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Case studies of Finnish physical education teachers: Espoused and enacted theories of action

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The Ohio State University, 1994

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CASE STUDIES OF FINNISH PHYSICAL EDUCATION TEACHERS:

ESPOUSED AND ENACTED THEORIES OF ACTION

DISSERTATION

Presented in Partial Fulfillment of the Requirements for

the Degree of Philosophy in the Graduate

School of the Ohio State University

By

Jan-Erik Vilhelm Romar, B.Sp.Sc., M.Sp.Sc.
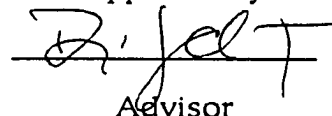
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To my Parents

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FIELDS OF STUDY

Major Field: Health, Physical Education, and Recreation

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Minor Field: Studies in Teacher Education

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CHAPTER I

INTRODUCTION

Recently, Locke (1992) suggested that physical education is failing to achieve its goals in secondary schools. He concluded that "many students in the gym are neither doing the tasks we assign nor learning the things we intend" (Locke, 1987, p. 89). Siedentop and O'Sullivan (1992) reported the marginality of physical education in ten high schools, which they and their colleagues studied in depth. The marginality of physical education in middle schools may also be true because literature on middle school physical education is difficult to find. Placek (1992) reported that some teachers and principals have difficulties defining physical education in the middle school. Therefore, it is important to broaden our understanding of teaching and learning in middle school physical education.

Research on teachers, students, and the learning environment suggests an integrated, multidimensional research perspective. Therefore, this study was based on several theoretical perspectives and research methodologies. The ecological model (Doyle, 1986) provided the interpretive framework for analyzing classroom events. Teacher thinking and beliefs perspectives, particularly the notion of an espoused theory of action, provided the interpretive framework for examining and analyzing teacher beliefs about physical education and teaching. Finally, in response to expressed

concern about the neglect of student voices in teaching research (Smith, 1991), data on student behavior in class and students' perception of their classes were gathered with the assumption that students and teachers jointly construct the learning environment and jointly determine its evolution, an assumption fully compatible with the ecological model.

The Ecological Model

The process-product research paradigm was widely used in the 1970s to identify effective teachers and to improve teaching by relating performance on standardized achievement tests to low-inference observations of teacher and student behaviors. Some of the shortcomings of process-product research were that it provided a narrow perspective of student and teacher behavior, did not recognize the reciprocal interaction between teachers and students, and failed to see the teacher as a thinking individual in a complex situation. The ecological paradigm emerged in the 1980s, its proponents viewing classrooms as complex environments where teachers influenced students and students influenced teachers. Furthermore, student work was seen as the central element to an increased understanding of the complexity of teaching and learning (Doyle, 1983).

Work in classrooms is mainly defined by the teacher, who then expects students to accomplish the work. Therefore, as Nespor (1987) pointed out "to understand teaching from teachers' perspective we have to understand the beliefs with which they define their work" (p. 323). He suggested that when researchers attempt to explain teachers' classroom activities, teachers' goals and their interpretations of classroom processes ought to be considered, because teachers' ways of thinking and understanding are important components of their practice.

Instruction and learning in classrooms are complex. Instruction is a dynamic process where content is continuously transformed (Doyle, 1992) and the ecology in the classroom is constructed over long periods of time (Doyle, 1982). This view calls for research on teaching in real settings over an extended time period, research which must focus on "the events that students and teachers jointly construct in the classroom" (Doyle, 1992, p. 509). Doyle called for a fuller understanding of the structure and operating processes of these events and how students' and teachers' interpretations affect and are formed when they participate in these events. Eisenhart and Borko (1991), from a different research philosophy, advised that scholars must consider the teacher, the students, and instructional tasks in order to understand student learning in classrooms.

In looking for a model of inquiry on teaching Doyle (1982) stressed "an emphasis on work as an important element which affects thought and achievement in classroom environments" (p. 531). Work can be portrayed as an academic task system which includes goals, materials, procedures, cognitive operations, and accountability. These academic task systems, rather than teachers' behaviors or cues, organize and guide students' work in classrooms (Doyle, 1982). The task system view proposes that teachers state the tasks for students, students interpret the tasks and perform the work, and teachers judge the satisfaction of the product (Carter & Doyle, 1987) which means that the learning environment is jointly constituted by teachers and students.

In 1983, Siedentop called for research on task structures in physical education. In the initial effort Tousignant and Siedentop (1983) studied instructional and managerial task systems. As a result, several dissertations

have focused on the task system model in a programmatic research stream at The Ohio State University. Additionally, other scholars have supported the significance of research on task structures in physical education (Griffey, 1991; Silverman, 1991). However, they also concluded that there is still a paucity of research within this area.

Teachers' Theories of Action

In structuring classroom work, teachers have a body of knowledge which helps them to analyze their instruction and the learning environment and to reflect on possible actions. Different concepts, such as practical principles, personal theories, images, have been employed to describe how teachers' knowledge, values, and beliefs are structured (Calderhead, 1991). There is no agreement about the terminology. Different researchers have endeavored to define how teachers' knowledge could be articulated, accepting the complexity, the influence of value judgments, beliefs, and attitudes, the relationship with instructional experience, and the contextual nature of teaching. However, Calderhead (1991) concluded "the relationship between teachers' thought and knowledge and their practice is neither straightforward nor well understood" (p. 532). In addition, Siedentop (1991b) proposed one area of inquiry: "The collection, analysis, and codification of craft knowledge represents the next major step forward for research on teaching physical education .." (p. 7).

Doyle (1992) described content theories and suggested that as teachers gain experience they transform their content knowledge into a "unified framework or theory of the content as school curriculum" (p. 499). Teachers have strong and individual content theories that they enact in the instructional process in their classrooms. Teacher content orientation is an

essential factor for how content will be represented in classrooms. Furthermore, Doyle (1992) suggested that these theories are based on knowledge of and beliefs about content and on perceptions about student learning and motivation. He argued that teachers theories are organized to reach goals within the instructional environment.

Pajares (1992) reviewed and summarized research about teachers' beliefs arguing that "teachers' beliefs should become an important focus of educational inquiry but that this will require clear conceptualizations, careful examination of key assumptions, consistent understanding and adherence to precise meanings, and proper assessment and investigation of specific belief constructs" (p. 307). He also suggested that research has indicated that beliefs influence knowledge acquisition and interpretation, definition and selection of tasks, understanding of course content, and comprehension of monitoring.

The boundaries between different constructs about where knowledge ends and beliefs begin are unclear. Pajares (1992) suggested that "belief is based on evaluation and judgment and knowledge is based on objective facts" (p. 313). Many theoretical constructs can be seen as different words describing the same phenomenon, especially for practical teachers (Kremer-Hayon, 1994). However, regardless of definitions of concepts, both knowledge and beliefs and other related concepts have an important role in the daily life of teachers. Their thinking and understanding of a particular object and situation will become action agendas. In this project, teachers' espoused theories of action were used to describe the mixture, from both the cognitive and the affective dimensions, that teachers employ in their daily teaching (Argyris & Schön, 1974).

Teachers confront mainly practical problems in teaching. These are often "uncertain context specific practical problems", without a solution directly derived from a rule, principle or theory (Clark & Yinger, 1987). Their theories allow them to interpret actions and estimate the probable form of events in certain situations (Carter & Doyle, 1987). Experienced teachers particularly draw upon and employ a large body of situation specific knowledge (Clark & Yinger, 1987). Several researchers have supported the practicality and context specific demands of teacher theories (Graham, Hopple, Manross & Sitzman, 1993; Leinhardt, 1988; McIntyre, 1988).

Research on teacher thinking is based on the assumption that teacher thought processes affect their behavior in classrooms (Clark & Yinger, 1987; Pajares, 1992). In addition, both Doyle (1992) and Elbaz (1983) agreed that teacher content theories and knowledge act as a guide to orient teachers' actions. By contrast, Calderhead (1988a) proposed that practical knowledge is directly related to behavior. It is easily accessible and appropriate in dealing with real-life situations and has been mainly derived from teachers' experience in their classrooms. Moreover, teachers' practical knowledge develops continuously through practice and experience of the instructional process (Doyle, 1992; Elbaz, 1983). Clark and Peterson (1986) developed a model to describe two domains; teachers' thought processes and teachers' actions and observable effects. They suggested that the interaction between the two domains is reciprocal when they proposed "Teachers' actions are in a large part caused by teachers' thought processes, which then in turn affect teachers' actions." (p. 258). The notion of a reciprocal relationship between teacher behavior and espoused theories of action guided this work.

Research on teachers' theories of action is sparse in physical education. Veal (1992) studied the practices and perceptions of two physical education teachers regarding student assessment with a emphasis on what teachers believed (espoused theory) versus what was observed in the instructional process or could be deduced from written documents. Additionally, Dyson (1994) recently described two elementary physical education teachers' theories of action in relation to an alternative curriculum. Additional research in physical education has dealt with educational values (Tsangaridou, 1993), educational value orientations (Ennis et al., 1992; Ennis, 1994b; Rauschenbach, 1992), pedagogical content knowledge (Fortin, 1992; Rosenberg, 1990; Rovegno, 1993; Schempp, 1993), and personal teaching theories (Poole & Graham, 1993).

Student Voices

Research on students' understanding and interpretation of teaching has not usually been related to instruction. Surveys of students' attitudes to and beliefs about physical education and physical activity can be found, but they do not focus on the instructional process (Figley, 1985; Luke & Sinclair, 1991; Tannehill & Zakrajsek, 1993). Wittrock's (1986) review of student thought processes focused mainly on student attitudes, attribution, and perceptions about instruction. Nevertheless, he concluded that students' thought process mediated their learning and this should be noticed in future research design. Additionally, Eisenhart and Borko (1991) suggested that students' existing knowledge and beliefs, their cognitions during practice, and their behaviors in the the classroom must be studied.

Recently several authors have called for an increased focus on students in research on teaching. Good and McCaslin (1992) indicated that students'

thoughts processes mediate teacher behavior and class tasks and that the knowledge base for understanding student mediation is weak. Similarly, Erickson and Shultz (1992) pointed out, "We know relatively little about the social and cognitive ecology of student experience of curriculum" (p. 478). They suggested multiple methods and a mixture of approaches in case study research to capture student experience. In addition, Doyle (1992) noted that little effort has been made to place students' perceptions of instruction within these specific events. Therefore, in this study student voice was related to what happened in the actual classroom setting.

Student perspectives have received some attention in physical education research during the last two years. Dyson (1994) gathered student views in physical education classes, while he studied the implementation of an alternative elementary physical education program. Others have studied students' thought processes during instruction (Lee, Landin & Carter, 1992; Solmon, 1992). Likewise, Salter (1992) studied the congruence between teacher goals and students' perceptions of their learning in physical education. In addition, other researchers have examined student perspectives and behavior in physical education classes (Langley, 1993; Portman, 1993; Williams & Williamson, 1993).

Problem Statement and Purpose of the Study

Doyle (1992) described a research trend toward curriculum implementation, away from the focus on improving the effectiveness of implementation strategies. He recommended a shift to understanding classroom contingencies. Similarly, this new agenda in educational research was characterized by Clandinin and Connelly (1992) as "learning to listen to the stories teachers tell of their practice is an important step toward creating

an understanding of the teacher as curriculum maker" (p. 386).

Although there seems to be research on teachers' theories, Calderhead and Robson (1991) concluded that "we have little understanding of the nature of the integrated body of knowledge that teachers use, how it originates, or how its growth is most appropriately fostered" (p. 1). One way of interpreting instruction is to view teaching as the outcome of teachers' and students' collaboration in classrooms and schools. Teaching needs to be viewed as an integrated process in which teachers, learners, subject matter, and environment are in dynamic interaction (Clandinin & Connelly, 1992). Therefore, a holistic approach is needed to capture the complexity of class ecologies in physical education (Doyle, 1992; Griffey, 1991; Rink, 1993b; Sparks, 1989).

Snyder, Bolin, and Zumwalt (1992) advised that future research on enacted theories necessitates multiple methods of data collection and data analysis. A case study design can provide these opportunities. Merriam (1988) indicated that a "case study offers a means of investigating complex social units consisting of multiple variables of potential importance in understanding the phenomenon" (p. 32). A case study can provide a rich and holistic description of the phenomenon, because it is based in real-life context.

The purpose of the study was to provide a description of physical education teachers, their knowledge, values, and beliefs, and how these are represented in the teaching situation. This will provide valuable knowledge about practical teaching and how teachers make sense of their day-to-day work. In addition, student voices will be examined to provide an expanded view of the instructional process in physical education.

Research Questions

Three major questions drove this study. The first question focused on teacher's espoused theories of action. The second question foregrounded the learning environment jointly constructed by the teacher and the students. The third question examined how teachers' espoused theories of action are manifested in the learning environment.

Each main research question along with its specific subquestions follow:

1. What is the teacher's espoused theory of action (ETA) about physical education in general and a basketball and a gymnastics unit in particular?

2. What is the ecology of the teacher's learning environment?

   2.1. How do teacher goals, student work, and teacher/student reactions define individual lessons?

   2.2. How do the task systems operate at a macro level?

   2.3. What are students' views of the physical education classes?

3. To what extent is the teacher's espoused theory of action evident in the ecology of the learning environment?

Significance of the Study

Teaching and learning in physical education is complicated. An investigation of the complex structure of classroom events will enhance our conceptions of teaching to become more sophisticated and realistic. Previous research has mainly focused on separate parts without looking at the whole perspective of what happens in the gym. Exploring experienced teachers' theories and actions can provide this framework for teacher growth and reflection. This study can provide valuable knowledge about practical teaching and how teachers' make sense of their day-to-day work. Furthermore, the holistic perspective includes student experience, which will

add another dimension to the knowledge base in physical education.

Research on teaching physical education in different cultures is important to expand our understanding of the instructional ecology. Additionally, research on teaching physical education is sparse in Finland. Besides broadening the international knowledge base, this dissertation will provide a framework for both preservice and inservice teacher education in Finland.

Definitions

Espoused theories of action (ETA) Theories about students, content, teaching environment, instruction and curriculum, which are integrated by the teacher in terms of personal values and beliefs and oriented to the teacher's practical context and experience to reach goals in the instructional situation. ETA are used to describe and justify behavior and are be synthesized from teacher interviews.

Enacted theories of action are operational theories, manifested by behavior and need to be constructed from observations of behavior.

Learning environment: An amalgamation of the physical, developmental, and psychological characteristics of the gymnasium, school policies that effect the physical education program, implicit and explicit teacher expectations for the program and the unit, the content and its organization, instructional style of the teachers, routines, formal and informal accountability system, management strategies, tasks presented to the students by the teacher, student compliance to tasks, and the emotional climate in the gymnasium (Rauschenbach,1992).

CHAPTER II

REVIEW OF LITERATURE

The status of physical education in middle school has been a major
concern for both physical education teachers, teacher educators, and
researchers during the last decade. However, debates and discussions about
middle school physical education are seldom based on empirical knowledge.
There is a need for contextual knowledge about content, teachers, and
students.

This chapter reviews findings from research on teachers, students and
work they accomplish in classrooms. Work in physical education classes is
conceptualized through Doyle's ecological paradigm. Teacher input is viewed
through Argyris and Schön's (1974) notion of theories of action and student
voices are related to actual classroom experience.

Task Systems in Instructional Settings

Doyle (1979) proposed an ecological model for classroom research. He
emphasized the possibility of studying the classroom as a unit rather than
examining small and independent pieces. Doyle described four components
typical for the ecological research model. First, a reciprocal causality in
classroom relationships which means that teacher affects students as well as
students affect teacher in classroom processes. Second, observational data
alone is not enough in explaining student mediational strategies in

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classrooms. Third, mean score can show general trends, but masks information about individuals. Finally, classrooms events are part of a complex system, which need to be studied in depth over a longer period .

The ecological model focuses on the enacted curriculum, which is curriculum events and processes in classroom contexts (Doyle, 1992). The concept of tasks is central and refers to the way in which work is organized in a particular situation. Doyle (1992) stated that tasks provide "situational instructions for thinking and acting" (p. 503). In task analysis, researchers have emphasized three important components. First, each task has a goal or end state to be accomplished and secondly, a set of conditions or resources. Finally, the operations involved in assembling and employing resources to achieve the goal are also essential. However, Doyle (1992) pointed out that these were features in describing a task and not separate dimensions of a task.

Doyle (1983) summarized the task perspective into two propositions. First, student work is defined by the tasks students cover in class. Secondly, students acquire information and practice operations when they accomplish a task. Therefore, task analysis requires the study of contextual effects on student learning because tasks combine student work and environmental conditions with the content (Doyle, 1983).

An ecological analysis of classroom processes distinguishes a system of overlapping task structures (Doyle, 1983). Therefore, the importance of a single task is defined by its relation to other tasks. Doyle (1992) stated: "a task cannot be adequately described in isolation from the task system in which it is embedded in a particular class" (p. 504). Tasks occur in the complex structure and action flow in classrooms and Doyle identified two major task systems in the classrooms; managerial tasks and instructional tasks (Doyle, 1979; Doyle,

1986).

Managerial tasks are a central part in classroom processes, because a minimal level of order is needed in teaching. The first task in teaching, management, is to gain and maintain student cooperation (Doyle, 1983). A work system for a class has a program of action that characterizes order for particular time segments and pulls students along specified paths (Doyle, 1986). Successful teachers plan sensible and situation specific work systems (Carter, 1990). Explanations, examples, practice and feedback are used in communicating the work system and teachers also monitor classroom work for a smooth flow.

Instructional tasks are shaped during curriculum enactment processes and emphasize student learning. Doyle (1992) suggested that in familiar, routinized, and simple tasks, student work was congruent with the announced tasks. Similarly, classroom activities run smoothly and were well organized. Contrary, when students were required to interpret situations and make decision in order to generate products, complex tasks were much more difficult to enact (Carter, 1990).

For students, these problem-centered tasks included high levels of ambiguity about the precise specification of the product and a risk that they might not succeed (Doyle, 1992). He explained "students often respond to the ambiguity and risk involved in such work by negotiating directly with teachers to increase the explicitness of product specifications or to reduce the strictness of grading standards" (p. 507). Similarly, students error rates increased and engagement and completion rate decreased affecting work flow and order in the class, which motivated the teacher to simplify work demands (Carter & Doyle, 1987; Doyle, 1992). Doyle (1986) suggested that in the

study of learning processes the unit of analysis should be the individual student and in analysis of order the focus should be on groups of students. Findings from research on individual students suggested large differences in students' interpretation of and success rates in instructional tasks (Doyle, 1992).

Erickson and Shultz (1992) indicated that classrooms also have a social participation task structure and a subject matter task structure. In addition, Mergendoller and Packer (1985) suggested that student classroom experience can be seen as a social organization which stresses task accomplishment and is characterized by hierarchical authority relationships. Common concerns to participants in social organizations are related to definitions of appropriate and inappropriate behavior, consequences for inappropriate behavior, providing responsibilities and freedom, and the nature of individual commitment to the social institution. Each teacher creates a particular class ecology. Students have to learn to be able to act within its parameters. Therefore, teachers' managerial, instructional, and social tasks define the ecology of the class.

The Ecological Model in Physical Education

In the initial research effort in physical education, Tousignant (1982) described three different task systems in secondary physical education classes; managerial, instructional, and transitional tasks. Her initial work was carried on as a programmatic research stream within The Ohio State University. Based on this research, Siedentop (1991) defined three different task systems for the teaching-learning process in physical education classes; managerial, instructional, and social. The managerial system relates to "the organizational and behavioral aspects of physical education, all the non subject matter

functions necessary for students and teachers to exist together over a period of time" (p. 67). The instructional system includes "the subject matter activity of physical education, the intended learning students are to acquire by participating in the instructional activities" (p. 67). The social system relates to "the intentions for social interactions that students seek in physical education" (p. 68). Jones (1992) found supportive evidence for the three task systems in elementary physical education classes as did Son (1989) in secondary classes and Griffin (1991) in a coaching setting. In high school physical education, the management system appeared to be the main focus of the enacted curriculum (Siedentop et al., 1994), which was congruent with classroom findings (Doyle, 1986). Teachers clearly specified procedures in physical education and students were expected to cooperate and follow rules.

Task structures seem to be flexible in different instructional settings, Yinger (1986) proposed that the task environment of teaching consists of academic task structure, social participation structure and teachers' knowledge, skills and beliefs. Hastie and Saunders (1992) studied the task systems in an elite junior sports setting. They identified managerial, transitional, instructional, and match play task systems in the coaching situation. Moreover, the instructional task system was divided into role-specific instructional tasks and individual-general instructional tasks.

Students are actively involved in classroom activities which will affect teachers as well as teachers affect students (Brophy, 1982). Initially the teacher states a task to which students respond and then the teacher does or does not react to the students efforts (Siedentop, 1988). This cycle is then repeated over and over. Further support was provided by Erickson and Shultz (1992) when they proposed that classroom tasks are always sequential.

Task development

Rink (1993a) emphasized the importance of tasks sequences in teaching physical education "Sequencing movement tasks in a manner that has the potential to facilitate learning is the nature of content development" (p. 100). Content development sequences tasks from simple to complex and from easy to hard. Informing tasks are typical for the first task in task sequence when practicing a particularly skill. Through extending the initial tasks the teacher can create a gradual progression to help the learner (Rink, 1993a). Teacher can focus on the quality of student performance through refinements, where different parts of the skill and strategy are stressed (Siedentop, 1991a). In applying tasks, students can apply their skills in game like situations or self-testing experiences when students are confident and successful with the actual level of a skill (Rink, 1993a). Sequences of task and task development seemed to vary across teachers and content (Siedentop, Doutis, Tsangaridou, Ward, & Rauschenbach, 1994).

In tutorial tennis instruction England (1993) found that informing, extending, and applying tasks were most frequently used. This was similar to results from physical education classes where teachers informed, extended, and applied tasks in a sequence (Jones, 1989; Lund, 1990; Rikard, 1991; Romar & Siedentop, in press; Son, 1989). These studies also showed that refining tasks were minimally used in both tutorial and class settings. However, tutorial tennis instructors used continuous prompts with the original task to refine and guide student performance (England, 1993).

Physical education teachers with high student activity presented tasks in a sequence and the tasks were related to each other (Masser, 1990; Rink, Werner, Hohn, Wars, & Timmermans, 1986). Recently several researchers have

suggested that refining tasks in task development are related to skill learning when the focus of the lesson is on skill improvement (French, Rink, Rikard, Mays, Lynn & Werner, 1991; Masser, 1993; Pellett & Harrison, in press; Rink, French, Werner, Lynn & Mays, 1991; Rikard, 1992). Rikard (1992) found that high skilled students' practice success improved with refining tasks, while low skilled students' success rate remained about the same. Similarly, Rink et al. (1991) reported that content progressions facilitated students' success rate in practice. In addition, Pellett and Harrison (in press) suggested that refining tasks had a significant effect on students' overall skill learning in volleyball.

Task presentation

Siedentop (1991a) proposed that teachers need to use explicit tasks, which specify performance, situation, and criteria. This is in congruence with Doyle's notion about minimizing risk and ambiguity for student work. Lund (1990) and Silverman, Kulinna and Crull (1993) examined the explicitness of the task presentation including outcome, situation, product-criteria, and form-criteria. Outcomes were identified when teachers stated the observed behavior of the completion of a skill. Situations were identified when teachers described the conditions for student practice. Task presentation included a product-criteria when teachers provided a numerical criteria for completing the task and a form-criteria when teachers described the topography of the task. Jones (1989) attended to other elements in teacher task presentation. She reported that teachers, in addition to providing critical elements and demonstrations of the skill, relied on task cards and various posters to remind students, a finding also reported by Rauschenbach (1992).

However, several researchers have reported that teachers communicate information to students mainly by partial explicit tasks (Alexander, 1982;

Marks, 1988; Siedentop et al., 1994; Silverman et al., 1993; Son, 1989). Son (1989) reported that levels of task specification were minimally related to student congruent responses. Ward (1993) also found that changes in rate of responding were not affected by the explicitness of teachers' task statements. However, Silverman et al. (1993) found opposite results and concluded "when task ambiguity is reduced by using greater explicitness, task completion and adherence will be increased, students will receive more practice, and learning will increase" (p. 17).

Accountability

Accountability has an important role in understanding the classroom processes because the task system in classrooms is driven by accountability (Doyle, 1983). Doyle indicated how a teacher accepts and rewards students' answers defines the real task in classrooms. The degree to which a teacher employs rigorous criteria to evaluate answers has consequences for task accomplishment. Students behave seriously in the tasks for which they are held accountable. Tousignant and Siedentop (1983) described two major types of accountability systems, formal and informal.

