge, 1984); (5) Gains in score (measured from pretest to posttest) are about 5 to 7 % (Hoffman & Armstrong, 1975; Knudson, Morrison, & Reeve, 1991; Morrison & Reeve, 1992); (6) Laboratory qualitative analysis instruction is beneficial in developing classroom teaching skills (Kniffin, 1985); (7) Students can retain the ability to analyze skills over a period of time, although teachers should continue to practice qualitative analysis to ensure retention (Morrison, 1994; Morrison & Harrison, 1985).

The most encouraging qualitative analysis research results come from two studies which demonstrated that educators who used courses structured to teach qualitative analysis were successful in helping students develop abilities used in a teaching situation. Kniffin's (1985) subjects improved from pretest to posttest and could generalize qualitative analysis to the real classroom setting with middle school students. Satern, Coleman, and Matsakis (1991) indicated their subjects were better at observing movement and giving corrective and evaluative feedback after a training program. They gave higher percentages of corrective and evaluative feedback as a result of their qualitative analysis instruction experiences. Although Eckrich, Widule, Shrader, and Mayer (1994) have challenged these results, they still indicate the potential for qualitative analysis instruction.

Morrison & Harrison (1997) proposed three general levels for implementing the model of qualitative analysis of movement. These three levels were introduction to qualitative analysis, development of qualitative materials and methods related to sub-disciplines, and the application of qualitative analysis in the teaching situation. Classes such as motor learning, motor development, elementary/secondary methods, activity classes, tests and measurements, and kinesiology/ biomechanics could all add a qualitative analysis aspect.

Development of qualitative analysis materials and knowledge could emerge from the following three courses: tests and measurements, biomechanics/ kinesiology, and motor learning. Teachers should include both qualitative and quantitative analysis in tests and measurement classes (Dunham, 1986; Ignaco, 1993; Reeve & Morrison, 1986). The following three classes can serve as practical application settings as well as add to the knowledge side of analysis: motor development, elementary and secondary methods, and adapted physical education. The motor development class could qualitatively explore the developmental changes in motor patterns using slides, videotape analysis, and practicum experiences. This class can also serve for the exploration of movement evaluation models such as the one proposed by Roberton and Halverson (1984).

The following list includes examples of the activities and content from a qualitative analysis of movement class: (1) Movement observation, (2) Vision and its contribution to analysis, (3) Perception and its role in analysis, (4) Writing a clear, concise analysis of skills, (5) Feedback and skill improvement, (6) Remedial activities for skill enhancement, (7) Characteristics of beginners, (8) Drawing specific movements in skills, (9) Models of analysis, (10) Imagery activities for analysis.

Savage (1998) investigated university students' motivation for participation in physical activity classes offered in a Basic Instruction Program. Student's level of satisfaction with the program, ranking of reasons for participation, importance of grades, and perceived value of the activity and other program description were the topics analyzed in this study. Students ranked obtaining regular exercise, keeping in shape, learning new skills and having fun as the most important reasons for enrolling in a basic instruction class. Students indicated that the letter grade they received in the class was an important consideration for including a basic instruction class in their semester course work.

The vitality of basic instruction programs has been dependent on meeting the needs and

interests of students while at the same time providing quality instruction. Lumpkin, Ormond & Smith (1995) found college students consistently rated having fun, keeping in good health and physical condition, or getting regular exercise as important. Previous national studies which assessed the desired outcomes of college students who participate in basic instruction program found that although student interest in course offerings has shifted over the past 30 years, their objectives for participation appear to have remained constant (Soudan and Everett, 1981;Lumpkin and Avery, 1986; Lumpkin, Leath & Almekinders, 1989, 1990). Historically, students' top objectives for participating in basic instruction programs were keeping in good health and physical condition, and getting regular exercise and having fun. More recently students have also reported that being able to use the pass/fail grading or combination of letter grade and pass/fail grades to improve their overall grade point favorably influences participation in these classes (Lumpkin & Avery, 1990; Trimble & Hesley, 1993).

According to aforementioned literatures, the emphasis of PE had changed nowadays in order to include all students no matter who were skilled or less skilled. Proposed instruction methods in PE would be the integration of both technical and conceptual approaches, and qualitative analysis instruction was beneficial in helping students developing abilities used in a teaching situation. Mostly, students taken PE courses aimed on keeping in good physical fitness condition, for examples, flexibility, muscular strength and muscular endurance, cardiovascular efficiency, locomotion, stability, and manipulation. In addition, getting pleasure and success experiences from exercise was valued. Besides of PE courses, sport events, or sport clubs in college lives would help students accomplishing their objectives on getting fitness and having pleasure.

PE Pedagogy in Teacher Education

The development of pedagogical schemata in pre-service students was critical in the curriculum design of teacher education. Pedagogical schemata refer to mental structures that represent knowledge about teaching. Bennett (1990) among others (Posner, 1985; Shulman, 1986, 1987; Tamir, 1988), has emphasized the need to examine the development of pedagogical schemata in students in pre-service teacher education programs. Schemata

have been defined as"... the complex cognitive structures that include both theoretical and practical knowledge and an understanding of the interrelatedness of these knowledge sources for informing judgment and action "(Barnes 1987, p.17). The notion, which has been advanced, was that teachers with more fully developed schemata have a better understanding of the teaching-learning transaction and are therefore more likely to be effective. On this basis, it seemed reasonably for facilitating the growth of pedagogical knowledge schemata in pre-service teachers.