Within formal accountability, students' responses to tasks were related to their grades. Grading is the form of accountability most often used in instructional settings, although grading in physical education is utilized less and is often ambiguous (Silverman et al., 1993). While in theory, grading is suggested as central to teaching and learning, physical education teachers pay little attention to the assessment process (Lund, 1993; Matanin & Tannehill, 1994; Veal, 1993). Research suggests that physical education teachers emphasized participation, dress, and effort, while student skill learning had little effect on grades (Lund, 1992; Matanin & Tannehill, 1994). Similarly,

when knowledge tests were used, they were relatively easy. Researchers have reported that minimal systematic evaluation occurred because lack of time, lack of teacher knowledge about how to test, problems of socialization, lack of administrative accountability, teachers' negative views of assessment, and inadequate teaching contexts (Lund, 1993, Matanin & Tannehill, 1994; Veal, 1992).

Teachers may utilize grades to hold students accountable for managerial tasks because students are more compliant when grading is based on these tasks (Lund, 1992). Interestingly, while Son (1989) found that teachers' use of formal accountability systems were not related to student responses, others (Alexander, 1982; Lund, 1992; Silverman et al., 1993) reported that tasks with stronger accountability and grades were related to appropriate student practice and higher achievement gains. Hastie and Saunders (1992) reported that the coaching setting differed from teaching physical education because the results of formal accountability are so obvious, for game results were known to all. They also found that the expectations for task performance were more individualized than in a teaching setting.

Informal accountability does not directly affect student grades, but is based more on teacher-student interaction (Tousignant & Siedentop, 1983). Active supervision of student practice is an important part of informal accountability, and supervision will increase student on-task behavior, achievement, and affect class climate (Jones, 1992; Lund, 1992; Siedentop, 1988; Silverman et al., in press). Similarly, students practiced stated tasks under proximal monitoring, while in less monitored situation students alter the nature of their work (Hastie & Saunders, 1990). Evidence suggested (Siedentop et al., 1994; Silverman et al., 1993) that teachers mainly monitored

for off-task behavior and monitored with class and individual skill related feedback. In addition, Erickson and Shultz (1992) proposed that teacher monitoring and the pattern which it is directed will affect the generation of routines in the learning environment.

Lund (1992) described other forms of accountability such as when teachers provide feedback cycles to individual students and ensure that the student can perform the task correctly, the teacher holds the student accountable for actual instructional task. Public posting, public recognition, challenges, and reward systems are other ways of establishing accountability during instructional tasks, although these are not always used by high school teachers (Siedentop et al., 1994).

Hastie and Saunders (1991) used a questionnaire, with items related to accountability strategies, students' perceptions of their teachers, and students' perception of their lesson involvement, to test a model for accountability factors affecting student involvement in secondary school physical education. The proposed model hypothesized that students' valuing of the teacher mediates the accountability factors (active instruction, monitoring, and rewards/consequences) on student involvement. They concluded that the identified accountability variables were valid predictors of student involvement in physical education classes, where teacher monitoring directly influenced task involvement and active instruction and rewards system were mediated through students' valuing of the teacher. Moreover, they found gender difference for the accountability factors; girls perceived active instruction, reward/consequences, and the valuing of teachers higher than boys, while boys perceived monitoring strategies higher in relation to their task involvement.

Task modification

What students see and hear and how they interpret that depend on the task they are expected to perform (Doyle, 1982). Doyle (1979) differentiated between stated tasks, what the teacher intend to accomplish, and actual tasks, students responses to stated tasks and which are directly or tacitly accepted by teachers behaviors. The actual task is often different from the stated task (Siedentop, 1988). In classrooms, students verbally negotiated teacher stated tasks (Doyle, 1979), while student negotiations in physical education occurred through task modifications (Alexander, 1982; Dyson, 1994; Jones,1992; Marks, 1988; Son, 1989). Tousignant and Siedentop (1983) observed that students either were on-task, involved in modified tasks, showed off-task behavior, or acted as "competent bystander". They defined competent bystander as "avoidance of participation without misbehaving" (p. 49).

Task-response congruency tends to be weaker in the instructional system than in the managerial system (Siedentop, 1988). Similarly, Son (1989) reported higher congruence between stated tasks and actual tasks in Korean middle school physical education for managerial tasks compared to instructional tasks. However, the overall task congruence was high, which was also supported in other studies (Alexander, 1982; Jones, 1992; Marks, 1988; Siedentop et al., 1994). Moreover, Son (1989) found that high skilled students modified their tasks to a more challenging level, while less skilled students either worked hard or modified the task downward.

Student work

The focus on student behavior and involvement in physical education was initiated by the development of Academic Learning Time in Physical Education (ALT-PE) (Siedentop, Birdwell, & Metzler, 1979). ALT-PE was

defined as the time a student spends in relevant task at an appropriate level of success (Siedentop, 1983). Siedentop concluded that ALT-PE is a proxy variable for student learning and a criterion variable for teacher effectiveness. Howe & Lind (1982) compared different observation systems and concluded that ALT-PE is the most sensitive instrument for teacher effectiveness. ALT-PE was well disseminated and became an important tool in research on teaching in physical education during 1980;s.

Anderson (1983) said that ALT-PE provides a slice of reality and that teaching is much more complex. To collect more appropriate data, Tousignant and Demers (1990) presented Specific ALT-PE, which was sensitive to the content of the instructional tasks and the unit of analysis was time devoted to instruction of a particular skill. In addition, some researchers stated that time is not everything and that student opportunity to respond (OTR) better describes student achievement (Silverman, 1985, 1990; Buck & Harrison, 1990).

In one of the initial studies of student behavior, Costello and Laubach (1978) found that only 25% of student in class time was spent in activities related to lesson objectives. Similar findings were reported elsewhere (Piéron & Cheffers, 1988; Siedentop, 1991; Tousignant, Brunelle, Piéron & Dhillon, 1983). However, type of activity was the most important factor for differences in activity time (Eldar, Siedentop, & Jones, 1989; Siedentop et al., 1994; Son, 1989).

Metzler (1989) summarized findings from 11 experimental studies and reported a relationship between student functional time and student achievement. Other researches have supported his conclusion (Werner & Rink, 1989; Piéron & Graham, 1984). Allocated time was not related to

learning in two studies (Metzler, 1983; Silverman 1985) although in these studies the instruction phase lasted only 30-40 minutes. On the other hand, Carreiro Da Costa & Piéron (1990) reported that more effective teachers had more time allocated to activity.

In a study of 11 high school teachers, only two reached 60 % or more practice time of the actual lesson time, and instruction was characterized by an overall casual and relaxed nature of student involvement (Siedentop et al., 1994). Elementary physical education teachers had 60 % of practice time in gymnastics (Rauschenbach, 1992), and 45 % in manipulative units (Dyson, 1994). Students are not always active during practice time. Siedentop et al. (1994) reported a range in OTR rate from 0.63 in track and field to 4.83 in badminton. A high school golf unit produced OTR rates of 2.7 (Alexander, 1982) and in a high school volleyball unit student OTRs ranged from 1.22 to 3.65 per minute (Lund, 1990). However, Ward (1993) was able to increase student OTR rates sixfold compared to baseline condition, when he in an experimental study focused on intensity during high school volleyball lessons. Graham (1986) reported higher response rates (9 - 13 OTRs per minute) in easy tasks compared to complex tasks (2 - 10 OTRs per minute), which supported Doyle's (1992) proposition about familiar and complex work. Finally, student OTR rates and percentage of appropriate OTRs were lower in game play compared to practice phases (Siedentop et al., 1994).

How student time is distributed is not the only question. What they do when they are active is more relevant. More effective teachers had higher learning time and students were more successful (Phillips & Carlisle, 1983). Also other researchers found support for the importance of appropriate practice for student learning (Carreiro Da Costa & Piéron, 1990; Silverman,

1988, 1990). High school students' appropriate OTRs ranged from 52 % to 85 % of all practice responses (Siedentop et al., 1994), while Jones (1992) reported a success rate between 47 % and 60 %. Additionally, studies have demonstrated that low skilled students had lower OTRs and were less successful in practice (Buck & Harrison, 1990; Graham, 1986; Lund, 1990; Rikard, 1991; Siedentop et al., 1994; Son, 1989; Ward, 1993). Although student ability levels influenced success in practice tasks (Son, 1989) teachers employ little individualizing of tasks in teaching physical education (Silverman et al., 1993).

A behavioral ecology is produced by the interaction of the different task systems (Jones, 1992; Siedentop, 1988). Teachers try to create cooperation with students by setting clear boundaries in the managerial system or by reducing demands in the instructional system. The trust and legitimacy in the learning environment will also affect students' educational experiences and students will act differently in a safe environment, compared to situations filled with ambiguity (Erickson & Shultz, 1992). They concluded that "if students like and trust the teacher they may do the work assigned even if they do not understand or own its purposes" (p. 471). Siedentop (1988) hypothesized that "the effective teacher plans, instructs, and interacts so that the student social system is accommodated within the instructional task systems in ways the enhance rather than detract from its productivity" (p. 15). Jones (1992) reported teachers using social tasks and reinforcers to achieve cooperation in instructional and managerial tasks in elementary physical education classes.

Theories of Action.

Expertise in teaching depends on the acquisition and application of a complex mix of knowledge and beliefs (Housner & French, 1994). Carter (1990) indicated that teachers make complex interpretations and decisions under

inconstant conditions and therefore they engage in practical thinking which results in actions relevant for the specific situation. In addition, Clark and Yinger (1987) stated that "teaching practice is based on thoughtful and systematic (though often implicit) notions about students, subject matter, teaching environments and the teaching process itself" (p. 97). The knowledge required for actions under these conditions is experiential and shaped by the teacher's personal history (Carter, 1990). This concept of practical knowledge accepts teachers' personal voice, common sense, wisdom and individual interpretations. Research on personal practical knowledge has evolved during the last decade and has been investigated through case studies (Elbaz, 1983; Fortin 1992; Clandinin, 1986; Schempp, 1993). Similarly, there is an increased research focus on teachers' life history and teachers as researchers (Elbaz, 1991; Cochran-Smith & Lytle, 1990; Cole & Knowles,1993; Solas, 1992; Schempp, Sparks, Templin, 1993; Sparks, 1993).

This personalized concept of teachers' knowledge is implied in much of research on teaching, particularly research focusing on such outcomes as attitudes, beliefs, orientation, values, and perspectives (Ennis, 1994). Although these constructs are frequently investigated (Solas, 1992), Pajares (1992) described some problems related with employing beliefs within educational research. First, the context-specific nature of beliefs and their interconnections make them difficult to measure. Beliefs inventories can not enclose the myriad of contexts under which specific beliefs can be recognized in intentions and actions. If conclusions about beliefs require information about what persons say, intend, and perform, then teachers' stories, predispositions to action, and instructional behavior must all be included in inquiry of beliefs. Similarly, open-ended interviews, responses to dilemmas

and vignettes, and observation of behavior can provide more comprehensive data. Second, researchers have tended to identify beliefs for their own agendas (Pajares, 1992). It has therefore been difficult to identify and interpret relationships between teachers' educational beliefs and their instructional behaviors. Indeed, Pajares (1992) and others (Carter & Doyle, 1987; Clandinin & Connelly, 1992; Dodds, 1994; Eisenhart & Borko, 1991; Solas, 1992) have pointed out that research on teachers' values and beliefs and classroom practices ought to use a holistic approach, with the focus on teachers in their complex environment.

Knowledge, viewed as personal and practical although connected with disciplinary knowledge, is closely related with beliefs and beliefs have a central role in knowledge construction and utilization (Ennis, 1994a). Likewise, Pajares (1992) suggested research has indicated that beliefs influence knowledge acquisition and interpretation, definition and selection of tasks, understanding of course content, and comprehension of monitoring. Gudmundsdottir (1990) concluded that "although it seems logical in theoretical consideration to separate values and pedagogical content knowledge, in reality these two are closely integrated" (p. 45). Finally, Ennis (1994a) recommended that knowledge and beliefs ought to be studied together in order to to understand expertise in teaching; "Efforts to conceptualize a holistic approach to curricular expertise must focus on the interrelatedness of knowledge and beliefs in the curriculum decision making process" (p. 173).

The ecological framework in research on teaching can also be applied to research on classroom knowledge and beliefs by attending to how teachers' knowledge about actual practice and navigation of complex classroom settings interact with teaching situations (Carter, 1990). In dealing with teachers'

knowledge and beliefs system, the concept of teachers' theories has provided a

framework. Clark and Peterson (1986) pointed out that teachers in attending

and reacting to the rapid flow of events in classrooms, employ practical

knowledge which is represented as teachers' theories. These theories were

defined as "the rich store of knowledge that teachers have that affects their

planning and their interactive thoughts and decisions" (p. 258). In addition,

Cochran-Smith and Lytle (1990) described teachers' theories as a combination

of facts, values, and assumptions grounded in practice. Argyris and Schön

(1974) described "theories of professional practice".

> Theories of professional practice are best understood as special cases of the
> theories of action that determine all deliberate behavior. And whatever
> else a theory of action may be, it is first a theory. Its most general properties
> are properties that all theories share, and the most general criteria that
> apply to it - such as generality, relevance, consistency, completeness,
> testability, centrality, and simplicity - are criteria that apply to all theory.
> Theories are theories regardless of their origin: there are practical,
> common-sense theories as well as academic or scientific theories. A theory
> is not necessarily accepted, good, or true; it is only a set of interconnected
> propositions that have the same referent - the subject of the theory. Their
> interconnectedness is reflected in the logic of relationships among
> propositions: change in propositions at one point in the theory entails
> changes in propositions elsewhere in it (pp. 4-5)

When persons perform tasks, they construct a simplified representation of

the reality for their performance. According to Argyris, Putnam and Smith

(1985) "Agents learn a repertoire of concepts, schemas, and strategies, and they

learn programs for drawing from their repertoire to design representations

and actions for unique situations. We speak of such design programs as

theories of actions" (pp. 81-82).

Argyris and Schön (1974) differentiated between two types of professional

theories; theories of action (espoused) and theories in use (implicit or

enacted). They suggested that these two types may not be congruent with each

other and that teachers may not be aware of such incompatibilities.

> When someone is asked how he would behave under certain circumstances, the answer he usually gives is his espoused theory of action for that situation. This is the theory of action to which he gives allegiance, and which, upon request, he communicates to others. However, the theory that actually governs his actions is his theory-in-use, which may or may not be compatible with his espoused theory; furthermore, the individual may or may not be aware of the incompatibility of the two theories (pp. 6-7)

Argyris et al. (1985) suggested that "in order to understand theories of action it is necessary to make them explicit" (p. 83). Theories can be made explicit by reflecting on one's actions.

Clark and Peterson (1986) recognized that related terms with somewhat different meaning were used in research on teachers' theories. They concluded about teachers' theories that "they [teachers' theories] hold in common the idea that a teacher's cognitive and other behaviors are guided by and make sense in relation to a personally held system of beliefs, values, and principles" (p. 287).

Teachers adjust the curriculum to fit their fundamental conceptions of the subject matter (Wilson & Gudmundsdottir, 1987). Their pedagogical model for subject matter shows therefore a personal orientation to the discipline (Gudmundsdottir, 1991). Gudmundsdottir (1990) proposed that "teachers' orientation to subject matter is central when teachers reconstruct their content knowledge to create pedagogical content knowledge" (p. 46). Shulman (1987) defined pedagogical content knowledge as "that special amalgam of content and pedagogy" (p. 8) and he argued that it is unique for each teacher.

Meaning can not be constructed without some kind of knowledge and this structure is related to values (Gudmundsdottir, 1990). These values guide the

transformation of teachers' pedagogical content knowledge and how they interpret what they teach. Teachers form their personal curriculum from these value-laden perceptions. However, teachers' knowledge, values, and experience are frequently implicit. Shulman (1987) indicated that "practitioners simply know a great deal that they have never even tried to articulate" (p. 12).

Implicit theories are formed like a hierarchically structured set of beliefs about the proper ends and means of teaching, the characteristics of students, the modes of learning, and the way in which all of these interact to control the teachers' behavior at a given moment (Gage, 1978). These theories require inferences about knowledge, beliefs, values, and norms, which are not all observable (Munby, 1982; Solas, 1992; Sparks, 1989). In addition, Clarke (1988) suggested that implicit theories "tend to be eclectic aggregations, cause effect propositions from many sources, rules of thumb, generalizations drawn from personal experience, beliefs, values, biases, and prejudices" (p. 6). Gage (1978) proposed "this implicit theory enables the teacher to cope with the otherwise overwhelming abundance of problematic situations of occasions for decision making that confront a teacher moment by moment during a school day" (p. 80). Moreover, Nespor (1987) suggested that teachers' beliefs play a major role in defining instructional events and organizing the knowledge and information related to those tasks, because the context and environments for teachers, work, and many of their problems are ill-defined and deeply entangled. Beliefs and similar constructs are particularly appropriate for making sense of these contexts.

McIntyre (1988) supported the practicality and context specific demands of teacher knowledge when he stated "The wisdom of practicing teachers tends

to be focused on issues of practicality, including organizational and resource constraints, the problems of time and expertise necessary to cope with suggested innovations" (p. 103). Practicing teachers rely on and have available a considerable amount of knowledge about their specific contexts, including resources, organizational procedures, syllabuses and examination requirements, and particularly the individual students whom they teach (McIntyre, 1988). Leinhardt (1988) used the term situated knowledge to describe this phenomenon.

Teachers may portray different ideologies depending on the actual context for the teacher's behavior (Sparks, 1989). Orientations of practical knowledge reflect how it is held and used (Elbaz, 1983). Teachers draw on practical knowledge that provides models for interpreting new situations (Clark & Yinger, 1987). This practical knowledge is personally oriented to the practical situation the teacher encounters and shaped by social constraint (Elbaz, 1983).

Evidence suggests that teachers' actions are affected by their personally held systems of beliefs, values, and principles (Clark, 1988; Clark & Yinger, 1987; Pajares, 1992; Solas, 1992). Rink (1993b) pointed out that this was an obvious fact: "Any teaching action that did not involve high levels of teacher situational thoughts followed by action would not be considered authentic" (pp. 312-313). Doyle (1992) argued that teachers' theories are formed and grow by their experience of the instructional process. This emphasizes the reciprocal relationship between teachers' theories and their instructional behavior. Rink (1993b) stated "it is not only that thought directs action, action and its result influence thought" (p. 314). According to Elbaz (1983), teacher behavior and practical knowledge develop continuously through practice and experience.

Teacher knowledge consists of schema or scripts that allow them to interpret actions and estimate the probable form of events in a certain situation (Carter & Doyle, 1987). Calderhead and Robson (1991) found that student teachers' images of teaching served as a strong structuring framework for how they perceived video material of teaching and the cooperating teachers' instructional practices. Calderhead and Robson (1991) suggested the development of student teachers' knowledge about teaching may require activities where their actual knowledge is analyzed and challenged under effective supervision. The knowledge growth requires understanding of the nature of teacher professional knowledge.

However, Calderhead and Robson (1991) suggested that "we have little understanding of the nature of the integrated body of knowledge that teachers use, how it originates, or how its growth is most appropriately fostered"(p. 1). Research on reflective teaching has started to investigate the association between theories of actions and teacher practice and the role of teacher reflection in bridging the gap between them (Calderhead, 1991). Calderhead (1988b) noted the importance of a sense of empowerment in teachers' professional growth. When teachers recognize their control of classroom events and of their own practice, they will involve themselves in analyzing and reflecting on their teaching, which can result in changes and growth.

Nevertheless, Calderhead (1991) pointed out the difficulty in changing teachers' actions: "Changing teachers' knowledge and understanding does not necessary result in change in their practice" (p. 533). Although some scholars state teachers' knowledge domain and beliefs are shaped and developed during practice (Morine-Dershimer, 1991; Shulman, 1987) others suggest that teachers are resistant to real change and innovations (Ennis, 1994a; Pajares,

1992).

Pajares (1992) pointed out that beliefs are unlikely to be replaced unless they are perceived unsatisfactory and they will not be unsatisfactory unless they are challenged and a person can not assimilate them into existing conceptions. Beliefs influence not only what persons remember but also how they remember it and thereby they give personal meaning and facilitate in defining relevancy. Ennis (1994a) suggested that teachers' informal theories become highly resistant to change over time, thereby affecting teachers' willingness to consider and use innovations in the teaching process.

Research on novice and experienced teachers has shown differences in their knowledge and beliefs systems (Griffey & Housner, 1991; Housner & Griffey, 1985). Graham, Hopple, Manross and Sitzman (1993) concluded that research on experienced-novice teachers has shown that "(a) Veteran teachers possess various schemata about the characteristics of children, which are to inform the development of (b) pedagogical content knowledge, which is demonstrated as (c) situational decision making when we observe the actual teaching process" (p. 198). Experienced teachers, particularly, employ and successfully orchestrate large bodies of knowledge (Clark & Yinger, 1987). Teachers have reported that experiences gained earlier in their teaching careers affected their present practice (Nespor, 1987). Needels (1991) studied elementary school student teachers', first-year teachers', and experienced teachers' interpretations of a 30-minute language art lesson by analyzing their written responses. She reported that experienced teachers displayed a more extended understanding of the complexity of instruction and the coupling of elements of a lesson in their responses. They also described more reasons for what they saw.

In a recent study, Graham, Hohn, Werner, and Woods, (1993) interviewed teachers about their concepts of teaching, which was defined as "subjects' views, beliefs, values, attitudes, and the like relative to teaching" (p. 162). They reported that student teachers' and clinical model teachers' conceptions of teaching physical education were noticeably different from those of prospective PETE teachers. Individual student teachers' and clinical model teachers' conceptions were more internally consistent compared to those of prospective PETE students, which also were more general and simplistic. The conceptions of both student teachers and clinical model teachers were not personal and individualistic. Instead they reflected the orientation of the teacher education program. This provided evidence that a teacher education program can help teachers to a shared and collective view about teaching.

Likewise, Graham, French, and Woods (1993) studied teachers' ability to observe and interpret teaching physical education at different stages of expertise. They reported that teachers' knowledge structures changed with experience, while teacher educators' had larger stores of appropriate knowledge and their interpretations were more organized and related to instances of students' motor-skill performance.

Although several researcher have found a congruence between teacher theories and their behavior (Marcelo, 1987; Marland & Osborne, 1990, Rauschenbach, 1992), there are some conflicting results. Wubbels, Brekelmans and Hooymayers (1992) studied teacher perceptions of their interpersonal behavior in classroom. The teachers were supposed to rate their own behavior as well as rate an ideal teachers' interpersonal behavior. No teacher could attain their ideal view of a teacher, and the teachers perceived that they could not reach their ideal. Wubbels et al. (1992) suggested several reasons for

the discrepancy; teachers have a limited behavioral repertoire, the context of the school, and ideals are not so important for teachers.

Another example of the mismatch was Steinhardt, Lambdin, Kamrath and Ramirez's (1993) study about the congruence of time usage with six student teachers in the areas of motor skill and fitness among the intentional (teachers' ideal), the perceived (teachers' recall) and the operational (observed by an outsider) curriculum. They found that student teachers were not teaching according to their intentions and also that student teachers' perceptions were incongruent with their intentions. The analysis focused on time usage in different curriculum perspectives, which may be one reason for the incongruence because student teachers are focused on student learning through instruction and activity (O'Sullivan & Tsangaridou, 1992) and do not plan for students being inactive. Steinhardt et al. (1993) found that student teachers' instruction consisted of 45 % non-activity and that will inhibit any congruence with the intended curriculum.

Fraser (1986) summarized that both students and teachers prefer a more favorable classroom than what they perceived as being currently present and teachers' perceptions of the same classroom were more favorable than their students' perceptions.

Research on Teachers' Theories of Action.

In the following section, studies, which are related to theories of action, educational values and beliefs, and personal practical knowledge are reviewed. Four recent case studies in physical education will be reviewed in a separate section.

Marland and Osborne (1990) defined theory of action as "the set of claims a teacher makes about what informs or shapes his or her teaching practice and

may include beliefs, principles, tactics, role conceptions, and so on" (p. 94). They proposed it as an espoused theory, a theory for or about action, not a theory in action.

Marland and Osborne (1990) studied the nature of and the relationship between one English teacher's theory of action and her instructional behavior. The teacher's theory of action was context specific but well integrated and internally consistent. Her theory consisted of four components and the first three were: an educational philosophy expressed in goals, beliefs, values; knowledge of students; and a variety of instructional procedures as tactics, principles, and models for classroom practice. The last component, dilemmas, represented problematic situations in the classroom, when the teacher had to make choices between competing values, beliefs, and practices. The teacher perceived uncertainty, ambivalence, and tension when she had to deal with these situations. However, they found a close congruence between the teacher's theory of action and her classroom behavior and her theory provided a framework within which her lessons were planned and conducted.