PE curricula developed between PE specialist and non-PE specialist teachers usually had significant differences (Placek & Randall, 1986). Barrette, Leah, and Kowalaki (1993) introduced a unified faculty team approach to teacher development in order to combat curricular and instructional fragmentation called as the Teacher Development Team (TDT). Consequently the TDT was created to achieve shared responsibility and accountability for the program. This internal collaborative strategy directly addressed the concerns expressed by O'Hanlen and Wanzilak (1980) regarding fragmented curriculum and faculty dissociation. The TDT, comprised of eight faculty members each representing specialization in one of the sub-disciplines of physical education, work together on curricular, instructional and assessment issues related to teacher development.

The TDT developed and organized the framework around a hierarchy of four interdependent and complimentary program components, underscored in the right hand column of the Table 1. Together the components expressed the concern for and attention to the means by which professional teacher development can be attained. These components are as follows: (1) Introduction/Orientation Component-- Emphasizes transactional processes and experiences between students and faculty, directed at blending subject matter content with pedagogical themes. (2) Infusion Component-- Emphasizes transactional processes and experiences between students and faculty, directed at blending subject matter content with pedagogical themes. (3) Integration Component-- Emphasizes translatable and transformational outcomes related to a student's ability to analyze and apply knowledge in instructional situations. (4) Induction Component-- Emphasizes instructional synthesis and socialization outcomes through extended experiences in schools as well as other relevant educational and professional contexts.

development of program features that have essentially redefined the nature and conduct of the program.

Comparing to teacher education in other age levels, pedagogy of early childhood physical education should be included into the pedagogy schemata of the curriculum design of early childhood teacher education. Since kindergarten curriculum adopted an integrating model in Taiwan, therefore, kindergarten teachers should be capable of teaching motor areas as well as other development areas.

Table 1

Physical education teacher education program framework

	Program course composites	Key program feature	Key program focus
Year 4	Core values & action course, student teaching, professional seminar	Support-PE (collaboration with practitioners in school districts)	Induction into the profession application of knowledge and reflection on teaching
Year 3	University core and education sequence, PE curriculum and teaching courses, PE theory and practicum	Support-PE (collaboration with practitioners in school districts	Integration of theoretical and practical knowledge and reflection on teaching
Year 2	University core, PE content courses, bio. and edu. foundation sequence	Teacher development team	Infusion of pedagogical knowledge and perspectives through pedagogical themes
Year 1	Begin university core, English writing, principles of PE, social issues in PE & sport, PE content courses	Professional orientation and re-orientation to teaching	Introduction and orientation presentation and analysis of information for conceptual and affective reorientation

Physical Education in Early Childhood

Hautala (1995) conducted a study to assess the effectiveness of two models for providing PE to preschool children with disabilities; one in which PE was provided by an untrained classroom teacher (classroom teacher program) and one in which PE was provided by university students with some training in adapted PE (PE specialist program). (Table 2)

Nineteen children (11 males and eight females) enrolled in two public schools, at risk, early intervention classes, ranging in age from 2 years 11 months to 5 years (mean age = 4:4)

served as subjects. These subjects were selected because of disabling conditions and levels of classroom functioning. Conditions included speech and language delay, physical disabilities, and behavioral disabilities. Two non-disabled students in each class, peer models for the students with disabilities, were included in the study as subjects. One class (n=9) served as the control group and the other (n=10) as the experimental group.

A review of content and teaching approaches used in the two PE programs, obtained by observation and teacher interview, provided some clues to why the children in the two programs changes so differently over time. Obvious differences existed between the curricula and methodology of the two programs. The use of primarily student centered teaching, the use of great quantities and a variety of equipment, and the individualized developmental curriculum focus, were all aspects of PE specialist program that the classroom teacher did not employ.

Table 2

Comparisons of PE program content and methodology

Classroom Teacher Program	PE Specialist Program
Large, whole group activities	Small group and individual. activities
Teacher centered teaching style	Varied teaching styles: teacher centered, problem solving, guided discovery, exploration.
High student/equipment ratios: 1 ball/class for kicking, 1 mat/class for tumbling.	Low student/equip. rations: 1 ball/child, 1 mat/each 2 children.
Limited variety of equipment used and activities: balls, mats, ropes for jumping.	Great variety of equipment usage and activities: balls, hoops scooters, scarves, balloons, tees, suspended balls.
Traditional activities: group games, relays, races.	Varied activities: specific fundamental motor skill focus, fundamental motor skills during class transitions, e.g., "Everyone roll to this circle".
	Station approach: focus on balance, balance on a bench, balance on jump ropes, balance on the edge of a folded mat.
Equipment used traditionally: mats used for tumbling	Equipment used creatively: mats used for tumbling, as bridges or on end as "baskets".
Curriculum activity oriented	Curriculum motor-developmentally oriented: TGMD results used to bring focus to areas of student need.