In another study, Mitchell and Marland (1989) reported context specific and internally consistent theories of action for two teachers regarding questioning in classrooms. These teachers also tried to practice what they believed, although the behavior of the experienced teacher indicated he showed his theories more extensively than the inexperienced teacher. Mitchell and Marland (1989) explained that the experienced teacher's time in classroom had helped him develop a wider range of teaching schemata and more appropriate questioning methods to enact his teaching. Additionally, Marcelo (1987) studied mathematics lessons of two elementary teachers and found

individual differences between their implicit theories. However, their theories could be identified in their actual teaching behaviors.

Veal (1992) studied the practices and perceptions of two physical education teachers regarding student assessment with an emphasis on what teachers believed (espoused theory) versus what was observed in the instructional process or could be deduced from written documents. She found that these two teachers' espoused and enacted theories were often congruent with incongruence found in the areas of performance testing and formative record keeping.

Teachers' educational values and beliefs

Teachers' value orientations is a research area related to teachers theories. Ennis (1994a) indicated her programmatic research effort has emphasized the impact of teachers' educational belies and values, described as <u>curricular value orientations</u>, on their goals an objectives for physical education. Ennis and Hooper (1988) developed a Value Orientation Inventory (VOI), for assessing educational values in physical education, (i.e., Eisner & Vallance, 1974; Jewett & Bain, 1985; McNeil, 1985). Ennis (1994a) described value orientations as the relative priority teachers have on several key factors in teaching. Educational values were classified into five orientations; disciplinary mastery, learning process, social reconstruction, self-actualization, and ecological integration. They employed a forced choice ranking format for the instrument. Rauschenbach (1992) was critical of the relevance of VOI and suggested it could be used only as a screening instrument because of teachers' inability to discriminate between differences in curricular values. Moreover, he questioned the validity of the VOI. Similarly, Siedentop et al. (1994) indicated difficulties using the VOI because data collected did not allow for

clear interpretations.

Value orientations constitute belief structures or philosophical positions that can be operationalized as educational goals for student learning. These values may affect teachers' curricular decision making processes. In physical education the choice is often related to content that communicates the skill knowledge base, using a series of progressive and developmental sequences and content connected with increased cooperation, student autonomy, positive social interactions, enjoyment, and participation. (Ennis, Ross & Chen, 1992)

In 1990, Ennis, Mueller, and Hooper (1990) studied 25 elementary physical education teachers to examine if teachers' value orientations mediated their responses to inservice training. They noticed that value orientations mediate teachers attempt to incorporate certain variables into their planning of physical education classes. In a study in 1991, Ennis and Zhu examined value orientations for 90 physical education teachers. They found that the disciplinary mastery orientation was not predominant as predicted among physical educators. No significant differences in value orientations were reported between different teachers based on gender, level, and teaching experience. In 1992, Ennis, Ross, and Chen studied the value orientations of 10 high school physical education teachers. Students were also interviewed in order to investigate their perceptions of their teachers' goals for learning and expectations for academic performance and student behavior. Strong value orientations have strong influence on teachers' curricular, instructional, and evaluative decisions, whereas weak value orientations have minimal influence of curricular decision making and no influence on instructional or evaluative decisions (Ennis et al., 1992).

Ennis (1992) used data from observations, teacher and student interviews and VOIs within a case study design to determine the operationalization of three physical education teachers' value orientations. She suggested that VOI represent an ideal perspective, minimally affected by the teaching context, similar to espoused theories. A practical perspective of value orientations can be recognized because teaching occurs in a complex ecological system with different factors constraining the instructional process. Ennis (1992) proposed that value orientations can be seen as one of several strong attractors that influence the curricular decision making process in the instructional setting.

Ennis (1985) studied the extent to which purpose concepts were existing in the actual curriculum. She used both quantitative and qualitative data collection methods to identify different curriculum domains in sixth-, seventh-, and eighth-grade physical education classes. Nine of the 22 purpose concepts were identified in each of the four curriculum domains; formal, operational, perceived, and experiential. These concepts were object manipulation, teamwork, awareness, joy of movement, neuromuscular efficiency, challenge, circulo-respiratory efficiency, muscular strength, and mechanical efficiency. The original 22 purpose concepts were theoretically derived, and the results imply that researchers, teachers, and students have different understandings and are not perhaps used to thinking about their involvement in physical education classes from this point of view. In addition, teachers viewed their own experience and background and students' interest and abilities as important in their curricular decisions.

Although value orientation can be theoretically derived, it has been difficult to empirically identify specific orientation within teacher goals and classroom work (Ennis, 1994b). In a study of 11 secondary physical education

teachers, from social reconstruction or social responsibility value orientations, Ennis (1994b) examined the goals and rationale for their socially focused curriculum. Based on teacher interviews, she found that these teachers' goals for student learning were focused on social responsibility, which was consistent with their value orientation. The teacher's rationale for goals was based on their perceptions of student background, content relevance, and student motivation. Ennis (1994b) reported that teachers' focus on social skills decreased their expectations for learning academic skills, which trivialized physical education and inhibited students' opportunities to be successful in physical education activities. Similarly, O'Sullivan and Dyson (1994) found that 11 high school teachers believed it was necessary to decrease instructional demands to gain and maintain the cooperation of their students. These teachers' goals for physical education was to motivate students to pursue and maintain a active lifestyle throughout their years (Siedentop et al, 1994). In addition, the teachers wanted to create a positive class climate, where students respect each other.

Steinhardt (1992) concluded in a review that most physical education teachers hold a wide range of goals for their practice. Similarly, Ennis and Zhu (1991) reported that physical education teachers hold multiple perspectives on the goals of teaching and learning. However, Finnish physical education teachers' and student teachers' two main goals for physical education were to develop students' physical fitness and motor skills (Ravi & Tukeva, 1991; Varstala, Telama & Heikinaro-Johansson, 1987).

Teachers' educational beliefs is another topic which has been studied as part of the research on teachers' theories. Nespor (1987) distinguished between beliefs systems and other forms of teachers knowledge. Belief

systems consist of propositions, concepts, arguments, or whatever that are recognized as being in dispute or as in principle disputable. Belief systems often comprise affective feelings and evaluations, memories of personal experiences, and assumptions. Concepts, that are more difficult to examine than the components of knowledge systems.

Johnson (1990) reported that three ESL teachers made instructional decisions and used instructional practices, which were related to their theoretical orientation toward second language learning and teaching. She also found that instructional decision were influenced by contextual factors associated with broader based academic and social concerns.

In a longitudinal study, Johnston (1990) examined two students involved in a one-year teacher certification program through their course work, field teaching, student teaching, and into their first year of teaching. She investigated how students' background knowledge, beliefs, and experience affected their learning from a social studies methods course and their learning to teach. She reported that the certification program and especially the methods course had an impact on the students' educational beliefs and instructional practices. However, the influence was partial and differential, due to students' backgrounds, personalities, beliefs, and experience.

Within the area of physical education, Fernández-Balboa (1991) investigated how beliefs, interactive thoughts, and actions of physical education preservice teachers were related to pupil misbehavior. Students had obvious and consistent beliefs of what misbehaviors were. Furthermore, he reported that preservice teachers' action system were based mainly on how they remember their former teachers and coaches were reacting to misbehaviors. Fernández-Balboa (1991) concluded that student teachers'

beliefs and interactive thought affected their classroom behavior.

Practical and personal knowledge

A related body of knowledge has developed around teachers' personal and practical knowledge. Elbaz (1983) employed a case study with one English teacher and defined teachers' practical knowledge as knowledge about students, content, teaching environment, instruction and curriculum, which is integrated by the teacher in terms of personal values and beliefs and oriented to the teacher's practical context. She identified five categories for content of practical knowledge for teaching; knowledge of self, of the milieu of teaching, of the subject matter, of curriculum development, and of instruction. To organize this knowledge, Elbaz created three hierarchical levels of teacher knowledge; rules of practice, practical principles, and images. A rule of practice is a context specific teacher behavior. A practical principle is a broader concept that relies on teachers' abilities to reflect. It takes into account teachers' beliefs and knowledge about the association between students' state of mind and learning. A practical principle applies to a variety of teaching practices ranging from unstructured interaction to preparing a student for an exam. Finally, images reflect teachers' knowledge on the most general level. Images act as guides to orient teachers' actions. They combine a teachers' feelings, values, needs, and beliefs to create a schema of what teaching should be. These images then contribute to actual teaching practice when merged with a teachers' experience, theoretical knowledge, and the immediate school context.

Clandinin (1986) viewed teacher practical knowledge as "experiential, embodied and based on the narrative of experience" (p. 19). He based his work on Elbaz's conceptions of images. Images are essentials for interpreting

teachers' practical knowledge and for relating this knowledge to previous experience and to present actions (Clandinin, 1986).

Calderhead (1988a) proposed that practical knowledge is directly related to behavior. It is easily accessible and appropriate in dealing with real-life situations and has been mainly derived from teachers' experience in their classrooms. He suggested that the term image could be use to describe teachers' practical knowledge. Images can be employed at different levels of abstraction, from high levels of abstraction, like metaphors associated with personal beliefs and feelings to images dealing with distinct lessons or behaviors. Likewise, Calderhead and Robson (1991) defined images as representing knowledge about teaching and also as acting models for action. Additionally they often contain an affective component, which is related to certain feelings and attitudes. Images could also be related with certain conceptions of the content or with ideas about how children learn. An important aspect of instruction is the ability to recall images, and then to adapt and apply these images in reflections about teaching behavior in an actual context (Calderhead & Robson, 1991).

In a case study in physical education, Schempp (1993) explored one teacher's professional knowledge, which was defined as knowledge teachers constructed from the their own world and that consisted of fact, theories, memories, and associations. Schempp (1993) reported that community, school, profession, and teachers' biography influenced the teacher's construction of professional knowledge. These elements were translated into classroom actions by the teacher.

Student Voices.

Meaning in classrooms lies with the student. Students construct meaning by interpreting curricular events and accomplishing tasks within these events. Doyle (1992) placed student interpretation and knowledge in the focus of research on teaching in his ecological model. Student knowledge and skills are grounded in the structure and culture of the classroom. Mergendoller and Packer (1985) stated "Students constantly evaluate teachers' actions" (p. 597). Moreover, Doyle (1992) concluded that "curriculum is locally produced and jointly constructed as teachers and students go about enacting and accomplishing tasks" (p. 508).

Instruction affects student thinking, which mediates learning and achievement. Therefore, teaching can more easily be understood and improved, when its effect on learners' thoughts is known and recognized. All students do not perceive teacher behavior in the same way. Students' experience of instruction may be different than the intended instruction or the student may not even understand the instruction. In addition, students' attribution about achievement and their perceptions of control over their destiny appear to be strong mediators for school achievement. (Wittrock, 1986)

Students have concepts of the subject matter, perceptions of their own competence, and previous knowledge and experiences when they come to physical education classes. These characteristics form a framework for students' perceptions of instructional events and the way students construct patterns of classroom interactions (Lee & Solmon, 1992). Brophy (1982) suggested for students "familiar classroom events are interpreted within the context of previous experience" (p. 522).

How students mediate instruction define their work. In a study of forth-grade students' thought processes during two tennis lessons, Lee, Landin and Carter (1992) employed stimulated recall interviews. Student thoughts were categorized into affective, skill-related, or off-task thoughts. About half of the reported thoughts were skill related and one third were affective thoughts. Similarly, Langley (1993) reported that college students have primarily task-related thoughts during skill practice. Lee et al. (1992) suggested that certain cognitive processes mediate successful practice because a positive relationship was identified between skill-related thoughts and successful practice. In addition, students could remember and reported in the interviews specific feedback that the teacher gave during the lesson.

Additionally, Solmon (1992) focused on student thought processes, quality of practice and performance in a study of a four-lesson volleyball unit with sixth graders. Data were collected through during-practice sample questions, stimulated recall interviews, questionnaire, observations, and skill test. She found that the ability to identify errors and correct errors during practice was related with student achievement, which indicate that students thoughts serve as mediators between instruction and successful practice. Additionally, she reported an associated between written self-report measures and the interview data with regard to error detection.

Morine-Dershimer (1991) investigated information teachers could receive from a simple procedure for collecting student responses to lessons. At the end of lessons teachers ask students to write down their perceptions of the key idea of the lesson and two thing that the students heard anyone saying during the lesson. She reported that the patterns of key idea statements shifted as the instructional format was different. After more student-oriented lessons,

students made more student-oriented key idea statements. This shift could also been recognized in patterns of reporting what was being said. She suggested that the data collection procedure would be a valid method for teachers to receive information about students' interpretations of instruction and content, as well as an indication of student attention during lessons.

Mergendoller and Packer (1985) studied 20 seventh graders' conceptions of teachers through two different interviews. The students indicated that learning is analogous with working and receiving grades rather than with understanding. Teachers were perceived as persons showing others how to master a content and the students were willing to learn the allocated materials as long as the teacher provided quality explanations and the instruction facilitated their learning.

In physical education classes, Lee et al. (1992) and Solmon (1992) found that students felt the teacher helped them when the teacher described and demonstrated what to do for them. Similarly, Figley (1985) reported that teacher reinforcement was a determinant for positive attitudes, while negative attitudes were related to lack of teacher reinforcement and to situations where students felt less good about themselves. In addition, teachers' personal characteristics were determinants of both positive and negative attitudes (Figley, 1985). Students described personal characteristics of teachers in relation to their instructional program (Mergendoller & Packer, 1985. These characteristics referred to teachers' temperament, temper, and relationships with students.

Students are not identical and they make individual judgments about the instructional process. In physical education, Martinek (1988) studied patterns of observed and student perceived teaching behavior and how these second

and third graders related causes to teaching behaviors. Students' perceptions of teacher behavior were collected through structured interviews and the instructional feedback was coded into three categories. He reported that low expectancy students related teacher corrective behavior feedback to personal cues more frequently than high expectancy students. Moreover, high expectancy students attributed teacher punitive behaviors towards them to certain teacher characteristics. Similar results have been reported in classroom research. Students perceiving praise as deserved tended to participate more, while student who perceived praise as serving instructional and interactive functions participated less (Morine-Dershimer, 1982). Finally, the same teacher was described differently by students (Mergendoller & Packer, 1985).

Students' perceptions of instructional goals are shaped by the directions they received from the teachers (Wittrock, 1986). Salter (1992) examined the congruence between teacher goals and students' perceptions of their learning in physical education. He used student questionnaires and interviews in the study. Teachers' and students' perception differed, since the major goal for teachers was motor skill development, while students perceived physical development to be most important. Moreover, girls rated motor skill as the least important.

Within the classroom setting, Winne and Marx (1982) found that teachers' instructional stimuli do not always cue the cognitive strategy teachers intended and can be interpreted in various ways by different students. Similarly, Wubbels et al. (1992) studied teacher perceptions of their interpersonal behavior in classroom related to their behavior as perceived by their students. They found a mismatch between self-reports and student

perceptions of interactive behavior. In a similar study, Brekelmans, Wubbels and Créton (1990) studied students perceptions of teacher behavior with a questionnaire focusing on interactional teacher behavior. They reported that students' perceptions of teacher behavior were related to student achievement measures. Specifically, teacher leadership behavior was related to both high cognitive, standardized tests, and high affective student outcomes, appreciation and motivation for the subject matter. In addition, Lee, et al. (1992) found that students believed they understood teacher's task presentation. However, it was difficult for them to recall a complete description of the skills. Further, while the predominant coded teacher behavior was corrective feedback, students most frequently reported teacher praise (Martinek, 1988).

Although there seems to be some connection between teachers and their instruction and student perceptions (Figley, 1985; Lee & Solmon, 1992; Luke & Sinclair, 1991; Mergendoller & Packer, 1985), Van Wersch, Trew, and Turner (1992) suggested that the physical education teacher's instructional approach was not essential to students' levels of interest to physical education. Instead, they proposed students are more concerned about their peer relations than about the teacher. Allen (1986) found that students' two major classroom goals were to socialize and to pass the course goals. Students liked classes most when they could socialize while they were learning something interesting but still pass the course. Similarly in physical education, Alexander (1982) suggested that the real task for students was to pass the class.

In addition to student thought during instruction and their views of teachers and instruction, students hold concepts about the subject matter. These concepts influence students and their work in physical education.

Evidence suggests that physical education is generally perceived to be fun and enjoyable and the liking is stable over time, at least at the elementary level (McKenzie, Alcaraz & Sallis, 1994). Nupponen, Halonen, Mäkinen, and Pehkonen (1991) studied 2007 students from grade three through seven during a three year investigation. The purpose of the study was to describe both the amount of, variation and changes in, and connections between physical, intellectual, and social changes in elementary students. Physical education was perceived to be fun by 86 % of the students. Similarly, Aggestedt and Tibelius (1977) investigated approximately 1300 students, from grades one through seven, about their perceptions of physical education in school. Fifty-seven percent perceived that PE was very fun and an additional one third perceived that PE was rather fun. Other studies have reported similar findings for middle and high school students (Dickenson & Sparks, 1988; King & Coles, 1992; Kärki & Lemmentyinen, 1990; Silventoinen, 1989; Steinhardt, 1992; Tannehill & Zakrajsek, 1993; Tjeerdsma, Rink & Graham, 1993).

Dickenson and Sparks (1988) studied students' perceptions of and their definitions of the nature of physical education in England. One hundred students, aged between 11 and 16, were engaged in individual semi-structured interviews. Almost half of the group ranked physical education first in a list of most enjoyable subjects. However, fun and enjoyable are abstract concepts and researchers have tried to find out what they mean to children. In relation to this, physical education was fun because it was a break or release from normal school work and also a way for students to stay fit and healthy (Dickenson & Sparks, 1988; Goudas & Biddle, 1993). Students seem to enjoy and value physical education when they have the opportunity to learn and

similarly were successful in learning different skills (Gustafsson, 1989; Portman, 1993; Romar, 1994: Tannehill, Romar, O'Sullivan, England, & Rosenberg, 1994). Moreover, physical education provided a relaxed atmosphere with opportunities to socialize with other students (Dickenson & Sparks, 1988; Gustafsson, 1989; Luke & Sinclair, 1991; Romar & Siedentop, in press). Similarly, Tjeerdsma et al. (1993) reported the social aspect was particularly important to high school girls. In addition, Williams and Williamson (1993) reported for middle school students that females and lower skilled boys enjoyed more a cooperative approach, while high skilled boys preferred a competitive climate. Finally, student positive attitudes came from a curriculum in which there was a variety of activities from which students could choose (Figley, 1985; Luke & Sinclair, 1991).

A few students do not enjoy physical education. Dickenson and Sparks (1988) reported that six percent of the students disliked physical education. These students disliked particular activities, the physical demands of an activity (Goudas & Biddle, 1993), and peers in the lesson. In addition, competition was found to be of low importance for high school students (Tannehill et al., 1994). They found that negative experiences in physical education were related to students not feeling comfortable or safe in learning and practicing physical skills, as also reported by others (Chernysh & Crossman, 1994; Portman, 1993). In addition, teachers and their instruction, particularly lack of students' decision making and evaluation methods, were powerful determinants of negative attitudes (Dickenson & Sparks, 1988; Luke & Sinclair, 1991). Finally, the weather was found to be a factor creating negative attitudes among students (Dickenson & Sparks, 1988; Luke & Sinclair, 1991).

Students' perceptions of physical education seem to be related to their abilities in physical education. Kärki and Lemmentyinen (1990) found that students with higher grades had more positive perceptions. Similarly, students' perceived skill or competence was related to their level of enjoyment and to their practice effort (Hastie & Saunders, 1990; Solmon, 1992). Finally, students with positive self perceptions are those who select physical education when the option was provided and students with negative self perceptions do not select it (Luke & Sinclair, 1991).

Although many students find physical education to be enjoyable, the picture is different when they are asked about the importance of physical education as a school subject. Physical education was important to 85 % of elementary school students (Nupponen et al., 1991). However, at middle and high school level, students' ratings indicated that physical education was less important compared to other subjects (Chernysh & Crossman, 1994; Tannehill et al., 1994; Tannehill & Zakrajsek, 1993). Dickenson and Sparks (1988) found that about half of their sample placed physical education third, after English and mathematics, when they ranked subjects regarding their importance in school. These students had following reasons for their choice of physical education as important: keep you fit, to stay healthy, for jobs in sport, as a break from academics, and to learn about sport.

Dickenson and Sparks (1988) also investigated students' justification for physical education and asked them: "Do you know why you do physical education in school?". The first answer by half of the students was - no. After time for reflection students responded with; keep you fit, a break from lessons, and to learn about sport. Students from a middle school class believed their teacher's goal in physical education was for them to learn how

to work together, to be active in learning skills, and to show effort and appreciating of sports (Romar, 1994).

Similarly, Nupponen et al. (1991) investigated students' motivation for physical education in school by asking two questions "I'm active during PE classes because ... and I'm not active during PE classes because ...." Skill learning and physical fitness were important motives for the students but these motive decreased during the three-year study. A third motive, to be with friends, increased during the study. The most important motives for not taking actively part in PE classes were "I become easily exhausted" and "I can't benefit learned skills", which both decreased during the study. Van Wersch, Trew, and Turner (1992) reported gender differences in students' interest in physical education from a cross-sectional survey of 3344 students of 11 to 18 years of age in Northern Ireland. They found that while boys' interest was stable, girls' interest in physical education markedly declined at the age of 14. They suggested one reason was because the low status of physical education as a school subject in the school system. Older girls are more concerned about academics than about physical education.

Student perceptions of content matter in physical education provide additional information. Specific sport activities were a major reason for both satisfaction and dissatisfaction with physical education (Figley, 1985; Goudas & Biddle, 1993; Luke & Sinclair, 1991; Tannehill et al., 1994). Middle school and high school students generally liked team sports (Luke & Sinclair, 1991; Romar, 1994; Silventoinen, 1989; Tannehill et al., 1994; Tannehill & Zakrajsek, 1993). Although most students believed the goal for physical education was to learn how to play team games, almost half of the students did not think they were taught how to do it (Tannehill et al., 1994).

Least preferred sports were track and field, cross country skiing, dance, and gymnastics (Aggestedt & Tibelius, 1977; Silventoinen, 1989; Tannehill et al., 1994). While students suggested the focus in high school physical education should be on improving fitness (Tannehill et al., 1994), others have found that students reported most negative experiences came particularly from fitness practice (Figley, 1985; Luke & Sinclair, 1991; Romar, 1994; Tannehill & Zakrajsek, 1993). However, Dickenson and Sparks (1988) reported that students liked fitness activities when fitness activities were related to personal values rather than mastering a technique.

There is no extensive knowledge base about students' experience of the curriculum. This area is technically difficult to study, labor intensive and costly (Erickson & Shultz, 1992). Researchers (Erickson & Shultz, 1992; Lee et al., 1992) have argued that student interviews seems be an appropriate method to receive data about student experience within the classroom environment. Moreover, Peterson and Swing (1982) found that student interviews about their thought processes and understanding can provide rich data and be useful for teachers. However, Brophy (1982) indicated concerns with students' developmental and ability limitations in interviews about teachers and their instruction because of problems in understanding the questions.

<center>Case Studies in Physical Education</center>

The following section presents a review of four multiple case studies, which are related to the present dissertation, Dyson (1994) studied implementation of an alternative curriculum in two elementary schools, Fortin (1992) focused on the pedagogical content knowledge of two expert dance teachers, Rauschenbach (1992) studied educational values and beliefs

and the enacted curriculum of six elementary specialists, and Tsangaridou (1993) investigated the educational values and beliefs and reflection of four physical education teachers.

Dyson, 1994

The purpose of the study was to examine two innovative adventure education schools and to describe what the physical education teachers valued and how they manifested these values. Systematic observations, field notes, formal and informal interviews, document analysis, and student focus group interviews were used as means of data collection.

The two teachers believed in educating the whole child, with focus on affective and cognitive dimensions rather than on skill learning. Their goals were to build self-esteem and social skills, create fun in learning, enhance student responsibility, and develop cognitive skills and a sound attitude towards competition. These teachers emphasized student self-esteem and responsibility and therefore they believed in a student-centered teaching style with cooperative tasks, where the teacher was a facilitator and not a director of activity.

These teachers employed shorts units of instruction, a typical multi-activity based program. Dyson concluded they were effective managers and their students were actively engaged during the lessons. Particularly during the climbing unit, the practice time was high, while in manipulative and cooperative units the instruction time was higher and and practice time more moderate. In the manipulative units (object manipulation, basketball, hockey, and volleyball), the teachers' instruction time was about one third of the lesson time and practice time averaged 43.2 % and 48.9 % respectively for each teacher.