Neither group of children was homogeneous, in either ability or disability. Group-focused activities, with little freedom for accommodation of individual differences, proved ineffective in improving learners' skill performance. The individual motor needs of the students in the classroom teacher-led class could not be met in their program, nor could these students develop at individual rates, but only at the rate which the group activity allowed. While not a unique curriculum, the use of student assessment to plan an individualized program to address student's needs and the implementation of the program's plans through use of exploration activities with varied equipment and high levels of student activity led to significant growth and skill development in the PE specialist-led children. Hautala (1995) suggested that a logical next area of investigation is to address the possibility and effectiveness of consultative relationships between PE specialists and classroom teachers.

In Hautala's (1995) study, untrained kindergarten classroom teachers were less able to provide appropriate contents and teaching approaches in their PE instruction, it approved the importance of ECPE pedagogy in early childhood teacher education program. Regarding instruction objectives in PE, physical fitness and movement skills were emphasized usually, while positive learning attitudes in the affective category were ignored usually. Chien (1999) proposed five positive attitudes in her inclusive PE program implemented in a kindergarten class. There were five children with mild disabilities and 15 typical children in this class. These five positive attitudes proposed were concentration, confidence, positively responding to challenge, helping peers, and appreciating peers. Chien's (1999) study found that this program was especially beneficial to the attitude of positive responding to challenge for children with mild disabilities.

Methods

In this section, the procedure of questionnaire development, the background of subjects, and methods used in data analysis were introduced.

Questionnaire Development

A questionnaire called "survey of college PE experiences and self-evaluation on ECPE instruction" was developed in this study in order to collect related data. According to the analysis of aforementioned literature, a questionnaire manuscript was organized. This manuscript was presented to a discussion panel of ten experts in order to refine its format and contents. The revised edition was distributed to seventy kindergarten teachers in order to conduct a pilot study. These participants were directed to answer this questionnaire and to judge the appropriateness of each survey item. Their judgment was based on how many percent an item can obtain the appropriate information that was expected by the goal of this survey. The average percentage of the appropriateness of each item of the whole questionnaire all reached above 83%. This pilot study provided the evidence of the content validity for this questionnaire. Suggestions collected from this pilot study were contributed to complete the final-edition questionnaire.

This questionnaire was comprised by four components regarding (1) background information, (2) satisfaction on college PE experiences, (3) self-evaluation of effectiveness on ECPE instruction, and (4) suggestions of improvement needed regarding pre-service teacher education program. The relation of these four components in this study and contents of each component was illustrated as Figure 1.

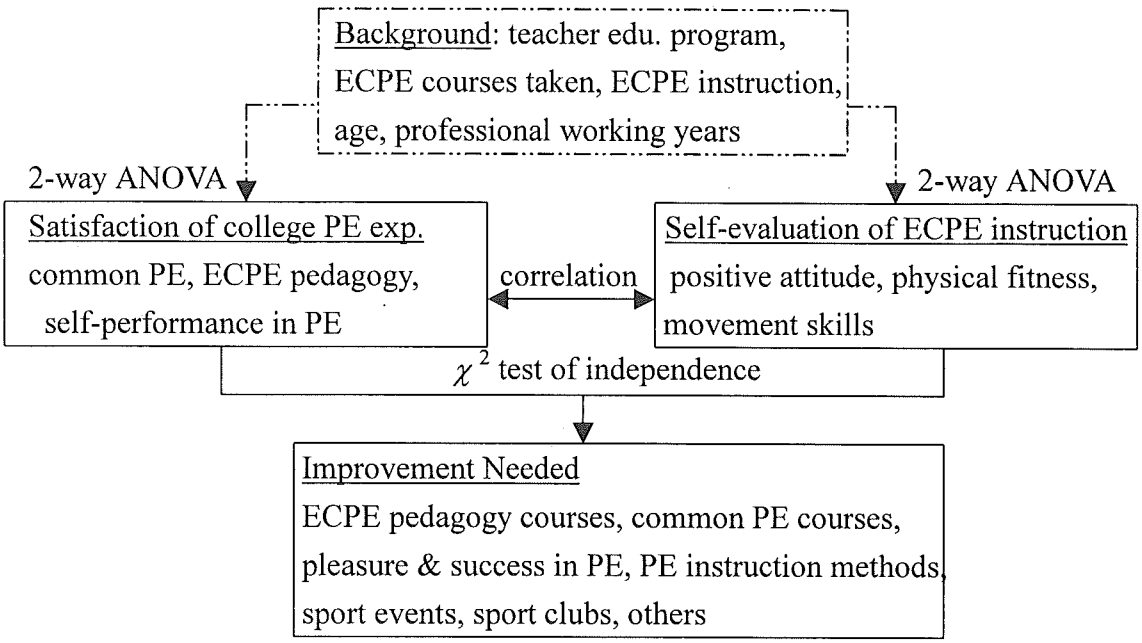

Figure 1

Research framework of college PE experiences and ECPE instruction

Questionnaire items regarding "background information" surveyed kindergarten teachers' pre-service teacher education program, ECPE pedagogy courses taken, the status of ECPE instruction, age, and professional working years. Questionnaire items regarding "satisfaction on college PE experiences" surveyed teachers' satisfaction level on college common PE, pedagogy of ECPE, and performance of oneself on college PE. Questionnaire items regarding "self-evaluation of effectiveness on ECPE instruction" surveyed teachers' evaluation level on their competence about developing children's positive learning attitude, physical fitness, and movement skills. Questionnaire items regarding "suggestions of improvement needed" surveyed teachers' opinions on ECPE related issues in their pre-service teacher education program.