There was an omission of extending and refining tasks, while both teachers' instruction started with informing tasks and then moved to applying tasks in a modified game situation. Students had few opportunities to respond. In the manipulative units, one teacher had OTR rates from 2.4 to 8.3 and the other teacher between 0.8 and 2.1 responses per minute. Generally, students were on stated tasks, had infrequent off-task behavior, and their responses were appropriate and successful. Students were held accountable for their work by teacher monitoring, interaction, different forms of feedback, post-task feedback, and public recognitions.

These teachers generally enacted what they valued and believed about teaching physical education. However, in some instances their values and beliefs were not congruent with their practice. Students' views of the goals were similar to the teachers' goals, and students believed the goals were to cooperate, challenge themselves, take risks, have fun, and learn motor skills. In addition, success was achieved through trusting each other, not being competitive, and problem solving. Students felt that the methods of student grouping were problematic and they discussed motor skills more than their teachers did. Finally, high skilled students did not like the low level of competition.

The implementation of this physical education innovation was facilitated through external support, strong instructional leaders, a shared vision, and positive staff relationships. In addition, school subjects were integrated across curriculum and physical education was not a marginal subject for others in the school.

Fortin, 1992

The study examined the pedagogical content knowledge of two experienced modern dance teachers, by describing how the dance teachers thought about teaching of technical dance classes and their association to their practice. Fortin collected data through interviews, stimulated recall sessions, document analysis, and both systematic and participant observation.

In additional to an early and rich exposure to dance, the teachers had studied movement sciences and graduated from a dance teacher education program. They had developed a highly personal and well-structured knowledge base, which was deeply rooted in their own backgrounds. Therefore, their pedagogical content knowledge was extremely idiosyncratic. Their views of dance teaching were counter-hegemonic. They wanted to emphasize their own visions of what dance teaching could be rather than what it typically was. Both teachers believed students should be active participants in learning instead of passive recipients of knowledge and that the teaching/learning situation was mutual.

These two dance teachers represented their content knowledge purposefully in a sequence of tasks and they were able to describe what content was displayed in the tasks and why it was essential. Fortin suggested the teachers were effective, since they had flexible routines and maintained high active learning time. In addition, they showed to be effective managers and could create an effective classroom climate.

These teachers appeared to have a wide repertoire of instructional representations, which they could apply to different teaching situations. They had a deep and broad content knowledge, including practical content knowledge and conceptual content knowledge, which Fortin suggested

influenced their pedagogical content knowledge. Further, she proposed their wide repertoire of instructional representations was related to wisdom of practice accumulated through their teaching experience.

<u>Rauschenbach, 1992</u>

The dissertation focused on the relationship among curricular values, teaching strategies, and student involvement. Physical education elementary specialists were purposefully sampled to find six distinctively different teachers, who showed strong views towards the subject and used different teaching styles. Data were collected through systematic observation, field notes, teacher interviews, curricular values orientation inventory, and a student inventory during a gymnastics unit. While students' socioeconomic status affected teachers' curricular values, Rauschenbach suggested that university preparation, gender, teaching or coaching experience, and the formal district curriculum were not related in these teachers' curricular values.

All participants wanted their students to master the same set of basic gymnastics skills, and that each skill could be applied in a competitive, performance or testing situation. They indicated it was essential to teach safety and spotting, as well as basic rules, terminology, and customs of gymnastics. Although the program was based on sport activities, they initially taught movement principles to students in lower grades.

Every teacher believed in creating a positive climate where all students could perceive success. All teachers were concerned about gaining cooperation with their students and between their students, a finding verified in student surveys. Every teacher described how the goals of the program related to broader social domains. Rauschenbach suggested the participants

were confident in their curricular values and their expressed values came from personal experience and convictions.

In the initial practice of basic skill, all teachers used an active teaching approach, with student demonstration, verbal explanations of critical elements, skill posters, and active supervision. In the later part of the unit, teachers used various teaching formats and styles, such as small group practice, reciprocal, individualized, or problem solving instruction.

While teachers spent in average of 60 % of their time in practice task, they spent about 30 % in task instructions and 10 % in transitions. Some teachers employed mostly informing and applying tasks, while others also used refining and extending tasks. Analysis of class climates showed differences among the participants, which could be related to different goals and values. Some teachers employed formal accountability systems where student performance affected student grades. Checklists, public posting, and posters were examples of informal accountability systems used by these teachers.

The teachers operationalized their educational values in the learning environment they created. Rauschenbach suggested that "curricular values were the single most important determinant of the type of learning environment that existed in each teachers setting" (p. 240)

Tsangaridou, 1993

The purpose of the study was to describe in detail how physical education teachers think and reflect on their work in authentic experiences. More specifically, she focused on teachers' reflection within day-to-day practice and the role of reflection in the professional development of teachers. Four experienced elementary and secondary physical education teachers participated in the study and data were collected through interviews,

observations, journals, and vignettes.

Strong and well articulated views about teaching physical education were held by all four teachers. Although they had different backgrounds and worked in different settings, these teachers showed similar and in some instances almost identical views. Tsangaridou identified them as good teachers and she suggested that good teachers not only hold strong views but also similar views about educational practices. In addition, these teachers' educational views (espoused theories of action) were congruent with their pedagogical practices. She suggested the congruence between teachers' theories and their practice was related so that these teachers' teaching experience from their particular setting was assimilated into these teachers' espoused theories. The instructional climate in the teachers' classes was positive and supportive, although they used different instructional formats to achieve their instructional goals.

Micro reflection was defined as reflection giving meaning to or informing teachers' day to day practice. Teachers' micro-reflection originated in ordinary experiences and served as a way to controlling and adjusting their teaching practices. Micro reflection was both reflection-in-action and reflection-on-action and the purpose was to provide their students with meaningful learning experiences. Teachers' reflection provided them with knowledge that informs their teaching and they were influenced to reflect by students' responses, unsuccessful teaching experiences, and the character of each class.

These four teachers reflected on pedagogical, content, social, and ethical and moral issues. These four dimensions of reflection were consistent with the teachers' educational values and practices. The main focus of reflection was on pedagogical issues. However, reflection was always situationally

driven and contextually bound. Social, ethical and moral dimensions were reflected on when these teachers were stimulated by enacted events.

As beginning teachers, they described themselves as authoritarian, rigid and traditional. Tsangaridou indicated their educational values, practices, and reflections had changed for all of them over years of practice. The participants expressed they became more positive in their interactions, sensitive to students' needs, background and personal problems, and wanted their students to learn and have positive experiences. Their students, continuous education, and school context influenced these changes. While the changes were remarkable in nature, Tsangaridou suggested the change was not possible without teachers' problematizing, criticizing, reconstructing, and experimenting within their own teaching.

Chapter Summary and Theoretical Base

The review of literature has examined research on the ecological model, teachers' theories of action, and student voices. First, the focus was on the ecological model and particularly Doyle's work on task systems. The interaction between different task systems where teachers and students jointly construct the learning environment was described. Research of tasks system in physical education was reviewed to support and clarify the model within teaching physical education. The importance of a sequential task development, where task presentation sets the boundaries for student work was explained. The system is maintained through teacher accountability, although students negations of the stated tasks will define the actual work.

Secondly, research on teachers' practical theories, espoused theories of action, was reviewed to provided a base for incorporating teachers' theories to the understanding of the created learning environment. Teachers espoused

theories of action are practical and personal theories, which teachers employ to make sense of their work. These theories include teachers' previous experience, knowledge, and beliefs and are context specific to teachers' actual working situations. There is a reciprocal relationship between teachers' espoused theories of action and their practice and this practice seem to be congruent with their theories.

Finally, student mediation in their interpretation of instructional process in physical education was reviewed. They construct meaning of instruction, teacher, subject matter, and content that will affect how they participate during instruction. These concepts are individual and not always similar to the teacher's intent, although physical education generally is perceived as a positive subject by student.

CHAPTER III

METHODOLOGY OF THE STUDY

The purpose of the study was to describe teachers' espoused theories of action and how thee are represented in the learning environment they jointly create with students. A multiple case study design was identified as an appropriate way to answer the research questions. This chapter describes the rationale for a multiple case study design, followed by setting and participants, data collection, data analysis, and trustworthiness.

Rationale for Multiple Case Study Design.

Case studies typically describe the characteristics of an individual unit (Cohen & Manion, 1980), a detailed examination of one particular setting, or one single subject (Bogdan & Biklen, 1982). Patton (1990) indicated that case studies are particularly suitable for understanding some special people, particular problems, or unique situations in great depth, where cases rich in information can be identified. Case studies are preferred when the investigator has little control over events and when the focus is on concurrent circumstances within some real-life context (Yin, 1989). Yi n defined case studies as "an empirical inquiry that investigates a contemporary phenomenon within its real-life context, when the boundaries between phenomenon and context are not clearly evident, and in which multiple sources of evidence are used" (p. 23).

Patton (1990) indicated that case research studies can be strengthen through methodological triangulation, which means use of multiple methods to investigate a particular problem. He concluded that both qualitative and quantitative data can be combined in case studies. Both approaches were used in this study. Tousignant (1982) pioneered this approach in ecological research on teaching in physical education.

When two or more subjects, settings, or depositories of data are studied, researchers are doing multi-case studies (Bogdan & Biklen, 1982). Patton (1990) suggested that case studies are appropriate where variations in individuals are the main focus of the study. This initially requires writing a case analysis for each case before doing cross-case analysis. Cross-case analysis can provide a more compressed and integrated view of the results (Huberman, 1990). Data collection should ensure comprehensive, systematic, and in-depth information about each case (Patton, 1990). Each case study in a report stands alone and allows the reader to understand the case as a unique, holistic entity. In a multiple case design the study contains more than a single case. The frequency of this design has increased in recent years (i.e., Ennis, 1992; Dyson, 1994; Gudmundsdottir, 1991; Nespor, 1987; Rauschenbach, 1992; Tsangaridou, 1993; Wilson & Gudmundsdottir, 1987).

The underlying logic for multiple case studies is based on replication. If similar results are obtained for all cases, then replication has occurred. However, each case must be carefully chosen so that it predicts similar results or produces contrary results but for predictable reasons (Yin, 1989). Patton (1990) suggested that "the evidence from multiple cases is often considered more compelling and the overall study is therefore regarded as being more robust" (p.52).

Schofield, (1990) suggested that qualitative research does not aim to produce universal laws, but that "rejection of generalizability as a search for broadly applicable laws is not a rejection of the idea that studies in one situation can be used to speak to or to help form a judgment about other situations" (p. 208). Knowledge about how and why something works and for whom it works in the context of one particular classroom will extend our understanding of work in other classrooms and gymnasiums (Cochran-Smith & Lytle, 1993). Furthermore, Erickson and Shultz (1992) proposed that generalization in case studies is for the reader of the study to judge rather than the researcher. Readers can compare and contrast the text to their own situations. Therefore, several authors have emphasized the significance of a rich and detailed description of the cases (Firestone, 1993; Schofield, 1990)

Bogdan and Biklen (1982) attended to the question of generalization when they concluded that the purposes of case studies are "to probe deeply and to analyze intensively the multifarious phenomena that constitute the life cycle of the unit with a view to establishing generalizations about the wider population to which that unit belongs" (p. 120). However, Cohen and Manion (1980) addressed the purposeful choice of the unusual or just selecting an upcoming subject, which makes the question of generalizability even more problematic. Yin (1989) suggested that case studies, like experiments, can be generalized to theoretical propositions, not to population or universes. A case study does not represent a "sample". He argued that it is a question of thinking differently; "In analytical generalization, the investigator is striving to generalize a particular set of results to some broader theory " (p. 44).

Research Setting and Participants

This study was conducted in a midwest Finnish city. Four experienced physical education teachers were selected. A purposeful sampling of upper secondary physical education teachers was done to find four participants. Purposeful selection is typical for small samples in qualitative research. The logic and goal of purposeful sampling is in selecting information rich subjects for in depth study (Patton, 1990). A purposeful sampling with a focus on maximum variation was used. Gender, years of teaching experience, and school context were employed as criteria in selecting the subjects. A small diverse sample can provide rich and unique information for each case and significant common patterns across cases (Patton, 1990).

An initial request, where the teachers were informed about the study was conducted and four subjects were identified. In addition to individual teachers' acceptance to participate in the study, permission was acquired according to Finnish requirements for educational research. The subjects were two male and two female teachers and their teaching experience varied from five to 20 years. More specifically, the following teachers participated in the study. Helena is a female teacher working at a middle and a high school with 16 years of teaching experience. Jussi is a male teacher working at a middle and a high school with 22 years of teaching experience. Liisa is a female teacher working at a middle and a high school with six years of teaching experience. Pekka is a male teacher working at a middle school with five years of teaching experience. The four teachers were active in the local professional association and had strong attitudes about the importance of physical education. They were also recognized by other teachers as "good" teachers.

A case study was conducted for each teacher in his or her school. All observations were conducted on eighth grade classes. Table 1 shows the sequence of the lessons teachers were observed teaching during units of basketball and gymnastics. For the female teachers, the gymnastics unit also included aerobics and dance lessons. The selection of these units allowed the researcher to observe the teachers and students in different sport skill units, one a team oriented invasion game and one a body manipulation individual activity. The male teachers lessons were schedule for 90 minutes, while the female teachers were scheduled either for 45 or 90 minutes.

Table 1.

Content in the Teachers' Lessons

Lesson #	Helena	Jussi	Liisa	Pekka
1	Basketball*	Basketball	Dance	Basketball
2	Aerobics + Basketball	Basketball	Basketball*	Basketball
3	Basketball*	Basketball	Basketball*	Gymnastics
4	Aerobics	Gymnastics	Gymnastics	Gymnastics
5	Gymnastics	Gymnastics	Basketball*	Basketball
6	Basketball*		Gymnastics	
7	Gymnastics		Dance*	

* = indicates the scheduled length for the lesson was 45 minutes

Data Collection Process

Multiple data collection formats were utilized. Data collection

methodologies were matched to research questions. Data were collected

through the following methodologies:

1. Formal interviews with teachers

2. Informal interviews with teachers

3. Video-stimulated interviews

4. Teacher questionnaire about educational values

5. Nonparticipant observation, field notes for answering research questions
   and emerging themes

6. Tasks system analysis of video taped lessons

7. Formal interviews with students

8. Written surveys with students

Formal Interviews

Three formal interviews were conducted with each teacher. The initial

interview was designed to elicit statements about each teachers' theories of

action, current practice, and demographic information about themselves and

their teaching context. This interview was held before teachers began to teach

the first unit. The teachers were given an outline for the interview several

days beforehand.

The second interview was carried out between the first and second unit of

instruction. Its purpose was to clarify questions from ongoing analysis of data

and to provide the teachers an opportunity to talk about purpose, goals, and

perceptions of the previous and up-coming units.

The final interview, after the second unit, allowed teachers to elaborate on

informal statements and to clarify or explain instructional practices from an

ongoing analysis of nonparticipant observation. At the conclusion the teachers were also asked to reflect on how the units went and on their original thoughts and give reasons for changes they made.

The interviews were semi structured and open ended. The instrument was developed in a research seminar, which also served as a panel of experts for assessing the instrument (Appendix A). The interview protocol was field tested in a practice interview with a local teacher and used in a pilot study (Romar & Siedentop, in press)

Informal Interviews with Teachers

Before each lesson the teacher was interviewed to solicit content and goals for this lesson. After each lesson, a short interview was conducted with the teacher to get the teacher's reaction to the lesson and to clarify questions that arose during observation of the class.

Video-stimulated Interviews

Teachers' perceptions of their instructional actions were gained by having teachers comment and react to two video tapes of classes they taught. In the first interview teachers talked about what they attended to when they were watching a video tape of their lessons. Teachers were given information about the procedure and the interview was tape recorded. The interviewer used probing questions to elicit responses about what was happening on the tape. In the second interview, short segments from several lessons were used as probes for discussion about teaching strategies.

Value Inventory about Teachers' Educational Values

A value inventory was developed to investigate teacher values in curricular decision making. The values questionnaire had three parts; goals for physical education, learning outcomes for students, and the teaching

process (Appendix B). For each part there was a series of potential values

listed. Respondents had 100 points to distribute as they wish among all or

some of the values listed. They could give 100 points to one value and none

to others, or they could give 25 points each to four values, indicating equal

importance. Value categories for each of the three parts were derived from

how teachers talk about their work in ordinary language, rather than from

theoretical perspectives, as for example in Ennis' (1992, 1993) work. The

values questionnaire was developed using two panels of experts, one in

research design and one as subject-matter experts. The inventory was first

field tested with four teachers, then used in a pilot study (Romar & Siedentop,

in press). Inventory responses were also used as probes in the formal

interviews.

Nonparticipant Observation

Each lesson of each unit was observed. The observer visited each class and

took informal field notes two weeks in advance to make students familiar

with having an observer in the class. Field notes were taken on essential

elements of the learning environment. Field notes were reviewed after each

lesson and analyzed to determine observational goals for the next lesson.

Tasks System Analysis of Video Taped Lessons

Each lesson was videotaped with a wide angle lens and camera. The

teacher wore a cordless microphone. A modification of Task-Structure

Observation System (TSOS) (Siedentop, 1992a, Siedentop et al., 1994) was used

to collect both qualitative and quantitative data on specific classroom tasks

and events (Appendix C). The observer randomly selected one student at the

beginning of each task and coded student responses for that task on the coding

sheet. Observer comments and field notes for the whole class can be recorded

to provide a deeper understanding of the class. All videotapes were coded by the researcher.

Interobserver agreement (IOA) was measured to estimate the reliability of the observations. The IOA described the percentage of agreements between two observers. One randomly selected lesson for each teacher, a total of two basketball and two gymnastics lessons, was observed and coded by a trained observer. The IOA was calculated separately for each main category. More specifically, these were practice time, task type, task communication, content of presentation, specification of practice conditions, numbers of student OTR, congruence and appropriateness of student OTR, and accountability. The percent of agreement in basketball lessons as 91.9 %. The IOA ranged from 86.1 % for accountability to 97.0 % for specification of practice conditions. In gymnastics, the mean IOA was 94.8 %, ranging from 88.6 % for task type to 99.0 % for numbers of student OTR:s.

A task in the ecological model has been defined by Doyle (1992) as "a way in which work and thus cognition, is organized or structured in a particular setting" (p. 503). Therefore, teaching outcomes were related to tasks, "what students learn - are a function of the tasks students accomplish in the classrooms" (Doyle, 1981, p. 4). Siedentop (1991a) described three tasks systems, the managerial, instructional, and student-social task systems. He defined an instructional task as "the subject-matter activity of physical education, the intended learning students are to acquire by participating in the instructional activities" (p. 67). The TSOS utilized the instructional task as the main unit of analysis. Other categories in the TSOS are; instructional episode, task type, student response to the task and a quantitative measure of their opportunities to respond, time spent at each task, and type of

accountability system which the teacher used.

Instructional tasks

Analysis of the instructional task system begins with identification of instructional episodes. To categorize instructional episodes the observer needs to determine what the class as a whole is asked to do. The episode categories were warm up, management, transition, instruction, and practice. Warm up was defined as start of class activity which is used to get students ready for the lesson content, however, the activity was not related to the main topic for the lesson. Management described nonsubstantive time unrelated to instructional activity e.g. roll taking. Transition was defined as time between instructional episodes or between episodes of management, instruction and/or practice where the teacher organizes student and equipment. Instruction was defined as time when the teacher describes and presents information about upcoming activities. Finally, a practice episode described time devoted to student practice of instructional tasks. This was time from the beginning of practice until a management, transition, or instruction episode begun.

The start time for each episode and the start time for the following episode was the duration of the actual episode. Non-instructional tasks were quantitatively coded for their duration and described with field notes. Practice episodes (instructional tasks) require a complete analysis of all categories.

Task type

Content development can be seen in the task sequence developed by the teacher. Instructional tasks for student practice were coded in five categories (Rink, 1993a). Informing tasks present initial information about a particular skill or strategy. In refining tasks, the teacher focused on the quality of student

performance, while the practice conditions did not change. Extending tasks affected content complexity, with changes in practice conditions and an emphasis on skill progression from simple to complex. Applying tasks were tasks which required practice in how to use the skill in a game-like, self-testing, or competitive setting. Routine tasks were presented and practiced in previous lessons or earlier during the same lesson and which have only a short task cue, when the student is familiar with the work conditions.

Performance requirements for tasks.

After the teachers' task statement, the observer identified different components of performance requirements, which was an extension of previous work on task explicitness. The present study developed three components; how the task was presented, what aspects were described or demonstrated, and the specificity of practice conditions. In the first component, task communication, instructional tasks were typically presented verbally by the teacher. In addition, teacher and/or student demonstration was coded when the entire task was demonstrated as closely as possible to the way the skill was to be used. In addition, when the teacher provided written handouts, posters, or media, the recorder indicated teachers used materials in task communication. The observer used as many subcategories as the teachers' employed in their task presentation.

Teacher task presentation was divided into four categories, based on the content of presentation. First, general was coded when the task was described or shown generally. Secondly, skill feature was coded when the teacher presented some critical elements or related information of the task (process). Third, outcome was coded when the teacher presented practice time or number outcomes expected in doing a task (product), e.g. how many, how

often, or how quickly the task had to be done, or some combination thereof. Finally, organization was coded when the teacher presented an organizational format for the task.

Teachers presented the situation for practice and the specification of practice conditions was coded into three categories. First, practice conditions were defined as general when the teacher presented a practice situation in general terms, e.g. students were to line up under the basket or could select their spot on the floor. Secondly, the condition for practice as clearly specified when teachers stated exactly where to practice by using lines, numbers, distance, or cones. Finally, in routine practice conditions, the teacher did not attend to the condition as students had performed the task or similar tasks before.

Student response

The target student's responses to the instructional task were observed and coded. Depending on each instructional task, student responses were quantified as events or duration of practice time (e.g dribbling a basketball or running). Students responses for every task were coded for congruency and topography.

Student's responses were analyzed based on how congruently (response congruence) the student tried to practice the stated task. The observer needed to make a judgment of the response congruence in relation to the stated task in the actual context. For example, student responses for tasks with loose boundaries were often congruent, while explicitly stated tasks, with critical elements, made it more difficult for students to respond congruently.

The topography of the response was divided into appropriate and inappropriate responses. For an appropriate response, the student response

had an acceptable working form for the student level. If students would continue to practice, the response would be successful. An inappropriate response described a response where the technical form was incorrect and eventual success was unlikely.

Accountability

Teacher behaviors were emphasized in the final component of this observation system. Reacting or providing consequences for student responses are critical components of task systems. Researchers (Doyle, 1986; Siedentop, 1988) have suggested that accountability drives the instructional task system. The coding categories for accountability were based on Lund's (1990) work. An overall judgment was made for each instructional task. Six categories were used to describe teacher accountability behavior. Tasks could have more than one form of accountability. No supervision was defined when the teacher was involved in other activities or instructing an individual student and did not supervise the whole group. Monitoring occurred when the teacher mostly observed students without physical participation, verbal, or nonverbal reactions. Monitoring and interaction occurred when teacher observed and interacted frequently with students either skill or other task related information. Post-task feedback included the teacher providing feedback related to performance and/or effort after students completed the task. Public recognition was defined as when the teacher took time after the task to recognize students, to provide a public situation for skill performance, or otherwise publicly report results from the task. In grade-exchange, students' performances in the task were measured and the result affected their grades. Aversive described a situation in which students must perform a certain criterion in order to avoid a punishment.

Focus Group Interviews with Students

Group interviews have been one way to allow individuals to respond in their own words. Stewart (1990) has described the following advantages of focus group interviews. First, it is more efficient than individual interviews in regard to time and money. Second, the interaction between the researcher and subjects allow follow-up questions and probing. Third, subject can react to and build on responses from other. Finally, it is a research method suitable for obtaining information from children.

A pilot study showed that four students were optimum for a group interview (Romar & Siedentop, in press). Students participation styles (Griffin, 1984, 1985a) were used to selected participants for the interviews. Each teacher was asked to identify students with different participation styles. Based on the teacher's suggestions, the researcher selected two groups of four students from each class. Every group consisted of students from different styles. Each group was interviewed twice, once during the basketball unit and once during the gymnastics unit. Students were interviewed about their views of physical education, goals and methods, the learning situation, the previous lesson, and their perspective of the teacher's intentions, values, and beliefs. A detailed open ended interview schedule was followed with the possibility to follow up emerging themes (Appendix D). The interview protocol was reviewed by a panel of experts, field tested, and used in a pilot study (Romar & Siedentop, in press).

Written Surveys to Students (sentence completion)

Every student in a class responded to a survey designed to extract further data on student perceptions of their physical education teacher and the learning environment the teacher created (Appendix E). The students

responded to the survey at the end of five different lessons. The instrument required students to respond to incomplete sentences in their own words. In addition, students needed to describe the goal for the actual lesson and their success in and enjoyment of the particular lesson. The survey instrument was developed with the assistance from a panel of experts, field tested, and used in a pilot study (Romar & Siedentop, in press).

All previously developed instruments were translated from English to Finnish/Swedish and field tested in Finland before the actual study. Professional translators assisted in this process and also in the translation of each quote used in the result section.

Data Analysis

All interviews were audiotaped and transcribed for later analysis. During data collection the researcher continuously took notes about the raw data. When data collection for the participants was completed, the main data analysis began by conducting an individual case analysis. Initially, raw case data were systematized into easy manageable and available case records. After teacher interviews were read and re-read, these data were entered into a database management program (Filemaker Pro) for easy access.

Throughout the analysis, constant comparison was used as a guide to analyze field notes and interviews (Glaser & Strauss, 1967). This method is a four step process; (1) comparing incidents applicable to each category, (2) identifying properties and common themes in the data, (3) comparing themes across data categories, (4) writing explanatory theory.

Data from teacher interviews and questionnaires were employed to answer the first research question for each individual case. Information from task system and nonparticipant observation were used in answering the

second research question, along with teacher and student perspectives data. Outcomes from question one were compared with outcomes from question two to answer the third research question. Case narratives for each case study were created to present the findings. Finally, a cross case analysis was done to provide a comprehensive and in depth understanding of the data set.

Trustworthiness

Trustworthiness is the how the researcher can convince readers that the findings are valid for the context (Lincoln & Guba, 1985). Kvale (1989) described that validation of qualitative research involved "checking the credibility of knowledge claims, of ascertaining the strength of the empirical evidence and the plausibility of the interpretation" (p. 78). In this study, trustworthiness was established by triangulation, member check, and peer debriefing.

Patton (1990) described triangulation as a process "by which the researcher can guard against the accusation that a study's findings are simply an artifact of a single method, a single source, or a single investigator biases" (p. 470). In this study, triangulation of data and methods was used to strengthen the design of the study. Different research methods were used, in order to overcome the bias of any particular method (Tschudi, 1989). In addition, some particular findings in one data source were compared and contrasted with other sources through data triangulation.

A member check is when the researcher takes data and interpretations back to teachers and asks if the results are plausible (Merriam, 1988). This was done when teachers verified the data by reading the interview transcripts during the study. All four teachers agreed that the transcriptions were accurate and only minor editing was suggested. In addition, these teachers

had an opportunity to react to the findings and interpretations in an early draft of their own case study. All four teachers reviewed their own case narrative and no substantive changes were suggested by the teachers.

Peer debriefing was employed to facilitate and validate the analysis and interpretation of the data. Teachers at Åbo Akademi University and researchers at The Ohio State University assisted in peer debriefing with the focus to challenge interpretations of the data.

Summary

The goal of this study was to analyze and relate teachers' espoused theories of action and the enacted learning environment by utilizing qualitative and quantitative research methods. This approach combined in a multiple case study, where four teachers were studied to produce holistic interpretations on teaching and learning in physical education. Teacher interviews and questionnaire, observations, and student surveys and interviews were methods used in the study. Data were analyzed inductively and initially reported in case narratives with a cross-case analysis to summarize the findings. Trustworthiness of the findings was increased through triangulation, member checking, and peer debriefing.

CHAPTER IV
RESULTS

This chapter is divided into four sections, where the findings are presented as case studies of each teacher. The findings for a case are presented by the research questions. The case of Helena is first presented, followed by Jussi, Liisa, and Pekka.

Case #1: Helena

Helena has now taught 12 years at this school, which has 190 students. During this time she had two boys, with a leave absence for 8 months of for each child. She also had one sabbatical for 6 months. After she finished her teacher education program, she worked one year at a sport institute and then one year at her present school, but the school did not have a gym at that time. She went to another school for two years, was one year in Switzerland, and worked one year at the Finnish department of Education before she came back to her present school. In addition to middle and high school students, she has worked with both elementary school students and adults.

Helena had some teaching experience as a substitute before entering the three-year teacher education program, which she said was focused on developing her own skills in different sports. She perceived the program as appropriate, although some faculty in the teacher education program in

different sports did a poor job. She felt the benefits of the program were related to preservice teachers' own strong sports. In her strong sport she did not have to concentrate on her performance though these classes gave her valuable knowledge about teaching the sport. Generally instruction was applicable to her profession as a teacher, because instruction was practical and related to teaching physical education.

Personal skills in sports were important to Helena as a teacher. She felt that teaching sport skills was a focus of her teacher education program and it was assumed that preservice teachers should have good skills. She said:

> You were supposed to do them [sport skills] well and felt ashamed if you could not demonstrate appropriately and everything else like that. (1In5)

However, Helena has never been a person interested in ball games. She said:

> I had never touched a basketball before in my life before I came there [the teacher education program]. After all I knew nothing. It was like walking on a strange planet. I felt lost and inferior all the time, and was ashamed of not being able to do it and I probably tried to hide as much as possible. (2In4)

On the other hand, her background in rhythmic gymnastics helped her in gymnastics. They practiced to improve their own skills and she learned a lot, and was encouraged to practice more difficult skills. To Helena, teachers' personal skills were important in achieving good outcomes in teaching. She stated:

> "I believe that one ought to be a tremendous expert in everything to get real good results" (Vi3).

She felt that personal skills were important and affected her motivation in teaching. In addition, Helena said that teachers adjusted the curriculum according their own skills and preferences.

Helena learned a lot about teaching basketball during her student teaching. She had to study basketball handbooks and implemented what she read in her teaching. In contrast, she perceived receiving little help on how to teach gymnastics during her teacher education program.

Still she felt teaching basketball was difficult because: "It is I who can't do it (2L3)." However, she recognized that she had learned a lot, particularly from her husband, who coached the high school girls' basketball team. In addition, she noticed she knew more about basketball than her student teachers and could help them. Basketball was an important sport in her middle school program and she indicated they had good facilities and equipment for teaching basketball. Altogether, Helena felt that basketball was in the top third of all sports in her program as for her preferences to teach a particular sport.

Her strongest area is rhythmic gymnastics, such as aerobics, where she never had to think about what to do. She also felt that the skills taught in gymnastics are simple and nothing that she could not do. She perceived that she was good at teaching it, partly due to her experience but also that her students were interested and motivated. Nevertheless, she described teaching gymnastics as the most difficult and demanding. Helena said:

> If a few lessons fail from time to time or if something happens to make the students a little something [not motivated], then it is always gymnastics. (3In5)

Altogether, she was satisfied with her teaching abilities in almost all sports and she saw results in student development during middle school. Her experience helped her to make decisions about how to plan a lesson. Her experiences had helped her to find an instructional style, where skill teaching, recreation, and social aspects were balanced. In addition, she had a file of old

successful lesson plans which she used as a resource in planning. Helena

participated as often as possible in workshops to get new ideas. Dance and

gymnastics was her focus when she has participated in practical workshops.

Helena said:

> ... one should have taken basketball and track but why should one sacrifice
> oneself. One feels in a way that leisure time is so valuable that one selects
> something which is fun. (1In2)

Helena had always been involved in continuing education. She started to

work on her masters degree immediately after graduating. She was still in

graduate school working on her licenciate degree, a degree between a master

and doctoral degree. At this moment she felt a conflict in the dual role of

researcher at home and teacher in the gym. She described the switch between

writing and reading for research purposes and teaching students as

problematic because it was difficult to change focus from being one person to

the other.

Helena taught at a laboratory school, which was connected to a teacher

education department. She had student teachers two years of three. She

described the teaching facilities as good, two gyms one of which could be

divided into three parts. She said they had all the equipment they need.

However, budget cuts have affected all after school, extra curriculum sports.

The decrease in organized and popular activities was a problem. Now the

school can not anymore provide an opportunity for students to stay after

school and be physically active.

The laboratory school context provided a class size normally with less than

20 students in the middle school. Students were gender segregated in physical

education the way they always had been. Helena felt that coed physical

education would be more tough and physically demanding instead of soft

values that she preferred right now.

The group of girls observed came from two different eighth-grade classes,

one an advanced class with instruction in English and the other class of

average students, although Helena described them as somewhat quiet. Helena

talked about the group as easy to work with and she enjoyed teaching this

group.

> Perhaps just because there are many lively students who keep talking and
> provide constructive suggestions about this and that and (they are) a little
> funny. One can in a way laugh together with them. (1In13)

Helena described the students' skill level as heterogeneous, with one high

skilled student and some truly low skilled.

She said that the students had positive attitudes and that it was easy to

maintain goal related activities. As a group, the students were at an average

skill level in basketball and eager to practice and play. However, Helena

indicated the students were low skilled, afraid, and terribly careful in

gymnastics. Although they were interested and followed her directions she

had to try hard to maintain the momentum while she was teaching. She

believed gymnastics was repugnant to the students.

In mid August, Helena planned together with the students during their

first lessons of the school year. Initially, she talked about eighth-grade students

having three 45-minute lessons a week. During this planning session,

students could choose what indoor ball sport they wanted to cover and when

to visit fitness centers. She listened to students' additional requests and tried

to fit everything together. In addition, Helena justified to students why they

had physical education and why they had particular sports.

Helena's Espoused Theory of Action

Helena's espoused theory of action was identified from the values
questionnaire, formal interviews, and informal interviews and organized
into three themes. These were educational values and beliefs, goals in
physical education, and teaching strategies and principles.

Educational values and beliefs.

Helena's educational values and belies were grouped into five categories; a
successful learner, professionalism, moral, realism, and student status.

She described it was important that students were successful learners i n
physical education, which included to dare, to learn, and to succeed. Students
were afraid of some tasks and Helena believed they needed to dare to do
different things and thereby learn they can do it. Particularly in gymnastics
students were cautious and they needed to be brave. Helena indicated:

> And perhaps this to overcome oneself. I think in a way that it is our task
> also in PE to teach those students who from home have never learned to
> fight a little. That it is customary in a way a little in our [subject] that one
> doesn't give up at once. (3In7)

The second factor of a successful learner was to learn. Helena believed that
students enjoy to learn different things, She stated "it is obvious to them [her
students] that they can or should learn" (3In10). Helena explained that
learning skills was central for the feeling of being able to perform well:

> I do experience that just this when one teaches students skills, which they
> then begin to master, so that student's gratitude or delight at being able to
> perform something. (3In3)

Helena believed that practice needed to be successful and student's ought
not always experience failure. She stated:

> After all it is not only that we are physically active, we jump, we run and
> we flutter. It is in a way important to give them the experience of learning
> something and to be successful. (3In3)

Figure 1 shows Helena valued classes where students are successful.

Helena also believed gymnastics had a central role in providing opportunities

for success. Positive emotions from success were important to her and she

talked about a lesson one student teacher taught:

> The students were very happy just because they could all the time feel
> success. The level of difficulty was low enough still however somewhat
> challenging. So these are psychological things which occur during lessons
> in gymnastics and which really never occur on any other lessons. (2In1)
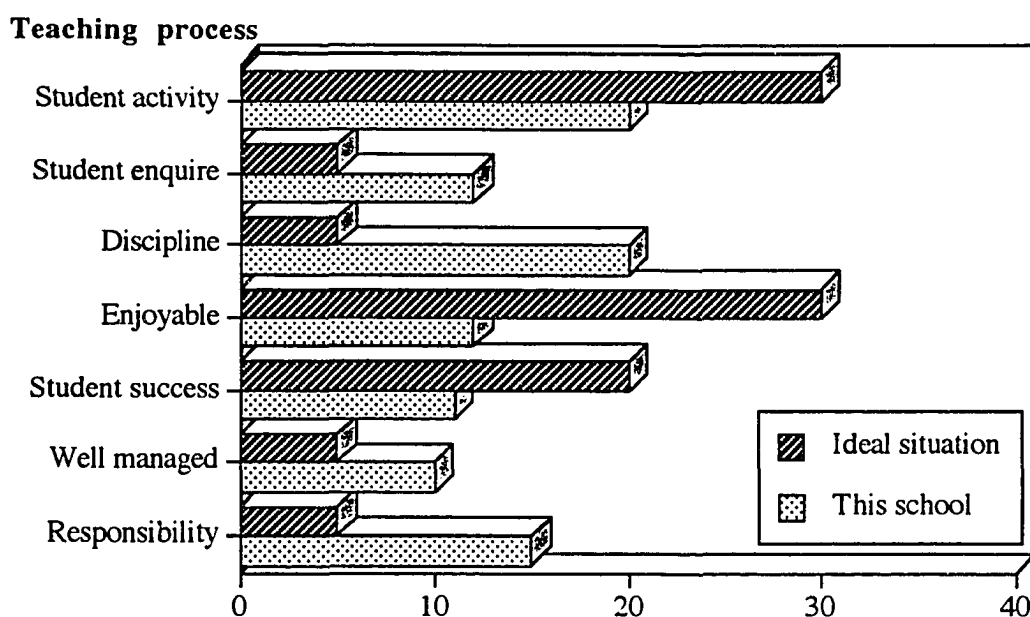
Teaching process

Figure 1. Helena's attitudes and values for the teaching process.

The second category of her educational values and beliefs was

professionalism, which included four areas. First, Helena indicated that it is

important to try and not to give up:

> One takes responsibility for things of one's own that one can get things done .. at the same time that one also has a belief that I can do this. (1In6)

Secondly, she believed that teachers are different and through experience teachers find their own identity. In this, she saw self reflection as critical:

> I do think the most important [thing] is that teachers should find themselves in relation to the teaching situation. That how they behaves, and why they do so. To learn to see myself and listen to myself and feel that what I felt and why did I feel so and so. (3In11)

Thirdly, to be professional, teachers ought to reach their goals. Helena felt that lessons needed to be goal directed, and teachers should strive for their goals, regardless of which goals teachers focused on in each situation. Finally, Helena believed teachers needed to be enthusiastic. She said:

> Because it [enthusiasm] passes on, whatever it is you are teaching, although you then should teach everything the wrong way. When you do it with enthusiasm and joy so that students notice that you like to be there and work with them. (3In12)

Helena's <u>moral</u> aspects of her educational values and beliefs were related to being fair, accepting differences, and gender equity. First, being fair meant to her to treat students equally without having a favorite student. In addition, she liked people to be honest and straight forward. She expressed:

> One is fair, that one is straight forward and that one does not go behind the back [of people] afterwards and talk something else and this kind of falseness I don't understand. (1In6)

Second, Helena valued acceptance of differences. This was also noticed in her attitudes to students, that students could have their own attitudes towards her. She stated:

> If there is someone who can't stand me she must have the right not to do so. (1In12)

Finally, gender equity had lately become more important to her than before in her life. She wanted to emphasize equity regardless if she taught girls or boys in a school context or when she brought up both her sons.

A realistic perspective was identified in her educational values and beliefs. She was realistic and thereby lowered her expectations about student skill development. This was true both in basketball and gymnastics. She stated about basketball:

> Somehow I don't care if this skill is not every time so [good], although one works on it all the time, but I don't know if it is so terribly important in a game situation. (6L2)

She decreased her goals and expectations in relation to skill learning because of time constraints. Although she believed she did not have enough time to teach skills she had not given up, only adjusted to the situation. Helena stated:

> Should one all the time only be dissatisfied with that what one has, this would [then] be reflected in one's students and one's teaching. (1In10)

Helena was also realistic about her own teaching performance. In some post lesson interviews, she discussed things she could have done better. However, she felt they were small incidents which did not directly affect the momentum. She reported that sometimes she would give in to her students complaints and play games the whole lesson.

Finally, the last category in her educational values and beliefs as about students status. She felt that students' experiences from elementary physical education were critical for her. Student behavior in class was related to their background. Helena described how one elementary school teacher's students had good attitudes towards physical education and were generally skilled in gymnastics. Nevertheless, these students had problems with basketball skills:

Always when they [students] come from elementary school, then they have the wrong grip below the ball. And they have said that they [teachers] have taught them in elementary school to bring elbows out and this I have to take in grade seven and every year and obviously, now I must begin with it again. (Vi1)

Helena felt she did not have to work for a long time with seventh graders

before they knew how to behave and they had learned her routines. After all,

it took a while to know the students and Helena said:

They are a little afraid of me those seventh graders when they come. They are very obedient but one notices that not until the indoor season do they become more personal and things like that and do come and tell [me things]. (Vi4)

Helena was concerned about students at different skill levels. In the

interviews she most frequently talked about low skilled students. She talked

about low skilled students in various ways;

You can relatively fast achieve that it is a game, a well-functioning game. Also with such students who are not so tremendously good. (1In8)
I have noticed that it is faster and more effective for the whole group, particularly the low skilled, if I give this kind of guidance so to say. (1In12)
But at the same time it is difficult because all who are thick and weak and all this, to make them do something (2In1)

In the interviews, Helena had a particular concern about Julia, a low skilled

student. She saw this student as problematic and said once:

It is really tremendously difficult for this poor girl, but during this lesson she has at least, I think, tried hard all the time. That she does not experience herself so alone as in these rhythmical stuff. Also in the game she already knows when she should run back and when she should run up and just if she has her predefined spot where she should be. (Vi5)

Helena was not concerned only about low skilled students, she felt that every

student should get something:

That it is fun to perform them regardless if you are low or high skilled. I mean if you are low skilled so you just practice it and if you are high skilled then is it just fun to do it many, many times. (Vi4)

Helena was also concerned about high skilled students and expressed a need to individualize even more:

> Doris, that she has not enough stimuli during these lessons. but she is now within the framework of everything ... after all she should do much more difficult things to develop. (5L4)

Helena described that various groups affected her differently and that she could have problems to create a positive learning climate with some classes. Gymnastics was typical for this, because:

> Even the same content, same lesson, everything exactly the same and one class lies down and giggles and another class is very interested to do it. (2In1)

She felt that student motivation each day and lesson was more important than teaching methods and styles and yet she had not found a perfect solution to each situation. However, she tried to adjust her teaching to the class: "One so to speak takes that which one thinks fits the group". (3In6)

<u>Goals in physical education.</u>

Helena had four goals in teaching physical education; a persisting interest in physical activities, skill development, physical fitness, and social skills.

Helena's overall goal for physical education was to promote a <u>persisting interest in lifelong physical activity</u>, which meant that being physical active becomes a lifestyle. She said:

> ... above all that they would continue with it [physical activity]. That is the most important goal for me. That they get used to move. That they continue [to be active]. (3In9)

She would like her students to take independent initiatives, such as asking about different possibilities in the local community and participating in extracurricular activities.

She was not concerned about how and in what students participate.

Helena talked about both a persisting interest generally in physical activity

and a sport specific interest, such as an interest in soccer, squash, etc. She

declared:

> That is why we have so many different sports .... That they ought to try, so
> that they ought to find the kind of physical activity they like to do. Like
> helping them to find it [a particular sport]. (1In9)

Figure 2 shows Helena believed in developing student self-esteem and

students learning to value and want to do the activity. Although students

were less interested in some sports, Helena felt cross country skiing and

gymnastics mediated a cultural heritage for Finnish children. She indicated

that gymnastics did not fit into the major goals because people seldom had it

as a lifetime leisure activity.

Learning dimension
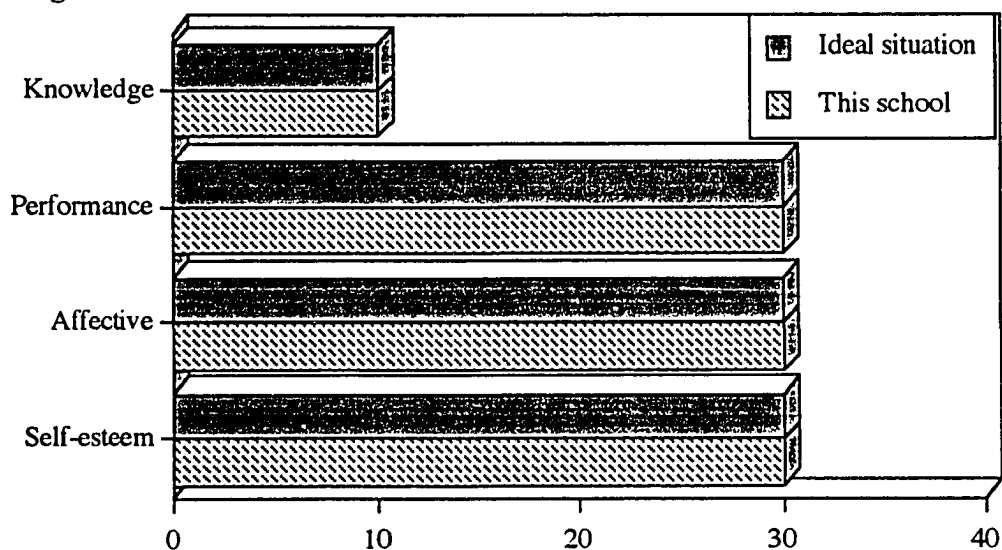
Figure 2. Helena's attitudes and values for the learning dimensions.

The health aspect of physical activity was the major reason for Helena's focus on lifelong interest in physical activities. Students should be aware of the positive health benefits from an active lifestyle, which she believed was supported by research.

In addition to Helena's overall goal about a lifelong persisting interest she was concerned about student interest in physical education at two other levels. At the first level she talked about student interest in individual lessons, where she used different methods to maintain student motivation. She said:

> If large parts of the group can't follow then the situation arises that they no longer want [to participate], instead one all the time ought to keep them active. (3In6)

At the second level, Helena described efforts to maintain students' interest for physical education at school. She felt that new trends which were provided at fitness clubs needed to be implemented in the school context. School physical education should not be old-fashion. She said: "we ought to provide physical activity in a form that they [students] like" (4L1).

Helena's second major goal in physical education, skill development, operationalized the goal for lifelong persisting interest. She believed her students needed basic skills in different sports to be able to participate later in their life. In addition, figure 2 shows Helena valued skill in doing the activity (performance) as an important learning dimension. This focus on skills in different sports was related back to her teacher education program and a strong emphasis on skill teaching early in her teaching career.

She had now formed her own perspective about skill teaching in middle school. She noted that students needed basic skills to be able to play a "well-

functioning game" (1In8) in basketball and that the development of body control was essential in gymnastics. Figure 3 shows that sport activities and movement education were important goal areas to Helena. Through her experience she defined particular skills to be included in her program and said: "There are certain things that ought to be covered" (3In4). In addition, she concentrated more on skills in grade seven than in grade nine:

There are less and less focus on skills towards grade nine. After all in grade seven we learn skills to a very great extent in all sports. I think that it is important and they are also rather motivated to do it. That is partly true also for eighth graders. (3In9)

Goal-areas

Outdoor education
Sport activities
Movement education
Personal growth
Recreational activities
Multi-cultural education
Group social growth
Dance
Health fitness
Performance fitness

Ideal situation
This school

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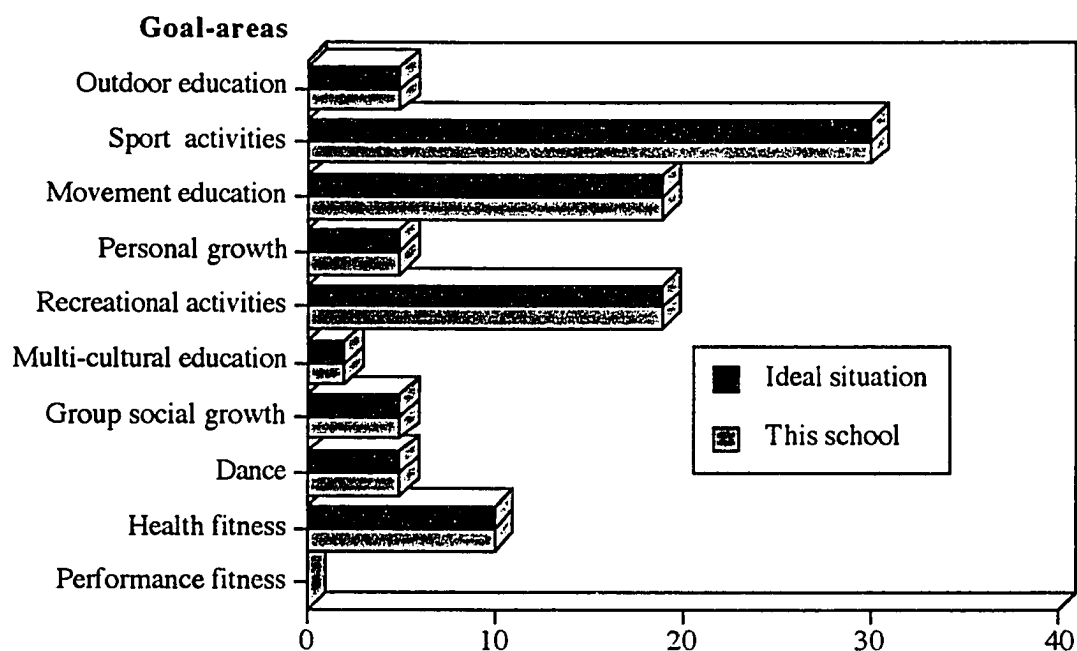
Figure 3. Helena's attitudes and values for the goal areas.