Within the component of "satisfaction on college PE experiences," there were variables of college common PE, pedagogy of ECPE, and self-performance in PE. "College common PE" surveyed issues of variation, applicability, appropriateness, lesson plans, teaching resources, and evaluation and feedback. "Pedagogy of ECPE" surveyed the same issues as

the college common PE. "Performance of oneself in PE" surveyed issues of flexibility, muscular strength and muscular endurance, cardiovascular efficiency, locomotion, stability, and manipulation.

Within the component of "self-evaluation of effectiveness on ECPE instruction," there were variables of developing children's positive learning attitude, physical fitness, and movement skills. "Developing children's positive learning attitude" surveyed issues of concentration, confidence, positively responding to challenge, helping peers, appreciating peers, and actively participating movement activities. "Developing children's physical fitness" surveyed issues of flexibility, muscular strength, muscular endurance, cardiovascular efficiency, accordance, and agility of movement. "Developing children's movement skills" surveyed issues of horizontal locomotion, vertical locomotion, static stability, dynamic stability, bare-hand manipulation, and with-equipment manipulation.

The component of "improvement needed" surveyed the importance priority of proposed issues of ECPE pedagogy courses, college common PE courses, pleasure and success in college PE, college PE instruction methods, sport events in college, and sport clubs in college. However, an extra option of "Others" was provided in this "improvement needed" component in order to collect teachers' further opinions.

Regarding the questionnaire scale, components regarding "satisfaction" and "self-evaluation" were designated with a five-point Likert scale. The component of "improvement needed" asked teachers' ranked the importance priority by assigning one number from 1 to 7 to each proposed issue. There were 42 survey items in the whole questionnaire.

Subjects

Subjects were volunteer participants within the following three groups: (1) student teachers completed their college requirement in Early Childhood Education (ECE) or senior college students in ECE (4-year students), (2) kindergarten teachers with a college major degree in ECE had obtained teacher certification (4-year certificated), and (3) kindergarten teachers without a college major degree in ECE completed their intensive teacher training program in ECE (intensive program).

The questionnaire was distributed to subjects either by personal contact or by mail. The return percentage of this survey reached 90%. The number of subjects within these three aforementioned groups was 74, 70, and 63 respectively. The total number of subjects was 207.

Data Analysis

Two-way ANOVA tests were utilized for examining the relation between the background variables and the satisfaction of college PE experiences, as well as the relation between the background variables and the self-evaluation of ECPE instruction. χ^2 tests of homogeneity of proportions were utilized for examining the difference of priority level ranked on seven items of improvement suggestion with participants in different conditions.

Results

Relation between Satisfaction and Background

Two-way ANOVA.

Regarding the satisfaction of college PE experiences, there were four independent variables included. Variables of satisfaction included the satisfaction of common PE, the satisfaction of ECPE pedagogy, the satisfaction of self-performance, and the total satisfaction. Training and course taken did not have any interaction effects on all of the variables of satisfaction. However, course taken did have effect on the satisfaction of ECPE pedagogy. (Table 3) (Other related tables were integrated into Table 4)

Table 3

2-way ANOVA summary table of training & course taken on the satisfaction of common PE

Source	df	SS	MS	F
Training (A)	2	2.12	1.06	0.06
Course taken (B)	1	28.36	28.36	1.68
A*B	2	95.99	47.99	2.85
W.cell	201	3390.40	16.87	
Total	206	3516.87		

$F_{.95}(2, 201) = 3.00$, $F_{.95}(1, 201) = 3.84$

Training and PE teaching had interaction effects on the satisfaction of common PE, and on the total satisfaction (Table 4). Training and age did not have any interaction effects on all of the variables of satisfaction. However, age did have effects on the satisfaction of common PE and on the total satisfaction. Training and working years did not have any interaction effects on all of the satisfaction variables. However, working years did have effects on the satisfaction of PE pedagogy and the total satisfaction.

Table 4

Illustration of significant interactions of satisfaction and background

Satisfaction	Background			
	Training & Course taken	Training & ECPE teaching	Training & Age	Training & Working years
--Common PE	—	** training @assisting PE, PE teaching @4yrs students, PE teaching @4yrs certificated	—	—
--ECPE pedagogy	— (course taken*) (n't significant)	—	— (age***) (29/up > 28~24, 29/up > 23/less)	— (working yrs***) (5/up > 4/less, 5/up > less 1)
--Self-performance	—	—	—	—
--Total	—	* training @assisting PE, PE teaching @4yrs students, PE teaching @4yrs certificated	— (age*) (28~24 > 23/less)	— (working yrs*) (n't significant)

* $p < .05$, ** $p < .01$, *** $p < .001$

Simple main effects.

Firstly, training and PE teaching experiences had effects on satisfaction of college common PE. (1) At the category of assisting PE teaching, training conditions had significant effects on satisfaction of college common PE (Intensive program > 4yrs students > 4yrs certificated). (2) At the training conditions of student teachers in ECE or certificated teachers in ECE, different PE teaching experiences had significant effects on satisfaction of college common PE (4yrs students: implementing > assisting / no experiences; 4yrs certificated: no experiences / implementing > assisting). (3) However, the post hoc comparison of difference between cell means did not reach the significance level.

Secondly, training and PE teaching experiences had effects on the total satisfaction. (1) At the category of assisting PE teaching, training conditions had significance effects on the total satisfaction (Intensive program > 4yrs students / 4yrs certificated). (2) At the training conditions of student teachers in ECE or certificated teachers in ECE, different PE

teaching categories had significant effects on the total satisfaction (4yrs students: implementing > no experience / assisting; 4yrs certificated: implementing / no experience > assisting). (3) However, the post hoc comparison of difference between cell means did not reach the significance level.

Main effects.

(1) PE pedagogy course taken experiences had effects on the satisfaction of PE pedagogy courses (have not taken any courses > have taken some courses). (2) Age had effects on the satisfaction of PE pedagogy (age 29 / up > age 28~24, 29 / up > 23 / less) and the total satisfaction (28~24 > 23 / less). (3) Working years had effects on the satisfaction of PE pedagogy (years 5 / up > 4 / less, year 5 / up > less 1) and the total satisfaction (not significant).

Summary.

Summarizing the interaction of background independent variables on variables of satisfaction category, there were two interaction effects found: (1) the interaction of training and ECPE teaching on the satisfaction of common PE, and (2) the interaction of training and ECPE teaching on the total satisfaction.

Most participants who were implementing ECPE now had higher satisfaction on their college common PE experiences. Some kindergartens arranged ECPE classes according to teachers' attitude of willing to teach it or not. Generally, kindergarten teachers who were willing to implementing PE might have higher physical competence and feel more satisfactory on their college common PE experiences. Regarding the satisfaction of the total college PE experiences, the finding was similar with the satisfaction of the college common PE experiences. Kindergarten teachers' college common PE experiences were mostly referred to their total college PE experiences.

The independent background variables were found to have main effects on the dependent variables of the satisfaction component. Regarding the effect of course taken, kindergarten teachers who had taken PE pedagogy courses had lower satisfaction on PE pedagogy than who had not taken pedagogy courses. This negative effects on satisfaction noted the necessary of improve the instruction efficiency of PE pedagogy. Regarding the effects of age, teachers age 29 and up had higher satisfaction on their PE pedagogy experiences than younger ones, teachers aged 28-24 had higher satisfaction on their total

college PE experiences than teachers aged 23 and less. Regarding the effects of working years, the finding was mostly similar with age.

Relation between Self-Evaluation and Background

Two-way ANOVA.

Regarding the evaluation of ECPE instruction, there were four independent variables. Variables of evaluation included the evaluation of developing children's positive learning attitude, the evaluation of developing fitness, the evaluation of developing skills, and the total evaluation.

Training and course taken did not have any interaction effects on all of the variables of evaluation (Table 5). Training and PE teaching did not have any interaction effects on all of the variables of evaluation, too. However, PE teaching did have effect on the evaluation of developing skills. Training and age did not have any interaction effects on all of the variables of evaluation. However, age did have effect on the evaluation of developing fitness. Training and working years did not have any effects on all of the variables of evaluation. However, working years did have effect on the evaluation of developing fitness.

Main effects.

(1) PE teaching experiences had effects on the self-evaluation of developing children's movement skills (no experience > assisting PE). (2) Age had effects on the evaluation of developing children's fitness (28~24 > 23 / less). (3) Working years had effects on the self-evaluation of developing children's fitness (years 5 / up > less 1).

Summary.

Summarizing the interaction of background independent variables on variables of the evaluation component, there was no interaction effect found. The background independent variables were found to have main effects on the dependent variables of the evaluation component. Regarding the effect of PE teaching experience, kindergarten teachers who had no ECPE teaching experience had higher evaluation of developing children's movement skills than who were only assisting PE. Regarding the effect of age, teachers aged between 28 and 24 had higher evaluation on developing children's physical fitness than who aged 23

and less. The finding on working years was similar with age. Teachers had five years or longer teaching experiences had higher self-evaluation on their ability of developing children's physical fitness than teachers who had teaching experiences less than one year. However, the evaluation of developing children's positive learning attitudes and movement skills did not have any effects with teachers' working years.