Helena's comments in the video stimulated talk-a-loud interview, where she was supposed to talk about things she attended to, were often focused on

students' skill performance. She used expressions like:

> - it seems as it would be almost worse I think - now when they have to
> think about what they do. They can't get that pass to work. (Vi1)
> - they even in a way have the balance of the body .. but they don't use
> weight transfer (Vi1)
> - because they begin [to practice] and then they don't think at all about how
> they shoot. (Vi3)

Physical fitness was one goal for Helena's physical education program.

Having physical education only once a week was a limitation and her goal

was to maintain students' fitness level. Helena felt that basketball provided

this because students were physically active at a high level in skill practice.

Therefore, she believed basketball was an appropriate ball sport:

> There need to be ball games. It is justified because they provide physical
> fitness and a appropriate game situation (1In8).

On the other hand, Helena recognized that gymnastics did not improve

students' physical fitness level because students' activity levels were generally

low, although students could improve muscular strength a little bit.

> However, Helena was concerned about how she dealt with this goal:

> I have sometimes had a bad conscience about why I don't work more on
> physical fitness than I do - but now after all, all research shows that there is
> no use practicing it [physical fitness], because you can't benefit in the long
> perspective if you don't maintain it all the time, rather the main thing [is
> that] you teach them and get them into the habit of doing it [physical
> activity]. (3In10)

Finally, Helena described students' social skills as an important goal for

her program. She talked about students learning to work as a group in sport

situations. Additionally, she perceived that this was particularly true for

basketball:

> ... that you have a possibility to focus on the social part. Partly such
> behavior which is not acceptable and partly such behavior which is
> acceptable (1In8)

<u>Teaching strategies and principles.</u>

The third theme in Helena's theory of action was her teaching strategies and principles. These were divided into management and organization, student behavior, task development, instructional style, and evaluation.

Helena described in <u>management</u> <u>and</u> <u>organization</u> that eighth graders knew rules and regulations she uses in her classes. She started the school year with a few basic rules for seventh graders while she preferred to make rules and regulations situation specific:

> If you say that in August, when they also otherwise look at all new people who are at school so everything of course goes in and out. Just when it is relevant we normally teach it. ... Or shall we say when the situation becomes such that I think that now we have to make these rules clear. (1In3)

Helena indicated that later on when students forgot some rules, she reminded students when the situation occurred.

Helena had distinct principles for how she wanted her lessons to be organized. Gymnastics was especially demanding to organize. When students practiced in small groups, she tried to organize student practice with one demanding station where she stayed and the rest of stations had tasks with independent student activity. This had a safety aspect while she said:

> The organizational [part] is difficult, but it is even much more difficult for others who are not so systematic as I am. One should be able to see it already done what will happen at the different stations and before the lesson and know where there will be problems. (3In5)

In organizing basketball lessons she learned from her male colleague to keep the balls unlocked because then students could start to practice as soon as they were changed.

Helena described <u>student</u> <u>behavior</u> in terms of student activity, student

interaction, and student cognition. "If students are active" (2In3) was the

main criteria for Helena when she evaluated a lesson. Similarly, Figure 1

shows she valued a class where students are active and get many

opportunities to practice. She wanted to keep teacher talk and presentations as

short as possible to avoid students standing and listening. She pointed out

that basketball provided a situation where students could be active, because

students could practice and play a lot in small teams. However, gymnastics

was different:

> Because that is what I hate when a whole group sits on a mat and begins to
> play cards or talk about boys during this lesson. After all, gymnastics is the
> sport where this happens most often. (2In1)

She believed her emphasis on high student activity came from graduate work

and reading research articles about teaching physical education.

Helena expected students to help each other. Nevertheless, in gymnastics

she ought to teach her students even more how to spot while she felt

students did not trust each other although they knew how to spot:

> They [students] even can't spot properly. Instead I need to be there.
> Otherwise they don't do it if I'm not there. (2In3)

Helena was also concerned about student verbal interaction during her

lessons. Students were not allowed to talk in a nasty way about each other.

Helena said she taught students knowledge about physical activity and

what happens to the body while they practiced. She also described game

situations and tactics but she felt that it was not a major focus in her teaching.

<u>Task</u> <u>development</u> was part of her teaching strategies and principles was

influenced by her strong background in rhythmic gymnastics. She wanted to

demonstrate to her students how to perform the skill and thereby guide

student learning. She felt it was an effective way to enhance student learning, since particularly low skilled students benefited. She expressed she initially wanted to demonstrate the skill to avoid students demands of "show us how to do it" and it was time consuming to first explain to a student and then have the student to demonstrate. Helena believed: "after all I can demonstrate the basic form and pinpoint [critical elements]" (3In2). She felt students generally accepted her skill level in teacher demonstrations. However, some students from another middle school were somewhat suspicious in her high school classes. She used student demonstrations in some skills, where she tried to save her back or she could not perform. In this, she tried to "pick a girl who, well, not is otherwise so good but just happens to do the thing well" (3In2).

During these units Helena twice talked about using Doris, a high skilled student in demonstrations. Once she said: "I don't like to use Doris to demonstrate because she already is too dominating" (1L3). Helena felt that it was not appropriate to always bring Doris in front of other students in the class. However, in the final interview Helena said:

> In this group I use Doris because otherwise she receives so little attention. I feel that I can't develop her movement patterns and her motor skills and things and then she at least sometimes ought to feel that I appreciate her. (3L2)

Helena stated that she liked to develop her instruction into task sequences. She started with simple tasks and ended up by gradually developing and combining tasks to her final goal. She liked to start from easier parts and then adjusted tasks either by decreasing or increasing task difficulty to match student skill level.

Helena's task presentation included refining tasks, where she:

Often used to allow them [students] to try some drill and pass and then not initially explain everything you are not allowed to do, all mistakes. First make the task work and then provide that feedback (1In12).

She felt that if students first were allowed to try the task then it was easier for them to understand her feedback. She continued:

If I say the correction already before they have done it then they have no possibilities to do everything [right] and it is really such a thing that I do. ... Because I believe in it, I have noticed that in a way it works (3In1).

Correcting student skill performance was an essential part of Helena's task development. Helena believed the teacher ought to see each student and provide individual feedback after their performance. She stated:

It is like in my spinal cord that one ought to correct [it] if it is wrong, especially if it is such which injures (4L3).

Helena believed that corrective feedback improved student performance. However, she had concerns about providing feedback for each sport during the study. She did not like the teaching style in aerobics because "after all one can't correct anything" (3In6) and similarly stay on top of everything although she felt there were a lot to correct. Students needed a lot of individual feedback in gymnastics but she felt it was difficult to reach each student while teaching large groups. Helena stated about providing feedback in basketball: "I probably also ought to correct them but I don't care or I would care if I could but I can't [do it]" (Vi3).

Helena believed her instructional style was teacher directed but friendly. Her instructional style was teacher directed because: "I am such an authoritarian person and I decide and it is I who leads [activities]" (1In11). Figure 1 shows Helena, within her context, valued a well disciplined class

that is not disruptive. This teacher directed style provided her a chance to

have everything well structured:

> Everything needs to be organized. If I say that now you do this and that. If it is not so but [it] becomes something else which bothers me and it is adjusted. (1In10)

When she could control everything, she found it was much easier to teach.

She described that she in a way helped students to perform with her voice

and directions. Helena could not feel a lesson was successful if she had not

been teaching and directing all the time. However, she believed it worked and

also that her students were satisfied with her teaching style. Her students

were sometimes dependent on her, which she felt could be related to her

teaching style.

Although Helena was authoritarian, she wanted to be friendly with her

students:

> I try to be friendly to them. I think it is super important this that one provides friendly feedback, generally such a friendliness with the students. Often they are nice and the kinder you are with them the nicer they are. And the nicer you feel yourself there. (1In11)

Helena wanted to create a climate where all students felt comfortable and

enjoyed themselves. Moreover, Figure 1 shows she valued a happy class that

was enthused. She tried by her way of dealing with students to create a

positive milieu. She recognized that low skilled students needed special

attention, and this was particularly difficult in teaching gymnastics. However,

she believed in student intrinsic motivation and stated:

> I never force them, I don't like this PE to be unpleasant to them, that they should think that it is not fun to take part in this. (5L2)

She indicated she was alert to student behavior while she taught and that she

could alter her plans. By observing students she could see "if they think it is

fun, they do it willingly or they do it with reluctance". (2In3)

She recognized it was not always possible to have a positive instructional climate with all classes. However, she tried to encourage particularly low skilled students. In addition, she felt that as a physical education teacher she had good relations with the students, partly because of all after school sports they had had previous years.

Her instructional style was affected by student teachers. Helena commented that she was a more official teacher when she had student teachers because then she focused on teaching the content and she followed her unit plans. Without student teachers, she talked and was together with her students with more of an educational perspective and not so focused on skill performance. However, Helena encouraged her student teachers as first years teachers to be friends with and listen to their students. She felt it was one stage in their teaching career.

Evaluation was the final category of Helena' teaching strategies and principles. She felt that student evaluation was more important to her students than to her and that students perceived evaluation in physical education as an assessment of their personalities, which makes evaluation to a sensitive issue. Helena said that student grades had 40 % based on skills, 30 % based on physical fitness, and 30 % based on activity and motivation. Student grades could vary between ten, a top grade, and four, a failing grade. Helena described her students had to dress and actively participate in four lessons of twenty during a semester to avoid a failing grade.

The only test Helena used was the physical fitness test, which had national norms. Earlier during her career she had developed and used her own tests. Although Helena now used the national test, she was not satisfied with it

because she missed items for various motor skills, such as balance etc. One part of the fitness test was 1500 meter run, which Helena said she used to teach her students jogging. Helena hesitated about the importance of the fitness test and saw physical education as a subject without grades in future, at least for the high school program.

Helena described how she first looked at student fitness scores, then how skilled the student was in ball games, and finally student body control and coordination in gymnastics and dance when she graded her students. She didn't give a grade or performance mark for a single lesson or unit except her fitness scores.

Summary of Helena's espoused theory of action

Helena's espoused theory of action was informed by current knowledge of the teaching effectiveness research. Her beliefs that students should be active and successful in learning physical education had a central position in her theory. Her main goal was to develop a persisting lifelong interest in physical activity and improve students' skills in physical education. Helena believed she could reach her goals with an organized and teacher directed instructional approach. Within this approach, she saw herself as a skillful teacher, who could demonstrate task to the students. The emphasis of skill instruction was further supported by her theory about the use of refining tasks and the importance of teacher correcting student performance, which was a way of informal accountability. Helena stated about formal accountability, that students' skills affected their grades, although she did not believe in tests or assessment of individual sports. While Helena had this strong focus on skill learning, she still wanted to create a friendly and positive instructional climate where students enjoyed practice. Her responsibilities as a cooperating

teacher affected her theory that she emphasized the formal goal of skill learning, although she in some instances had to lower her expectation due to contextual constraints.

The Ecology of Helena's Learning Environment

Findings about the ecology of Helena's learning environment are presented in three parts. Data are presented as they pertain to the subresearch questions. The first part describes results based on an analysis of individual lessons. Part two presents results from the task system analysis of three short units, basketball, gymnastics, and aerobics. The final part describes student experience of the physical education program.

Defining individual lessons

Classroom work in two lessons is described in detail and complimented with teacher goals and reactions and with student comments. One basketball and one gymnastics lesson were analyzed.

Lesson three in basketball was a typical lesson, with somewhat more game play than during the other basketball lessons. Helena was alone in the big gym with 16 students and one ball for each student. Her goal for the lesson was to work on passing skills as a warm up and then on rebounding as a new skill, however "not very much in depth" (3L1). In addition, Helena stated "student ought to move during this lesson and that they ought to play ... so they ought to sweat a little" (3L1).

The students spent 8:34 minutes (21.1 %) in instruction, 7:55 minutes (19.5 %) in transition, and 24:08 (59.4 %) minutes in practice for a total of 40:37 minutes. Students played a regular game for 57.2 % of the lesson, and of this time Helena spent 3:22 minutes (14.5 %) in instruction, 2:53 minutes (12.4 %) in transition, and during 17:00 minutes (73.1 %) students actually played

basketball. However, three students from each team sat always on the bench, which decreased the active game time for an average student to 10:38 minutes.

Students were allowed to begin practice on their own as soon as they were dressed and, during this unstructured and voluntary warm up, they practiced lay ups and shooting. The lesson started when Helena gathered all students and talked about the topic for the lesson and asked students about critical elements for rebounding.

Figure 4 shows the instructional tasks for the lesson and the time spent in each task. Helena had introduced passing in the first lesson and now she employed a give and go task which she extended once to work on students passing skills. She first showed and explained the task with one group, which then they continued to practice while she organized the other group. The practice conditions were specified with cones for students to start. When students practiced Helena moved around the perimeter and monitored student activity. She had frequent interactions with students.

#	Task	Focus	Type	How	What	Situation	Task time
1	Passing	Give and go	Extend	Verbally Teacher Student	General Organization	Specified	1:52
2	Passing	Other direction	Extend	Verbally	General Organization	Routine	2:36
3	Rebound	In pairs	Inform	Verbally Teacher Student	General Skill Organization	General	1:23
4	Rebound	Jump	Refine	Verbally Teacher	General Skill	Routine	1:17
5	Game play	Lay up	Apply	Verbally	General Organization	Routine	17:00

Figure 4. Teacher task presentation in the basketball lesson.

Prior to working on rebounding, she explained the task and demonstrated the performance with a student. After the informing task, Helena continued with a refining task to focus on jumping for the ball in the rebound situation. All students were actively involved in practice.

The last task of the lesson was game play, five against five with three players resting from each team. Helena frequently stopped the game to provide feedback and also to explain rules when needed. In addition, she had to take care of substituting all students into the game. Students on the bench supported their team mates with positive comments.

Helena presented each task verbally and used teacher demonstration in three tasks and student demonstration in two tasks. In addition to a general explanation of the tasks, she described the organization in three tasks and skill features in two tasks. Helena specified the practice conditions in one task and in general terms in one task, while the situation was routine for the students in three tasks.

Figure 5 shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target student had 32 OTRs with a rate of 7.2 per minute during the passing tasks and 21 OTRs with a rate of 7.9 per minute during the rebound tasks. During skill practice, only one student response was noncongruent and inappropriate. In this case the student did not try to go for the rebound. During game play the target student had a total of 13 OTRs (0.8 OTR/minute) which consisted of passing, dribbling, and shooting responses.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1	Passing	1:52	12	12	12	No
2	Passing	2:36	12	12	12	Monitor Interaction
3	Rebound	1:23	9	8	8	Monitor Interaction
4	Rebound	1:17	12	12	12	Monitor Interaction
5	Game play	17:00	13			Monitor Interaction Post task FB

Figure 5. Student response and teacher accountability in the basketball lesson.

In the post lesson interview, Helena expressed that the students did well and were enthusiastic. She noticed the students really wanted to play. She had planned to have a little more time to work on rebounding, to develop their skill with additional tasks. However, she had promised that they could play a lot and decided to have a lot of game time. She continued:

> The goal that they were to play and get warm and all this, that went [well] after all. And they are tremendously eager which is fun to see. (3L1)

She felt that the game was messy because her own inability to lead the game and that it was difficult to officiate.

Students commented on the lesson in focus group interviews the next day. Two groups with four students in each were interviewed. The students perceived the goal for the lesson was to work on passing: "that passes become correct" and "that the person one passes to is prepared". Students reported they learned to pass the ball where they wanted to, to pass in a hurry, and to move to open space for a pass. However, one student said: "I did not learn anything new yesterday". Another student wanted to change the tasks but was

satisfied with the goal for the lesson. She felt the lesson was short and they don't have time to do a lot. The rest of the students interviewed were satisfied with the lesson as it was.

In the second lesson of the gymnastics unit, Helena had the whole gym and 15 students. Given that Helena was not satisfied with the previous lesson in gymnastics, her main goal for this lesson was: "there should be happy smiles when we finish today" (7L1). She intended to review previous skills through pair work with task sheets, which she felt could keep students active and focused. In addition, she wanted to work on the beam with some new skills with one small group, while two other groups had independent and creative tasks on floor and vault.

The lesson lasted 96:36 minutes, of which 1:04 minutes (1.1 %) was spent in management, 13:38 minutes (14.2 %) in warm up, 19:02 minutes (19.8 %) in instruction, 16:43 minutes (17.4 %) in transition, and 45:35 minutes (47.5 %) in practice.

Figure 6 shows the instructional tasks for the lesson and the time spent in each task. Helena started the lesson with warm up to music, where students should run and when music stopped they ought to do different tasks, altogether one informing and three extended tasks. She continued with a series of 33 stretching tasks, which Helena directed like an aerobic lesson. Then, they worked on jump and balance tasks for the floor series where Helena used several refining and extending tasks in teacher directed instruction to the whole group.

Helena explained and demonstrated a floor series which included, forward and backward rolls, cartwheel, and previously practiced jump and balance skills. She distributed task sheets for the students to use when they worked in

pairs. During student practice, Helena moved around and provided skill related feedback to students.

Then Helena divided the class into three groups where one group was with her on the beam and the two other independently practiced floor and vault tasks. Helena had prepared task sheets for both floor and beam practice. In addition to the high beam where Helena instructed individual students, she had organized low beams and benches for students to practice on.

When everyone in the target group had practiced with Helena, the group rotated to the floor station. Here the task was to create a floor performance that included certain elements and could be presented individually or as a group to the rest of the class. The group worked seriously with the task and presented as a group their series before they rotated to the last station.

Finally the target group came to the vault station, where they should do six different skills always with one person spotting. Helena did not monitor what happened at the vault station but the students were actively practicing. At the end of the lesson the students and Helena brought equipment back into the storage.

In addition to informing tasks, Helena employed for a particular skill sequence both refining and extending tasks. In teacher directed whole group instruction, Helena frequently used teacher demonstration in addition to her verbal presentation. In task presentation for independent student work she provided students with task sheets. If the student was not familiar with the task, she provided a general statement about practice conditions. Although some tasks had outcome specification, Helena typically emphasized skill features in task explanations.

#	Task	Focus	Type	How	What	Situation	Task time
1	Warm up	Run	Inform	Verbally Teacher	General Outcome	General	1:34
2 - 4	Warm up	Other skills	Extend	Verbally Teacher Student	General Skill Outcome	Routine	4:36
5 - 37	Stretching	Different body parts	Inform Extend Routine	Verbally Teacher	General Skill	General Routine	7:28
38	Jumps	Turn 180	Inform	Verbally Teacher	General Skill	Routine	0:05
39	Jumps	Legs together	Refine	Verbally Teacher	General Skill	Routine	0:09
40	Jumps	Other direction	Extend	Verbally	General Skill	Routine	0:10
41	Jumps	Turn 270	Extend	Verbally Teacher	General	Routine	0:03
42	Jumps	Turn 270	Refine	Verbally Teacher	General Skill	Routine	0:03
43	Jumps	Turn 270	Refine	Verbally	General Skill	Routine	0:03
44	Forward step	Right position	Inform	Verbally Teacher	General	Routine	0:16
45	Forward step	Other foot	Extend	Verbally	General	Routine	0:19
46	Forward step	Straight position	Refine	Verbally Teacher	General Skill	Routine	0:19
47	Jumps	A little jump	Inform	Verbally Teacher	General	Routine	0:07
48	Jumps	Also arms	Extend	Verbally Teacher	General Skill	Routine	0:07
49	Jumps	Back and forth	Extend	Verbally Teacher	General Skill	Routine	0:13
50	Balance	One leg	Extend	Verbally Teacher	General Skill	General	2:39
51	Floor series	Pair work	Inform	Verbally Teacher Student Material	General Skill Outcome	General	13:24
52	Beam	In group	Inform	Verbally	General	General	1:52
53	Beam	Same as before	Refine	Verbally Teacher	General Skill	Routine	1:53
54	Beam	Alone	Extend	Verbally Teacher Material	General Skill	General	2:29
55	Beam	With teacher	Extend	Verbally	General	Routine	1:32
56	Beam	Alone	Routine	Verbally	General	Routine	1:39
57	Floor series	Group work	Apply	Verbally Material	General	General	8:55
58	Vault	Open task	Apply	Verbally Material	General Outcome Organization	General	5:44

Figure 6. Teacher task presentation in the gymnastics lesson.

Figure 7 shows shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target students were active 97.3 % of the initial warm up and stretching time and had a total of 88 OTRs of which 68 (77.3%) were appropriate and congruent with the stated task. Of student total responses 25 (11.3 OTR/minute) were in teacher directed jumps and balance skills, 15 (1.1 OTR/minute) in floor series, 26 (2.7 OTR/minute) in beam practice, 10 (1.1 OTR/minute) in the group floor series, and 12 (1.3 OTR/minute) in the vault task. If a task was congruent it was also appropriate and the percentage ranged from 84 % for teacher directed jumps and balance skills to 70 % for the group floor series task in task sequences for each skills.

Helena's comments to the lesson were: "I am really satisfied" (7L3) because she felt the students worked independently and they also created their own small floor series. She believed that student activity was more important than a technically correct performance. In addition:

> generally I really believe that they have such an attitude that next year when we have gymnastics it is not so that it is terrifying or so (7L2).

However, she recognized that some girls were afraid of practicing on the high beam. Furthermore, she felt the organization was as good as it could be although she was concerned about the safety issue when students practiced at the vault station without supervision. She felt she could do this with girls, because they were not so brave that they would start to do stupid jumps as boys would do.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1	Warm up	1:34		1:34	1:34	Monitor
2 - 4	Warm up	4:36		4:36	4:36	Monitor Interaction
5 - 37	Stretching	7:28		7:06	7:06	No Monitor Interaction
38	Jumps	0:05	2	2	2	Monitor
39	Jumps	0:09	2	2	2	Monitor
40	Jumps	0:10	2	2	2	Monitor Post task FB
41	Jumps	0:03	1	1	1	Monitor
42	Jumps	0:03	1	1	1	Monitor
43	Jumps	0:03	1	0	0	Monitor
44	Forward step	0:16	1	1	1	Monitor
45	Forward step	0:19	1	1	1	Monitor Interaction
46	Forward step	0:19	1	1	1	Monitor Interaction
47	Jumps	0:07	4	4	4	Monitor
48	Jumps	0:07	3	0	0	Monitor
49	Jumps	0:13	5	5	5	Monitor Post task FB
50	Balance	2:39	1	1	1	Monitor Interaction
51	Floor series	13:24	15	11	11	Monitor Interaction
52	Beam	1:52	5	2	2	Monitor Interaction
53	Beam	1:53	5	3	3	Monitor Interaction
54	Beam	2:29	7	6	6	No
55	Beam	1:32	8	7	7	Monitor Interaction
56	Beam	1:39	1	1	1	No
57	Floor series	8:55	10	7	7	No Public recognition
58	Vault	544	12	10	10	No

Figure 7. Student response and teacher accountability in the gymnastics lesson.

The students indicated the goal for the lesson was to "learn and review different movements and series" and to "practice balance". Thirteen students (88.7 %) reported the lesson was enjoyable and two thirds of the students reported they were successful during the lesson. Additionally, in most interviews the students said the lesson was fun and went well. Students said: "one did not have to be unsuccessful", "all [students] tried their best" and "it was so varying".

Some students felt that they had practiced these skills before and had not learned anything new, while others said they learned balance skills. Several students reported the lesson was good and they did not wish to change anything. However, one student wanted to omit the high balance beam from the lesson. She said many students were afraid of practicing on it, which could be avoided if she had thicker mats around the beam. Another student was not afraid because Helena spotted while she practiced on the high beam. This student liked the organization where she could practice alone with Helena without the rest of the small group standing and watching. Other students liked that Helena gave independent task where they could practice, particularly working on the floor series was fun.

The task system at a macro level

This section presents findings from the task system analysis of the basketball, gymnastics, and aerobics units. Data are presented for task type and sequence, performance requirements, student response, and accountability.

Task type and sequence for Helena's units are presented separately for each activity. Task development in different sports is shown in Table 2. Extending tasks were most frequently used in all sports to gradually increase task difficulty. While refining tasks were frequently used in basketball and

gymnastics, Helena seldom used refining tasks in aerobics. Refining tasks were employed to focus on technical aspects while students performed skill practice. Helena stated:

> I have noticed that it somehow works. So I can reach the final goal easier this way. (3In1)

On the other hand, she often used routine tasks in aerobics to sustain a high workload for the students. Applying tasks were used in basketball and gymnastics. While they were proportionally fewer, students spent an extensive time practicing applying tasks. In basketball, students spent half of their practice time in applying tasks, while in gymnastics and aerobics they spent most time in extending tasks. Furthermore, each task in aerobics was much shorter than either basketball or gymnastics.

Table 2

Frequency and Duration for Different Tasks in Each Sport

Type of task	Numbers of tasks	%	Total time	%	Average length
Basketball					
Inform	7	21.2	8:39	9.1	1:14
Refine	8	24.2	8:58	9.4	1:07
Extend	12	36.4	23:45	24.9	1:58
Routine	2	6.1	6:26	6.7	3:18
Apply	4	12.1	47:39	49.9	11:54
Total	33	100	95:27	100	
Gymnastics					
Inform	10	23.8	21:51	28.1	2:11
Refine	9	21.4	6:47	8.7	0:45
Extend	18	42.9	28:08	36.1	1:34
Routine	3	7.1	3:07	4.0	1.02
Apply	2	4.8	17:39	23.1	9:00
Total	42	100	77:52	100	
Aerobics					
Inform	41	21.1	17:44	24.8	0:26
Refine	5	2.6	2:03	2.9	0:25
Extend	112	57.7	43:15	60.5	0:23
Routine	36	18.6	8:31	11.9	0.14
Apply	0	0	0	0	0
Total	33	100	95:27	100	

Figure 8 shows task sequence during the basketball unit. Helena used between five (lesson 2b) and eleven (lesson 1) tasks in a lesson and students practiced two different skills during a lesson. However, each skill was practiced during two lessons except shooting which they practiced once. Nevertheless, she combined shooting practice together with lay up tasks. Each skill sequence for a particular skill included informing, extending, and refining tasks. Passing practice had two informing tasks, since they worked on two different tasks which had distinct technical performance (e.g. chest pass and one hand pass).

Lesson one		Lesson two		Lesson three		Lesson four	
Dribbling	Informing	Passing	Informing	Passing	Extend	Dribbling	Extend
Dribbling	Refine	Passing	Refine	Passing	Extend	Dribbling	Refine
Dribbling	Extend	Passing	Extend	Rebound	Informing	Dribbling	Extend
Dribbling	Extend	Passing	Inform	Rebound	Refine	Dribbling	Refine
Dribbling	Extend	Shooting	Inform	Game play	Apply	Rebound	Extend
Dribbling	Extend	Shooting	Extend			Rebound	Refine
Lay up	Informing	Shooting	Routine			Rebound	Refine
Lay up	Refine	Lay up	Routine			Game play	Apply
Lay up	Extend	Game play	Apply				
Lay up	Extend						
Game play	Apply						

Figure 8. Skill development and task progression in basketball.

The task sequence in the gymnastics unit is presented in Figure 9. Again, Helena used informing, extending, and refining tasks in each skill sequence and tried to gradually build up student performance. In addition, instructional tasks in gymnastics could be divided into single skill and multi skill tasks. In single skill tasks students practiced one skill in each task, typically in a teacher directed format, while in multi skill tasks students were to practice different skills within the same task, often independently and without close teacher monitoring. In single skill tasks, Helena developed student performance through informing, extending, and refining tasks. Helena focused on single skill tasks during the first gymnastics lesson. During the second lesson of gymnastics students had to work for most of the time on multi skill tasks using the previously practiced skills.

Lesson one				Lesson two		
Forward roll	Inform	Single		Jump	Inform	Single
Forward roll	Refine	Single		Jump	Refine	Single
Forward roll	Extend	Single		Jump	Extend	Single
Forward roll	Extend	Single		Jump	Extend	Single
Forward roll	Refine	Single		Jump	Refine	Single
Balance	Inform	Single		Jump	Refine	Single
Balance	Extend	Multi		Forward step	Inform	Single
Balance	Routine	Multi		Forward step	Extend	Single
Backward roll	Inform	Single		Forward step	Refine	Single
Backward roll	Extend	Single		Jump	Inform	Single
Backward roll	Refine	Single		Jump	Extend	Single
Backward roll	Routine	Single		Jump	Extend	Single
Handstand	Inform	Single		Balance	Extend	Single
Handstand	Extend	Multi		Floor serie	Inform	Multi
Handstand	Refine	Multi		Beam	Inform	Multi
Backward roll	Extend	Single		Beam	Refine	Multi
Floor serie	Extend	Multi		Beam	Extend	Multi
Vaults	Inform	Single		Beam	Extend	Multi
Vaults	Extend	Multi		Beam	Routine	Multi
Vaults	Extend	Multi		Floor serie	Apply	Multi
Vaults	Extend	Multi		Vaults	Apply	Multi

Figure 9. Skill development and task progression in gymnastics

Table 3 reveals the performance requirements in Helena's task presentations. All tasks were described verbally in each sport and Helena demonstrated all tasks in aerobics while she lead student activity. In basketball and gymnastics, Helena demonstrated about 60% of the tasks and used student demonstrations for about 20 % of the instructional tasks. She did not use student demonstrations in aerobics. In gymnastics Helena used task sheets to clarify student work in four (10%) tasks. These tasks were typically of long duration, averaging 8:28 minutes and students practiced several different skills in the tasks. Field notes showed she often used a questioning format in task presentations. The intent was to provide background and technical information for skill practice.

All tasks the students were to preform.were described in general terms. In addition, Helena presented skill features by describing critical elements in about 50% of the tasks in basketball and gymnastics while only in 10% of the tasks in aerobics. Helena specified outcome, number criteria, for one task in basketball and in 14.3% of the tasks in gymnastics and she commented:

> Yes, of course, because otherwise nothing happens, they ought to have a defined task since these [students] are so nice that when one says three times they do it three times. (5L2)

Student organization during practice was demonstrated or described in one third of all tasks in basketball, while only in two tasks (4.8%) in gymnastics.

Table 3.

Performance Requirements for Tasks in Different Units

| Sport | Task communication | | | |
	Verbally	Teacher demonstration	Student demonstration	Materials
Basketball (n=33)	100 %	66.7 %	18.2 %	0 %
Gymnastics (n=42)	100 %	57.1 %	19.1 %	9.5 %
Aerobics (n=194)	100 %	100 %	0 %	0 %

| Sport | What is described or demonstrated? | | | |
	General	Skill features	Outcome	Organization
Basketball (n=33)	100 %	48.5 %	3.0 %	33.3 %
Gymnastics (n=42)	100 %	59.5 %	14.3 %	4.8 %
Aerobics (n=194)	100 %	9.3 %	0 %	0 %

| Sport | Specification of practice situation | | |
	Only generally	Clearly specified	Routine task
Basketball (n=33)	18.2 %	15.1 %	66.7 %
Gymnastics (n=42)	21.4 %	7.1 %	71.4 %
Aerobics (n=194)	1.5 %	2.1 %	96.4 %

The situation for practice was clearly specified twice as much in basketball compared to gymnastics. Helena described generally the situation for practice in one fifth of tasks in basketball and gymnastics, while almost all tasks (96.4%) in aerobics were of routine nature and the practice situation only described generally.

An analysis of performance requirements is incomplete without an examination of lesson segments or task sequences for a particular skill. In addition to describing each skill, Helena or a student demonstrated the skill at least once during a task sequence. In a task sequence in basketball and gymnastics, at least once she presented critical elements for the skill. Similarly, practice conditions were described in general terms or clearly specified at least once during a skill sequence, while during the rest of the tasks in the sequence Helena did not pay attention to practice conditions. The routine in practice conditions and an expectation to work in familiar conditions was particularly true for aerobics.

Student work is related to how much time the teacher provided for practice. Teacher's time was divided into management, instruction, transition, warm up, and practice, as shown in table 4. Helena spent about the same amount of time in instruction (18.7%) and transition (17.1%). The instruction and transition phases were shorter in aerobics than in basketball or gymnastics. On the other hand, student practice time was higher during aerobics lessons than during other lessons with an average for all lessons of 30:36 minutes which meant that students could practice about 55 % of the lesson time. In addition students were actively working out during the warm up episodes. This result does not describe how much one student actually practiced during the study, only how much time the teacher provided for practice.

Table 4

Helena's Time Distribution during Lessons

Lesson Content	Management Time	%	Instruction Time	%	Transition Time	%	Warm up Time	%	Practice Time	%	Total Time
1 Basketball	0:42	1.7	10:12	23.0	9:21	25.1	0	0	20:24	50.2	40:39
2 Aerobics	1:34	4.5	1:06	3.2	4:13	12.1	0	0	28:00	80.3	34:53
Basketball	0	0	9:36	20.1	8:31	17.8	0	0	29:45	62.2	47:52
3 Basketball	0	0	8:34	21.1	7:55	19.5	0	0	24:08	59.4	40:37
4 Aerobics	5:33	8.3	9:22	14.1	8:06	12.2	0	0	43:36	65.4	66:37
5 Gymnastics	2:49	3.6	17:02	21.6	13:17	16.9	13:14	16.8	32:17	41.0	78:39
6 Basketball	1:20	3.4	8:38	22.2	7:51	20.1	0	0	21:10	54.3	38:59
7 Gymnastics	1:04	1.1	19:02	19.8	16:43	17.4	13.38	14.2	45:35	47.5	96:02
Mean	1:38	3.0	10:22	18.7	9:28	17.1	3:22	6.0	30:36	55.2	

Student response is presented separately for each sport because the
different nature of the sports. Table 5 shows student responses in basketball.
Helena spent most time (49.9%) in game play, a total of 47:39 minutes
although she had only one task during each lesson. The target student had 46
responses doing dribbling, shooting, or passing, with a student OTR rate for
game play of 1.0. Student OTR rate was somewhat low because Helena
employed only full court game with five against five so usually five of 15
students sat on the benches during game play. Student movement was not
measured during game play and student responses were not coded with
regard to congruence and appropriateness.

The students actually played 73.4% of the time Helena allocated to game play. While they played with regular sized teams, she needed transition time (11.9 %) to substitute students. In addition, Helena spent 14.7 % of game time providing knowledge and guiding student practice.

Of actual skill practice, students spent most time in lay up tasks (12:40 minutes) and least time in rebound practice (7:25 minutes). On the other hand, the target student's response rate was the highest in rebound practice (7.4) and the lowest in lay up tasks (4.0), although it still was much higher than in game play. The target student practiced dribbling one third of the practice time provided for dribbling.

Table 5

Student Engaged Time/Response for Different Skills in Basketball

Skill	Tasks #	Practice time	%	Activity time	%	Total OTR #	OTR rate #/min	Congruence %	Appropriate %
Dribbling	10	10:17	10.8	3:31	34.2			96.2	96.2
Lay up	5	12:40	13.3			51	4.0	45.1	45.1
Passing	6	8:58	9.4			61	6.8	95.1	80.3
Rebound	5	7:25	7.8			41	7.4	92.7	92.7
Shooting	3	8:28	8.8			37	4.4	86.5	86.5
Game play	4	47:39	49.9			46	1.0		
Total	33	95:27	100			251			
Mean							2.9	83.1	80.2

This study defined task congruence as the extent to which target student performance was congruent with task specifications. Therefore, task congruence differs from appropriate student response, which is based on the topography of the performance. An analysis of student congruence showed differences between student response for various skills in basketball. The target student's performance was congruent in 83.1% of all responses in the basketball unit. Students had the highest congruence in dribbling and passing tasks while the lowest congruence occurred in lay up tasks. A similar trend was identified for task appropriateness. The target student performance was most appropriate in dribbling tasks while the performance was least appropriate in lay up tasks.

Table 6 shows student responses in gymnastics. They spent most of their time in multi skill tasks, particularly in vault tasks and floor series tasks. Helena allocated least time for student practice in jumping, forward step, and forward roll tasks. The target student had most responses in floor series and vaults, while she had only three in forward step and four in balance tasks. The target student's OTR rate was extremely high in jumping tasks, while other tasks had response rates around three OTR per minute. However, the target student's OTR rate was about one per minute in several skills.

In gymnastics, target student performance was either both congruent and appropriate or non-congruent and inappropriate. The lowest congruence and appropriateness was in backward roll, while student performance in several skill were congruent and technically correct. In addition, some students modified tasks while they avoided to perform the stated task or decreased the intensity of practice. Student in these instances could be described as competent bystanders.

Table 7 shows students responses in the aerobics lessons. The two aerobics lessons could be divided into a work out part and a stretching part and Helena had 71:36 minutes of student work. She spent 56:42 minutes in an aerobic work out and 14:54 minutes in stretching during the two aerobics lessons. The target students were active 94.5% of the time allocated to stretching and 85.9% of the time allocated to work out. All tasks had loose boundaries because Helena mainly directed student work by teacher demonstration. Therefore, if the target student actively participated, student work was almost always both congruent and appropriate.

Table 6

Student Response for Different Skills in Gymnastics

Skill	Tasks #	Practice time	%	Total OTR #	OTR rate #/min	Congruence %	Appropriate %
Forward roll	5	1:25	1.8	5	3.5	100	100
Backward roll	5	5:43	7.3	7	1.2	29.0	29.0
Balance	4	4:11	5.4	4	1.0	100	100
Handstand	3	7:39	9.8	5	0.7	60.0	60.0
Floor series	3	23:21	30.0	29	1.2	75.9	75.9
Vaults	5	24:00	30.8	25	1.0	80.0	80.0
Jumps	9	1:00	1.3	21	21.0	81.0	81.0
Forward step	3	1:08	1.5	3	2.6	100	100
Beam	5	9:25	12.1	26	2.8	73.1	73.1
Total	42	77:52	100	125			
Mean					1.6	77.7	77.7

Table 7.

Student Response for Different Segments in Aerobics

	Numbers of tasks	Practice time	Average length	Activity time	% of practice time	Appropriate Congruence
Work out	156	56:42	0:22	48:43	85.9	99.7
Stretching	38	14:54	0:24	14:05	94.5	100
Total	194	71:36	0:22	68:48	87.7	

Accountability was defined for the purpose of this study as strategies teachers use to stipulate and sustain appropriate student practice and outcomes (Siedentop, 1991a). Table 8 reveals Helena's accountability structure. She both monitored and provided individual feedback for most tasks in basketball and gymnastics. In aerobics the most frequently employed accountability form was monitoring. However, in gymnastics she used only monitoring of student work in several tasks because they were so short that she did not have time to interact with students during the tasks. Field notes showed that she often prompted students about the correct performance after task presentation and during student practice. Helena used post task group feedback in 27.3% of the tasks in basketball, where she tried to remind students about the correct performance. Helena tried to provide skill related feedback individually to all students in tasks of longer duration. In monitoring student practice she moved actively around and tried to reach all students. She typically stayed on the periphery to be able to monitor most of the students.

Table 8.

Student Accountability

Sport	No monitoring	Monitor	Monitor Interaction	Post task feedback	Public recognition
Basketball	3.0 %	15.2 %	81.8 %	27.3 %	0 %
Gymnastics	11.9 %	28.6 %	59.5 %	7.1 %	2.4 %
Aerobics	7.7 %	79.4 %	12.9 %	0 %	0 %

Student views of the physical education classes

This section presents results for student data about physical education and particularly the basketball and gymnastics units. Information about student perceptions and experiences were collected through a sentence completion task and small group interviews.

Student post lesson experience was collected with a short survey after five lessons. Figure 10 shows that more students reported that the lesson was enjoyable than that they were successful during the lesson. However, student experiences of joy and success were related to each other. The first lesson in gymnastics was not considered enjoyable nor successful for most of the students.
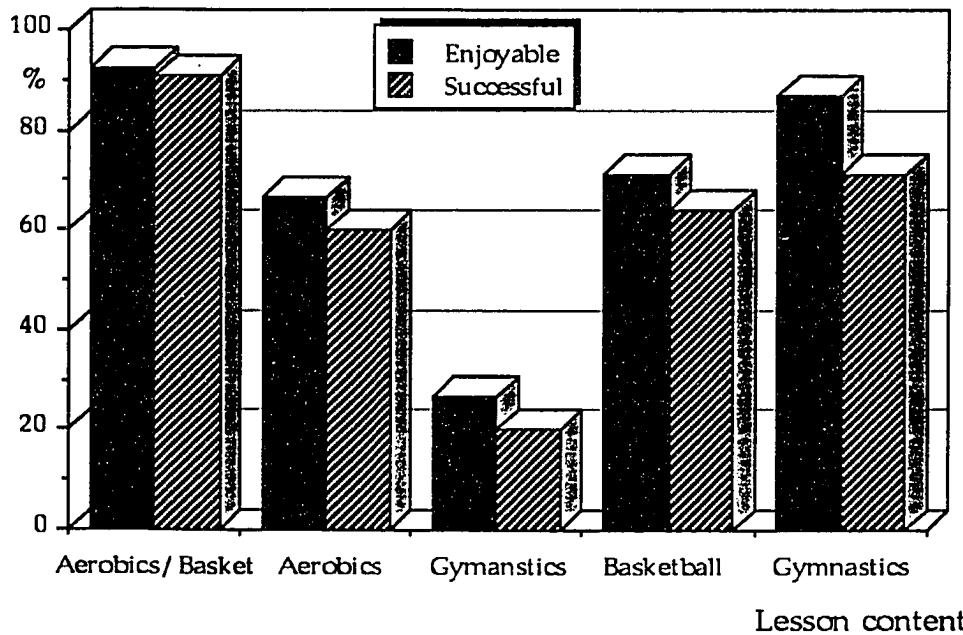
Figure 10. Percentage of students reporting the lesson was enjoyable or they were successful.

Students described eighth grade physical education as different from their elementary school physical education program because now physical education lessons were flexible, they had elective lessons, and the lessons were more demanding. Students appreciated flexibility because in elementary physical education they "had to do everything possible outdoor although it was really cold and we wanted to have PE in the gym". The eighth grade program had a wider variety of activities and fewer cooperative games. In addition, students also liked that they could select what to do during the elective lessons in the program.

The elective PE lesson. That is really a thing which is good variation, that one can oneself select what to do during the PE lesson. That makes the PE lesson an enjoyable lesson.

Other students felt physical education was more demanding than in elementary school while the emphasis was on developing physical fitness. Higher demands were also identified in skill practice because "in elementary [PE] we did it approximately, here it is more with the right style". Some students expressed higher demands with "[we] could have easier tasks" and "sometimes it [PE] is too difficult and too hard".

Helena's students believed that the goal for middle school physical education was to improve their fitness level and to have a break from all sitting at their desks during other lessons. This could maintain their wellness and at the same they could learn to appreciate physical activity. In addition, students described they ought to learn skills in different sports because then "if it is something one is interested in, one can do it during leisure time too". They believed school physical education should help students to become interested in sports. Finally, students described cooperation and "that we learn to be together" as other goals Helena had for her physical education program.

Students talked about what they had learned in physical education and stated they had learned to cooperate with other students. This was particularly true for the basketball unit which had taught them to pass and to play together. Furthermore, they felt their fitness levels had improved while skill learning was diffuse and difficult to notice and describe. One student said: "there is a whole lot in the subconsciousness because one improves all the time one does something". However, students reported they had learned reasons for different tasks and one student expressed:

> Here they [the teachers] explain why one does different movements. Not only that this ought to be done. After all, here one realizes why one does different things.

While the students described they had learned a lot, they characterized themselves as the dominant drawback to learning in physical education, both affecting their own learning and also for other students. One student said student motivation was critical:

> If one initially thinks that I don't like it (physical education] or don't like the teacher, I refuse, then it is no difference [with practice]. If one wants to or if one can do it then after all one can always do it better".

Student behavior affected others students negatively in two different ways. First, "if one starts to argue [with the teacher] and refuses to practice" then this will also destroy the lesson for all other students. Second, some students thought that if their friends laughed when they made a mistake then that would affect their performance.

Helena was the main resource in student learning and they said she helped to "do things I can't", "correct if I did wrong", and "succeed in more difficult things in physical education". They felt Helena helped all students, particularly low skilled students and those who wanted help. Students needed help to avoid mistakes and to learn. They noted that in addition to verbal feedback Helena demonstrated skills and how to correct perform them: "it helps a lot when Helena shows how we ought to do [it]" because "then one knows how one shall do it".

The students believed all students should receive praise and they reported Helena was successful in this. They noted that students who "have not been so good at a thing before and succeed" and "are already good and perform it really well" received even more praise. Helena praised students through verbal comments and sometimes one student demonstrated the skill for other students. They felt teacher praise motivated them to practice. One

student stated:

> One gets better self-confidence. Yes, I managed to do this and then if the teacher did not notice anything then perhaps I did not do so much at all. But if they [teachers] say it was good then perhaps one gets better self-confidence."

The students believed that learning was expected in Helena's physical education classes. They stated that a good student always ought to try hard. One student indicated about grading in her classes:

> all [students] can't be good at everything but after all one can get a good grade if one participates and tries and is willing to practice and does not argue [with the teacher].

Some students perceived that practicing sport in their leisure time was beneficial for their grade.

In the following student experience will be presented from the basketball unit respectively the gymnastics unit. The students believed Helena's goal for the basketball unit was to learn at least one ball game and thereby "learn to work as a team" which was showed when they passed the ball around that everyone was involved in the game. In addition, one student saw ball control as another goal for the unit. One student talked about learning outcomes during the unit: "after all one always improves when one plays", while others pointed out "the game improves", "teamwork", and "lay up" as learning outcomes. However, one student expressed she did not learn the lay up although Helena tried to teach it. Another student detailed her thoughts about learning:

> After all one perhaps improves every time without one then noticing it oneself but that things start to go better and better, one perhaps notices after a while.

Most students reported they enjoyed playing the game during the unit, while some liked skill practice and a few said they enjoyed everything. Students liked the game play particularly when they had equal teams. When this occurred, students had to try hard which they liked since "not even when one is in the team which wins in such a superior manner is it fun" and "one feels as if one would have cheated in a way". Students felt too much time should not be used to organize students into teams and they preferred that Helena make up the teams. Once equal teams were formed, the students indicated that they would like to play in these teams for a while although they needed to learn to play with everyone. Equal teams were more important than winning during the lessons. The students liked when everyone participated and had a chance to win because:

> one has then in a way tried hard to win and if one does not win then anyhow one knows that one did one's best.

A good team player was a student who tried her best all the time and supported other players in the team. Student criticism of the basketball unit was related to students' inability to spread out during game play and the lack of game strategy. In addition, some students wanted to learn more about tactics in game play.

In gymnastics, most students perceived the practice tasks as easy because "we have done them before". Some of the multi skill tasks with loose boundaries were not challenging because:

> then when one could do what one wanted to then that one was in a way not dependent on doing anything.

Similar to basketball, skills learned in gymnastics were difficult for the students to define in the group interviews although they expressed they had

practiced and therefore could expect to improve. In sentence completion, however, most students described a particular skill they had learned in gymnastics. One student attended to not learning skills and the absence of focus in skill practice:

> One remember those things to the extent that one remembers them next year when we practice them again.

She really wanted to learn and improve because "after all it is always fun to learn something new". However, another student had lower demands and liked tasks "which one can do without making an effort".

When students were asked to describe what they enjoyed in gymnastics, some mentioned they liked everything, while others were more specific and reported vaults, beam and the group floor series. One student liked to "chat with friends". On the other hand, some students did not enjoy anything at all while others disliked difficult tasks, particularly forward and backward rolls because students started to feel dizzy, hurt their neck, and got a headache for the rest of the lesson. These results showed that some students liked while others disliked gymnastics. Likewise, while several students wanted to learn more about gymnastics, several other did not like to have gymnastics at all in middle school physical education.

A school subject is associated with the teacher and a complete picture of student experience ought to include their perceptions of the teacher. These students saw Helena as a positive physical education teacher and she was characterized as "good", "fun", "nice" and "kind". Students indicated they get on well with her and enjoyed her lessons while she "sort of gets the feeling that one wants to try ". Moreover, the students saw Helena as impartial in how she dealt with different students and had no favorites.

Although most student stated that Helena did not force them to do things and this was important to them, a few students felt they had to do things they did not like in physical education. Furthermore, they felt her management strategy was strict and firm. The students said that her interactions with students showed she understood students and they felt she treated them well.

Some students indicated that Helena too often used high skilled students in demonstrations when she could use "someone who is not so very good [a high skilled student]". Helena had a strong background in rhythmic gymnastics and some students stated this came through too much in her program; "dance too much" and "not only dance and aerobic all the time". One student said: "it is not so fun for those who can't [do it]'. The students knew Helena did not like it when they "perhaps complain a little" and "do not make an effort to learn".