Table 5

Illustration of significant interactions of evaluation and background

Self-evaluation	Background			
	Training & Course taken	Training & ECPE teaching	Training & Age	Training & Working years
--Positive attitude	—	—	—	—
--Physical fitness	—	—	— (age**) (28~24 > 23/less)	— (working yrs*) (5/up > less 1)
--Movement skills	—	— (PE teaching *) (no exp. > assisting PE)	—	—
--Total	—	—	—	—

* $p < .05$, ** $p < .01$

Correlation between Satisfaction & Self-Evaluation

Regarding the relation between three satisfaction variables (i.e., common PE, PE pedagogy, and self-performance) and the total self-evaluation on ECPE instruction, the highest correlation was found on "satisfaction of self-performance on college PE" and "the total self-evaluation on ECPE instruction" ($r= 0.45$, $p< .001$) (Table 6). Correlations were found between each pair of subscales on college PE experiences and self-evaluation on teaching ECPE. Teachers who felt better at their PE performance were also felt more effective about teaching ECPE.

The correlation of "satisfaction of PE pedagogy" and "total evaluation on teaching

ECPE" was the lowest among three variables (r=0.22, p< .01). Teachers' learning experiences in PE pedagogy courses did not highly correlate to their self-evaluation on teaching ECPE.

Regarding the relation between three evaluation variables (i.e., developing children's positive learning attitude, physical fitness, and movement skills) and the total satisfaction on college PE experiences, the highest correlation was found on "evaluation of developing children's physical fitness" and "the total satisfaction of college PE experiences" (r=0.45, p< .001). The higher teachers felt about their satisfaction, the more effective they evaluated themselves about developing children's physical fitness.

The correlation between "the total satisfaction of college PE"and "evaluation on developing children's positive learning attitude" was the lowest among three variables (r=0.26, p< .001). Teachers' college PE experiences did not highly correlate to their self-evaluation on the effectiveness of developing children's positive learning attitude.

Table 6

Coefficient of correlation (γ) between satisfaction and evaluation

	Evaluation			
	Learning attitude	Physical fitness	Movement skills	Total
Satisfaction				
Common PE	0.23***	0.42***	0.22**	0.38***
ECPE pedagogy	0.15*	0.16*	0.20**	0.22**
Self-performance	0.25***	0.49***	0.30***	0.45***
Total	0.26***	0.45***	0.30***	0.44***

* p < .05, ** p < .01, *** p < .001

Priority of Improvement Needed

There were seven items provided for participants to rank the priority of improvement needed in order to enhance the effectiveness of kindergarten teachers on teaching ECPE. These seven items were PE pedagogy, common PE, pleasure & success, college PE instruction methods, sport events, sport clubs, and others. The item "others" was an open question and requested participants to provide examples. The most people rated the answer

of PE pedagogy courses as the first priority. The second most people rated pleasure and success in PE or college PE instruction methods as the first priority. (Table 7)

The independence of judgment on the priority of improvement needed was tested. The background variables of training, PE pedagogy courses taken experiences, PE teaching experiences, age, and professional working years were found to have effects on participants' opinions. Satisfaction and self-evaluation variables were found to have effects on participants' opinions, too. Results of χ^2 test of independent of the priority level on the first item "PE pedagogy" were illustrated by five background, four satisfaction, and four evaluation variables. (Table 8)

Table 7

Frequency and percentage of the priority of improvement needed

		Priority							
Item	1	2	3	4	5	6	7	Others	χ^2
PE pedagogy	(N) 76	37	30	22	20	9	7	6	***
	(%) 36.7	17.9	14.5	10.6	9.7	4.3	3.4	2.9	110.92
Common	19	29	40	60	18	32	3	6	***
PE	9.2	14.0	19.3	29.0	8.7	15.5	1.4	2.9	70.55
Pleasure &	42	55	47	24	17	8	4	10	***
success	20.3	26.6	22.7	11.6	8.2	3.9	1.9	4.8	80.63
Instruction	42	40	46	39	19	15	0	6	***
methods	20.3	19.3	22.2	18.8	9.2	7.2	0	2.9	42.40
Sport	8	18	19	33	65	54	4	6	***
events	3.9	8.7	9.2	15.9	31.4	26.1	1.9	2.9	104.89
Sport	17	16	25	28	44	70	1	6	***
clubs	8.2	7.7	12.1	13.5	21.3	33.8	0.5	2.9	90.03
Others	3	1	0	6	2	4	165	26	***
	1.4	0.5	0	2.9	1.0	1.9	79.7	12.6	266.07

Note. 1. *** $p < .001$,

2. N = 207 in each item.

Within seven improvement items, there were six of them displayed different on priority levels due to background, satisfaction, or evaluation variables. The item of "college PE instruction methods" was the only one, which did not have difference with different

kindergarten teachers. The different status found on six items was explained as the following.

PE pedagogy.

Regarding the priority level given to PE pedagogy, there were differences found on five variables. (1) Training: the most frequency was found in teachers accredited by intensive program ranked PE pedagogy as the highest priority, and the least frequency was found in teachers accredited by intensive program ranked PE pedagogy as the lowest priority. (2) Satisfaction on college common PE: the most frequency was found in teachers had medium level of satisfaction ranked PE pedagogy as the highest priority, and the least frequency was found in teachers had low level of satisfaction ranked PE pedagogy as the highest priority. (3) Satisfaction on self-performance of college PE: the most frequency was found in teachers had medium level of satisfaction ranked PE pedagogy as the highest or middle priority, and the least frequency was found in teachers had low level of satisfaction ranked PE pedagogy as the highest priority. (4) Evaluation on developing children's positive learning attitude: the most frequency was found in teachers had medium level of evaluation ranked PE pedagogy as the highest priority, and the least frequency was found in teachers had low level of evaluation ranked PE pedagogy as the highest or middle priority. (5) Evaluation on developing children's physical fitness: the most frequency was found in teachers had medium level of evaluation ranked PE pedagogy as the highest or middle priority, and the least frequency was found in teachers had low level of evaluation ranked PE pedagogy as the middle priority.

Table 8

Results of χ^2 test of the priority level given to improvement needed

	Item						
	PE pedagogy	Common PE	Pleasure, success	Instruction methods	Sport events	Sport clubs	Others
Background							
Training	*	—	—	—	—	—	—
Course taken	—	**	—	—	—	—	—
ECPE teaching	—	—	*	—	—	—	—
Age	—	—	*	—	—	—	—
Working years	—	—	—	—	—	—	—
Satisfaction							
Common PE	*	*	—	—	—	**	*
ECPE pedagogy	—	—	—	—	—	—	—
Self- performance	*	—	—	—	—	**	*
Total	—	—	—	—	*	—	—
Evaluation							
Positive attitude	*	—	*	—	**	*	—
Physical fitness	*	—	**	—	*	*	—
Movement skills	—	—	—	—	—	—	—
Total	—	—	—	—	—	—	—

* $p < .05$, ** $p < .01$

Common PE.

Regarding the priority level given to common PE, there were differences found on two variables. (1) Course taken: the most frequency was found in teachers have taken ECPE pedagogy ranked common PE as the lowest priority, and the least frequency was found in teachers have not taken ECPE pedagogy courses ranked common PE as the middle priority. (2) Satisfaction on college common PE: the most frequency was found in teachers had high level of satisfaction ranked common PE as the highest priority, and the least frequency was found in teachers had medium level of satisfaction ranked common PE as the lowest priority.

Pleasure & success.

Regarding the priority level given to pleasure and success, there were differences found on three variables. (1) ECPE teaching experiences: the most frequency was found in teachers had no experiences ranked pleasure and success as the middle priority, and the least

frequency was found in teachers assisting ECPE teaching ranked pleasure and success as the highest priority. (2) Evaluation on developing children's positive learning attitude: the most frequency was found in teachers had medium level of evaluation ranked pleasure and success as the middle priority, and the least frequency was found in teachers had low level of evaluation ranked pleasure and success as the highest priority. (3) Evaluation on developing children's physical fitness: the most frequency was found in teachers had medium level of evaluation ranked pleasure and success as the middle priority, and the least frequency was found in teachers had low level of evaluation ranked pleasure and success as the highest priority.

PE instruction methods.

There were not any differences of priority level found in college PE instruction methods.

Sport events.

Regarding the priority level given to sport events, there were differences found on three variables. (1) Satisfaction on total college PE experiences: the most frequency was found in teachers had medium level of satisfaction ranked sport events as the lowest priority, and the least frequency was found in teachers had high level of satisfaction ranked sport events as the highest priority. (2) Evaluation on developing children's positive learning attitude: the most frequency was found in teachers had medium level of evaluation ranked sport events as the lowest priority, and the least frequency was found in teachers had low level of evaluation ranked sport events as the lowest priority. (3) Evaluation on developing children's physical fitness: the most frequency was found in teachers had medium level of evaluation ranked sport events as the lowest priority, and the least frequency was found in teachers had high level or low level of evaluation ranked sport events as the highest priority.

Sport clubs.

Regarding the priority level given to sport clubs, there were differences found on four variables. (1) Satisfaction on college common PE: the most frequency was found in teachers had medium level of satisfaction ranked sport clubs as the lowest priority, and the least frequency was found in teachers had low level of satisfaction ranked sport clubs as the highest priority. (2) Satisfaction on self-performance of college PE: the most frequency was found in teachers had medium level of satisfaction ranked sport clubs as the lowest

priority, and the least frequency was found in teachers had low level of satisfaction ranked sport clubs as the middle priority. (3) Evaluation on developing children's positive learning attitude: the most frequency was found in teachers had medium level of evaluation ranked sport clubs as the lowest priority, and the least frequency was found in teachers had high level of evaluation ranked sport clubs as the highest priority or teachers had low level of evaluation ranked sport clubs as the highest or middle priority. (4) Evaluation on developing children's physical fitness: the most frequency was found in teachers had medium level of evaluation ranked sport clubs as the lowest priority, and the least frequency was found in teachers had high level of evaluation ranked sport clubs as the highest priority. Others.

Regarding the priority level given to "others," there were differences found on two variables. Because the frequency of some cells presented to be 0, only the highest frequency would be noted in the following. (1) Satisfaction on college common PE: the most frequency was found in teachers had medium level of satisfaction ranked "others" as the lowest priority. (2) Satisfaction on self-performance of college PE: the most frequency was found in teachers had medium level of satisfaction ranked "others" as the lowest priority.

Comments on improvement needed

There were 91.8% of sample persons made comments on improvement needed. The highest percentage of persons made comments on seven items of improvement needed was found on the sport clubs (24.64%). Sport clubs, PE pedagogy, and sport events were items which percentage of persons mad comments exceeded 15% (Table 9). Comments made on the "sport clubs" of improvement needed were mostly on the swimming club (N=7), in-line skating and badminton clubs were also proposed by plenty of participants (N=6 on both of them).

Table 9

Percentage of persons made comments on improvement needed and description of comments

		Order (N)		
Item	%	1	2	3
PE pedagogy	17.87	Curriculum design & practices (9)	Movement & rhythm (6)	Instruction methods (3)
Common PE	14.98	Tennis (3)/ Dance (3)/ Folk sports (3)		
Pleasure & success	6.28	Evaluation & feedback (3)		
Instruction methods	8.70	None over three		
Sport events	16.91	Basketball (6)	Cheer meet (5)	Badminton (4)/ Table tennis (3)
Sport clubs	24.64	Swimming (7)	Skating (6)/ Badminton (6)	Dance (3)/ Tennis (3)
Others	2.42	None over three		

Note. (1) 100 % = 207, (2) N= number of persons made a specific comment (illustrating over threes only).

Conclusion

Background and satisfaction.

For kindergarten teachers with a college major degree in early childhood education (ECE), those who had experiences on implementing early childhood physical education (ECPE) instruction had higher satisfaction on college common PE than those who only

assisting ECPE instruction. This finding noted that teachers had higher satisfaction on their common PE experiences might had higher possibility to implementing ECPE. Part of this possibility might relate to teachers' confidence toward participating physical activities.

Kindergarten teachers who had ever taken some ECPE pedagogy courses had lower satisfaction on ECPE pedagogy courses than those who had never taken one. This finding noted negative effects of satisfaction on ECPE pedagogy.

Background and self-evaluation.

Kindergarten teachers who had the longest professional working years (five years or up) evaluated themselves as more effective on developing young children's physical fitness than those who had less than one-year professional working experiences. This finding noted that professional working experiences might cause teachers to have higher evaluation on their effectiveness of developing children's physical fitness; however, there was no apparent evidences of relationship on professional experiences and developing children's positive learning attitudes or movement skills.

Satisfaction and self-evaluation.

Significant correlations were found between each pair of subscales on college PE experiences and self-evaluation on ECPE instruction. Teachers who felt better about their college PE experiences were also felt more effective about ECPE instruction.

However, the correlation between variables of "satisfaction of ECPE pedagogy" and "total self-evaluation on ECPE instruction" was the lowest. This finding agreed to aforementioned negative effects of satisfaction on ECPE pedagogy courses. Both findings reminded the emergency of promoting the quality of ECPE pedagogy courses.

The higher satisfaction teachers felt about their college PE experiences, the more effective they evaluated themselves on developing children's physical fitness. However, teachers' satisfaction on the total college PE experience had the lowest correlation on developing children's positive learning attitudes, when comparing to physical fitness or movement skills. This finding noted that objectives regarding developing learners' positive learning attitudes needed to be proposed and emphasized within PE activities.

Improvement needed.

The most teachers rated PE pedagogy as the first priority of improvement. The second most teachers rated pleasure and success in PE or college PE instruction methods as the first

priority. This finding noted that the development of ECPE pedagogical schemata (Bennett, 1990), refinement of instruction methods, and motivation-maintenance in learning process were benefit to ECPE instruction.

In order to carry out the model of "integrate curricula" of the Kindergarten Curricula Outline regulated by Ministry of Education in Taiwan, there is a need to promote the quality of ECPE pedagogy courses for our all-purpose kindergarten teachers. The item of "college PE instruction methods" was the only one, which did not display different priority level with different categories of kindergarten teachers. It is apparent that PE program in teacher education should direct with sound instruction methods in order to demonstrate effective instruction practices.

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幼稚園教師之大學體育經驗與幼兒體育教學之自評研究

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摘　要

本研究之目的在探討幼稚園教師在大學階段之體育經驗與其實施幼兒體育教學之相關。本研究所謂之大學體育經驗包含共同體育課程、幼兒體育教育學課程、及個人體育表現。本研究之預試係以 70 位幼稚園教師爲受試，進行調查問卷的效度考驗。問卷調查所收集的資料包含四個部分：(1) 背景資料；(2) 大學體育經驗的滿意度：包含共同體育課程、幼兒體育教育學、與個人體育表現；(3) 實施幼兒體育教學的效能自評：包含發展幼兒積極的學習態度、體適能、及動作技能；(4) 對幼兒教師之師資培育課程的建議。本研究共收回 207 份有效問卷，回收率達 90%。資料分析方法採用變異數分析、卡方考驗、及相關考驗。本研究發現大學體育經驗滿意度較高者，對個人實施幼兒體育教學之自評亦較高；其中又以個人體育表現之滿意度與體育教學自評的正相關較高。在大學體育課程之改進建議上，以幼兒體育教育學、成功快樂的體育經驗、及大學體育教學方法等三項的排序較爲優先。回收問卷中所提供之補充意見集中在運動社團、幼兒體育教育學、及運動賽會等三項。

關鍵詞：幼稚園教師、幼兒時期、體育、教學、師資培育