Summary of the ecology of Helena's learning environment

Her comments in the interviews were often related to sport specifics skill and tasks, which were the topic for the lesson. Sometimes she justified her content selection. She also talked about a need to see what students could do and how different tasks worked before she finalized the lesson plan. Furthermore, she was concerned about student activity and success before a few lessons.

Order in the instructional ecology was held together by Helena, who through a clear strategy established and directed student work in the class. However, she was sensitive to student activity and adjusted her plans in order to maintain order and a positive climate. Instruction emphasized skill learning, which also was noticed in how Helena presented instructional tasks. A single skill was practiced through a sequence of informing, refining, and

extending tasks. Each task sequence included a general description of practice conditions and teacher demonstration of the particular skill with her focus on technical aspects. The task sequence was an internal unit for her, while she did not specify all aspects of student work in each individual task. Helena recognized students previous knowledge and skills in task presentation, when she frequently implemented a questioning format and asked for their input. However, her task presentation reflected differences in instructional activities. In basketball and gymnastics, she underlined student skill learning, while aerobics focused on student work effort and intensity.

Helena was effective in shaping the boundaries for students' work system. She provided students with rather high practice time and minimized student transition and waiting. During the practice time in basketball, gymnastics, and aerobics, students frequently had high OTR rates or activity rates. In gymnastics, however, students worked in multi skill tasks, where they independently practiced complex tasks under loose boundaries which resulted in low opportunities to respond. Typically students stayed on stated tasks and task modifications occurred when students were unable to perform the particular skill. Helena held students accountable by monitoring and continuously interacting with students. In addition to teacher praise, she helped students through skill related feedback. Moreover, during student practice she regularly prompted them. In basketball, she used post task group feedback to pinpoint critical elements in practice. Helena was aware of what happened in her gym and actively supervised student work.

Helena's reactions after the lessons were the dominantly positive and she was satisfied with the lessons. In the post-lesson interviews, Helena talked most frequently about student response and the quality of their practice. She

also commented on content development and tasks selection in particular teaching situations.

Students typically liked physical education. They believed the goal was to find an interest in physical activity, to learn skills for future involvement, and to learn to cooperate. Physical education lessons were a needed break from classroom work and they stated they learned to work together with other students. Skill learning was difficult for the students to identify, although they felt that they improved through active participation. In addition, they knew more about the sports they had covered. However, some students felt they mostly reviewed skills they already mastered. Students liked to play basketball, thus some students preferred to have more instruction about strategy and tactics in the game. Students described Helena as a positive physical education teacher and she had a central role in facilitating students skill learning.

Helena's Espoused Theory Related to the Class Ecology

This section presents results for research question three; to what extent is the teacher's espoused theory of action (ETA) evident in the ecology of the learning environment. Teacher's ETA were used as the starting point to find levels of congruence and discrepancies within the ecology of the learning environment. Qualitative and quantitative observation data and student experience were employed to contrast Helena's ETA with her enacted teaching practices.

Helena's educational values and goals, showed she believed students should be successful learners in physical education. She wanted everyone to dare to do new skills and observation revealed that in gymnastics all students were at least on up on the high beam. Although Helena spotted all the time,

several students stated they were afraid to practice on the high beam. In addition, she wanted students to learn and data showed the students at least knew that they were expected to learn in physical education. Some students felt learning was difficult to describe, while others said they had not learned anything. Finally, she wanted students to be successful in her classes. Data about student practice demonstrated student responses were in most skills technically correct, though some students stated they practiced easy skills which were a review of previously learned skills. On the other hand, students' report on success after the lessons showed that about one fourth of the students were not successful during the lesson.

Professionalism was another element in Helena's educational values and beliefs. She believed teachers should always try hard and not give up. She demonstrated this when after an unsuccessful lesson she came up with another idea, changed format and succeeded in the following gymnastics lesson. Second, she stated teacher self reflection was critical for teachers, which was observed when she showed in post lesson interviews that she critically analyzed the consequences of her own and student behavior. Furthermore, she voluntarily wrote a short journal during the study, in which she reflected on her teaching performance. Finally, Helena believed teachers should be enthusiastic and her students reported positive characteristics about her while she could create a stimulating learning environment. Moreover, she had frequent interactions with her students where she was supportive to all students.

Helena wanted to be fair. Some students reported she was fair and treated every student similarly, whereas other students felt she had favorites, particularly those she used in student demonstrations. Given these students'

experiences, Helena once talked about avoiding high skilled students in demonstrations while she in another interview stated that she used a high skilled student in order to provide recognition and some challenge for these students. Helena believed differences should be accepted, which she showed by how she interacted with all students. Particularly her concern about low skilled students demonstrated she recognized differences and cared about every student.

She had a realistic approach for teaching which was expressed several ways. When she emphasized skill practice and learning while teaching gymnastics, she was not successful. Then she changed her strategy for the next lesson by setting lower expectation on skill learning and higher on student activity.

The primary goal for Helena was student persisting interest in physical activity. Students reported a persisting interest as a goal for their physical education program. In addition, Helena devoted much time to game play in basketball because students liked it and Helena wanted to see happy students.

Helena's goal about student skill development in physical education was observed on several occasions. She focused on a few skills in each lesson and had an obvious progression in skill practice with a lot of refining tasks. Also during game play, she often interrupted the game to provide further information and clarify facts.

Development of physical fitness was another goal Helena had for her program although she sometimes hesitated and believed that time limitations made the goal difficult to reach. An analysis of student responses showed that she allocated about 60% of lesson time to student practice and particularly during aerobic lessons they had high activity levels. However,

students had low response rates in game play, dribbling tasks, and in several of the tasks in gymnastics.

Finally, while Helena described social skills as a goal in physical education, she never used a task where the dominant focus was to develop student social skills. Nevertheless, she used instructional formats in gymnastics where students had to cooperate and in basketball she allowed teams to set up their own strategy. In addition, students stated cooperation was a goal in physical education.

Helena's behavior was congruent with her ETA about management and organization. The students knew the basic rules and regulations for physical education lessons because Helena never talked about these to the students during the observations in the study. Correspondingly, Helena structured practice at different stations in gymnastics lesson that she was at a demanding station and students could practice review tasks at other stations alone.

According to Helena, students should be active in physical education and the teacher should emphasize short task presentations and transitions. Helena had about 40% of the lesson in management, transitions, and instruction while the rest was provided for student practice. Although students were allocated time, in some tasks they had low activity and response rate, especially multi skill tasks in gymnastics and dribbling in basketball. In addition, while they played five against five on full court, some students always had to sit and wait on the bench during game play. Helena wanted students to cooperate particularly through appropriate verbal interactions. She used some tasks both in basketball and gymnastics where students were expected to cooperate and help each other in small groups or in pairs. Although student cognitive involvement was not the main focus in

student behavior, she wanted her students to learn facts about human body in physical activity. The observations revealed that she provided background information for the practice both through her oral presentation and by asking students questions. Moreover, students valued when Helena presented knowledge about the tasks.

Task presentation was a central element in her teaching strategies and principles and included teacher demonstration, task development, refining tasks, and teacher feedback. She demonstrated the skill once in each task sequence and students appreciated it because then they knew what to do. The observational data revealed that Helena gradually developed student skill practice as she stated in her ETA. She believed refining tasks were essential in skill learning and these were frequently observed in her lessons. Helena believed corrective teacher feedback was important. She often provided individual skill feedback to students about their performance, more in gymnastics and less in aerobics. Furthermore, Helena repeatedly tried to guide student practice through prompts.

Helena described her instructional style as authoritarian and teacher directed although she wanted to create a friendly climate. Her behavior was congruent with her theories of management and control. She did not have any disciplinary problems during the observational phase, although students reported she created a climate where students liked to practice.

According to Helena's ETA, she evaluated student skill, fitness, and active participation by fitness tests and skill observations. She did not assess anything during this study while the students indicated that being a nice student, who tried hard would be reinforced with a good grade.

Case Conclusion

Helena's espoused theory of action was internally consistent and mostly congruent with her actions in the gym. Her theory was personal and affected by previous experiences. Helena's background in rhythmic gymnastics and her teacher preparation with focus on skill learning was reflected in her espoused theory. In addition, her understanding of current research in teaching physical education mediated together with her responsibilities as a cooperating teachers another dimension in her espoused theory of action. Content knowledge and personal skills were part of her theory and affected her confidence in teaching. Helena had no personal experiences of ball games, particularly basketball and she perceived that basketball was difficult and demanding to teach. On the other hand, she had never before taught step aerobics and she felt it was not difficult to teach it, while she was familiar with teaching regular aerobics and dance.

Helena believed physical education should affect student interest in physical activity and this could be done through an emphasis on skill learning, which she also accomplished. She wanted student work to be successful and that they actively participated with individual students feeling comfortable and interested in the activities. To achieve this relaxed climate, Helena adjusted her expectation to a realistic level. She similarly lowered the risk for students by not implementing any formal accountability for students learning the skills.

Game play had a central role in her basketball unit, while she devoted much time to this part. Likewise, she expressed a well functioning game was the main goal which she believed she could achieve by student working on several basic skills in basketball. The game situation consisted of scrimmage,

as she frequently stopped the game to instruct about rules and strategies. In spite of this, and remembering the low OTR rates in game play and several students sitting on the bench, it seems that a well functioning game was not accomplished. Several scholars suggested giving students more responsibilities and implementing small games as a means to develop student game play abilities.

Case #2: Jussi

Jussi has taught for 22 years and is at his third school. After he graduated, he was one year at his first school and then eight years at a second school and he has been at his present school since 1981. During these years he has taught middle and high school physical education and health, which he teaches currently. The school has 350 students and the gym size is 10 x 24 m. A normal working day is from eight to three and in addition to his teaching responsibilities he had recess and lunch duties. He felt these responsibilities did not belong to him because he had to supervise students when they traveled to practice facilities away from the school building.

Jussi's professional preparation provided him with valuable knowledge and skills which he later has complimented with in-service classes and workshops. He stated:

> It [teacher education] has really been enough for this school level. From there came the stock which one can somehow use in teaching. In addition there are these summer courses and then I have been eager to catch up everything new happening there. (3In10)

The three-year teacher education program had a strong practical focus, where students learned skills in all sports. However, as a beginning teacher he had to deal with many practical problems and he felt that through his humorous approach he was able to solve most situations.

Jussi was already skilled in gymnastics when he started his teacher education program, and though he stated the instruction in gymnastics was valuable anyway. In basketball, the instructor was the previous coach of the Finnish Olympic basketball team and the focus was to further improve their already good basketball skills. Some national level basketball players belonged to his highly skilled group and Jussi stated his understanding and skills:

"changed completely to a different game" (2In4). Nevertheless, he indicated that he had to find out himself how to deal with beginners and low skilled students.

During summers vacation Jussi has participated in in-service education, which mostly has been practical workshops, although they were up to five days in length. While he carefully selected where to go, he felt they had been worthwhile and he always got new ideas. Modern and unfamiliar sports forced teachers to search for knowledge in order to be able to teach these to their students and Jussi did not have e.g. badminton at all in his teacher preparation. In addition to these practical courses, Jussi took a theoretical class in sport medicine at the local university last summer.

Jussi participated actively in gymnastics during middle and high school years and in youth sport clubs. In addition, he coached gymnastics for some years in a local youth sport club. Through his experiences he has tried to break down and simplify what and how to teach gymnastics. This was one reason why he felt confident to teach gymnastics. He also liked to teach it. Similarly, he indicated that his teacher preparation and the experiences from coaching both school and club basketball teams made him feel comfortable when teaching basketball. However, because middle school students were heterogeneous he felt that teaching basketball was demanding and results came slowly.

Jussi described the observed class as a typical group in terms of both skill and motivation. It was a new group this fall, because the students came from three different classes and last year they had been in different physical education groups. There were 18 students in the group, which was less than the average-sized group of 24 students. Jussi liked smaller groups because

students can be active and instruction is less demanding. He can't affect the group size in physical education, since classes assigned by the principal, based on students' preferences in foreign languages.

He co-taught the dance unit with the female teacher and they have had some other minor things together when boys and girls had been in the same instructional group. However, Jussi stated:

> some lessons could be coeducational even but I would really prefer to keep boys still separated at that age. (1In11)

Prior to the start of the school year, the physical education teachers planned how they were to use the outdoor fields and courts which they shared. Jussi determined which sports they should have during the fall semester and he said the students could decide about the order of these sports. Nevertheless, swimming and dance lessons were predetermined with other teachers and students could then plan the order of other sports and what to do during the two elective lessons. In addition, the students could choose between different fitness centers when they had elective lessons.

Besides planning the fall semester, Jussi talked about safety issues which were related to facilities outside the school area. He detailed for the students how to dress appropriately and procedures after a physical education class. Jussi also emphasized the importance of active participation at their own level and about the fitness test in order to stimulate conditioning.

Jussi's Espoused Theory of Action.

Formal interviews, informal interviews, and the values questionnaire were employed to identify Jussi's espoused theory of action. His theory was organized into three themes; educational values and beliefs, goals in physical education, and teaching strategies and principles.

Educational values and beliefs.

Jussi's educational values and beliefs were grouped in four categories; life philosophy, empathy, nurturance, and the teaching process.

Jussi indicated his life philosophy included a simple life style, being fair to others, separation of work and private affairs, and acceptance of the reality. He did not have to be modern, rather he preferred a simple life style with focus on back to the basics: "everything doesn't have to be up to date" (1In5).

In addition, he believed in a good and fair citizen, who respected others. Third, he did not want his private life to affect him while he taught and said: "I believe I'm myself there [teaching physical education]" (1In6).

Finally, Jussi had accepted his teaching environment because he had the basic equipment. His program for the semester would not change in another context because:

> after all you can't make demands when you come to a school which has a particular gym and equipment, so you can't change very much. (1In6)

Although he had accepted the reality, he stated that it was difficult to teach basketball when he had to share the gym with the female teacher. In addition, if he received funding he would get new equipment for gymnastics, which would promote teaching gymnastics.

The second category in Jussi's educational values and beliefs was his thoughts about empathy. He believed students ought not to be afraid of their teacher, rather they should trust him which required that the teacher had good knowledge about each individual student because:

> the students relatively soon notice a person who cares about and appreciates these youngsters. Then one can go on. (3In13)

Although Jussi believed the teacher should have a warm relationship with students and teach without strong authority he indicated no one should pass without effort.
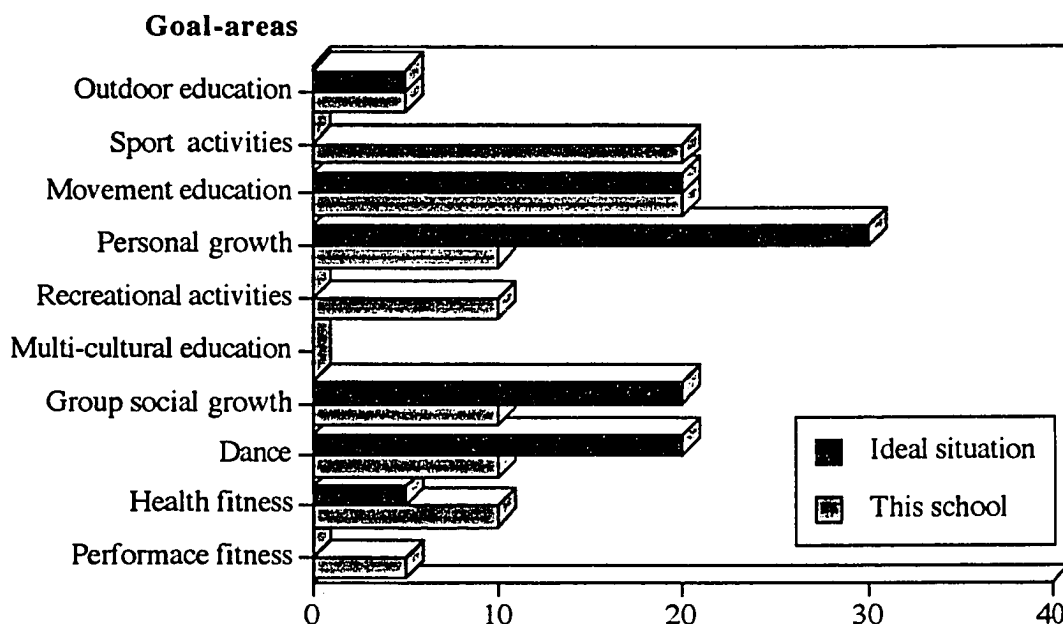
Goal-areas

Figure 11. Jussi's attitudes and values for the goal areas.

Teacher nurturing students was the third element in his educational values and beliefs. Jussi saw the human being as a whole where physical education was one subject that, in addition to nurturing students also took care of the physical and motor development. He felt physical education provided many situations where he could nurture his students, work on student verbal interactions and how students accepted other persons and these were areas which he also attended to. He said: "I try to nurture according to the situation" (1In9). Figures 11 and 12 show that Jussi valued student affective, self-esteem, and social behavior learning dimensions,

particularly in an ideal situation. Jussi believed physical education could have a critical role for adolescents in finding their way in our society.

Learning dimension
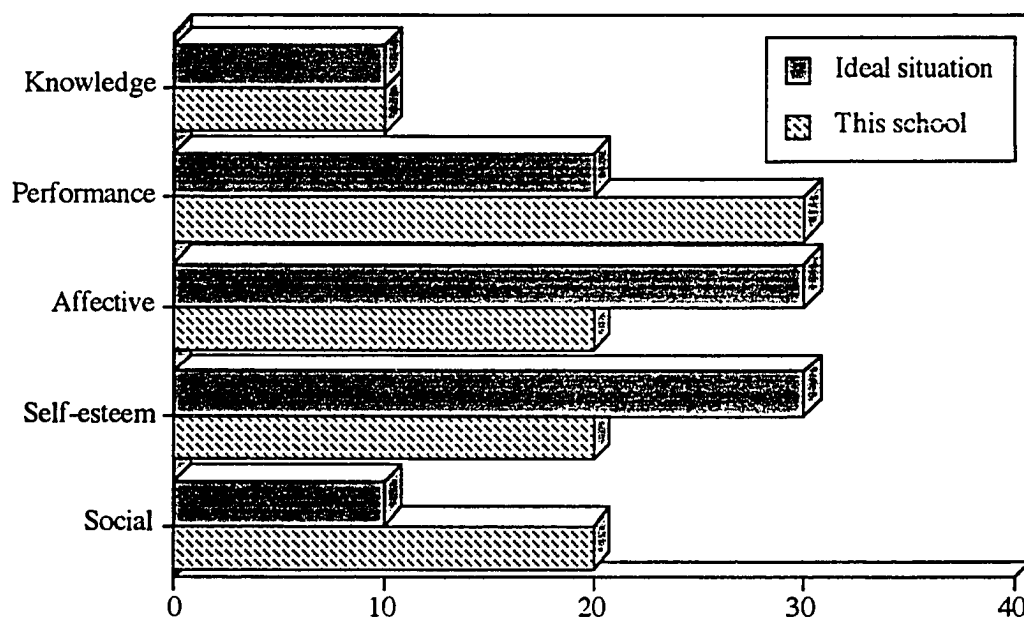
Figure 12. Jussi's attitudes and values for the learning dimensions.

Jussi viewed the teaching process as dynamic while teachers can work in different ways. Jussi expressed teachers need to be sensitive to what happens in the class because:

> the instructional situation is like a living process, where one can't go to lessons and imagine that this will be exactly the same as any other lesson. (3In8)

In this experience was helpful:

> If something does not work, [then] one ought to have tricks in stock so that one can change the stuff there, just like that. (2In1)

Jussi stated that through his experience he had a solution for different

situations and this made him feel comfortable. However, his teaching and

lessons always fluctuated and he always tried to come up with something

new to avoid identical lessons. Reflecting on his teaching was natural for

Jussi.

In addition, Jussi described that teachers could be effective in different

ways. The teachers own life perspective is the starting point and he believed

teachers find their own style through experience. Nevertheless, Jussi believed

that he had not changed a lot:

> It could be that I have been like this all the time ... yet I have probably
> found myself rather fast. (1In8)

Goals in physical education.

Jussi had two major goals for his physical education program; a persisting

interest in physical activity and skill learning.

Jussi's overall goals for the physical education program was to develop a

persisting life long interest in physical activities and students:

> should perhaps find a sport which they could become interested in and
> which they could perhaps go in for all their life. (1In3)

In addition, he described that students should understand the meaning and

benefits of physical activity for future settings. In this Jussi saw two

perspectives; a short term view which meant student would be active and

involved in after school sports and a long term perspective which meant

being physically active after they finished middle or high school and moved

into the work force. He believed school physical education should facilitate

access to activities and that students: "could easily join the world of physical

activities in the future" (3In9). Although it was difficult for him to determine

how successful the program was and also the effect of other institutions in the society, he saw physical activity in general as critical:

> one experiences physical activity as important to people in many ways, in health, in their mind, in social activities, as a hobby and even so that as future fathers and mothers these youngsters again carry the physical culture forward and if they receive good readiness through the teacher, then the positive attitude could increase all the time. (3In11)

Jussi's second goal for physical education was skill learning, to the extent that that he believed skills were more important than other goals, because he stated one can learn physical education and it can be taught. Figure 12 shows Jussi valued skill learning as the most important learning dimension at his school. According to Jussi teachers ought not to bring the ball and start the game. Instead they should focus on teaching. He recognized that students wanted activities and games but if skill learning was expected, students had to practice the skills. Jussi gradually expected from grade seven to grade nine more and more from his students. Some students participated in after school sports and were highly skilled in one sport. However, while Jussi indicated these students had nothing to learn in their favorite sport in physical education, they could have weak sports and then ought to have an all-round skill learning in other sports.

Jussi saw skill learning in basketball as when the game became: "smooth and sensible and looking somewhat like basketball" (1In6) and this was when the students could :

> dribble, change hands, dribble and pass an opponent, passing game, offense, rebounds. (1In6)

He pointed out that he tried to develop a functioning game through various practice tasks and a mix of drills. In gymnastics, he considered skill learning as

developing body control because:

> There are no similar sports which in that way develop the body, senses, and body control. Other sports are then a little bit different. And after all, gymnastics serves many other sports particularly as regards body control and then one can somehow overlearn some aspects there [and] then one can benefit in other sports. (2In3)

Learning to perform cartwheel was a particular goal that all students ought to perform so they can realized how it is to be upside down. Gymnastics also provided a chance for Jussi to deal with boldness, to have tasks where students had to overcome their fear.

Similar to learning particular skills in different sports, Jussi indicated that students should understand what they were doing: "in physical education one has to ponder and to think, it is not only shooting and dribbling" (3L2). He stated: "When learning physical education one ought to involve the mind" (1In6), though he felt he did not always succeed in it.

Skill learning was a difficult goal for Jussi to achieve, because students had physical education only once a week, for 90 minutes. He felt student skill learning was a slow process, which: "occurs all the time, doesn't it?" (3In8). In addition, Jussi perceived the absence of certain sports in elementary physical education magnified problems in skill teaching and learning in middle school. Jussi also pointed out that although students had practiced sports in elementary physical education, they did not reach goals for skill learning.

Jussi had two major goals for physical education, lifetime interest and learning readiness and he talked about hardly any other goals. In gymnastics he mentioned boldness and in basketball teamwork and fitness. He said about fitness as a goal in physical education:

> Of course I wish that when we have had these [fitness] tests that they really improve. And if they have had a weak area that they would really try to

work on it. In reality, after all that doesn't happen very often. Rather few [students] become interested in developing themselves that the results are clearly noticed because those results improve in adolescence anyway. (1In4)

Teaching strategies and principles.

The third theme in Jussi's theory of action was his teaching strategies and principles. These were divided into instructional climate, dynamic instruction, student practice, and evaluation.

Jussi believed the instructional climate should be motivating, safe, and based on students' need. He indicated teachers' should have a motivating and supportive attitude to their students and thereby create conditions for successful practice and positive experiences. Figure 13 shows Jussi valued a happy class that is enthused and where students are successful. Jussi felt student learning improved when the teacher can "get the students with [him], can pull from the right strings" (2In5).

Secondly, Jussi wanted to create a safe environment for student practice, a situation where no accidents occur. He saw station teaching as one opportunity where students can get injured, because he can't supervise all practice. Students often fooled around and did not think about the consequences of their behavior which Jussi commented:

> The child does not think if I do that trick or this then something can happen. Sometimes they want to play while practicing handstand and don't catch their partner, but rather let the partner fall. Well, that is also something boys do. (3In7)

In addition, he pointed out that some of the skill practice was in itself somewhat dangerous, particularly in gymnastics, and he was concerned about how to organize and supervise practice of these skills.
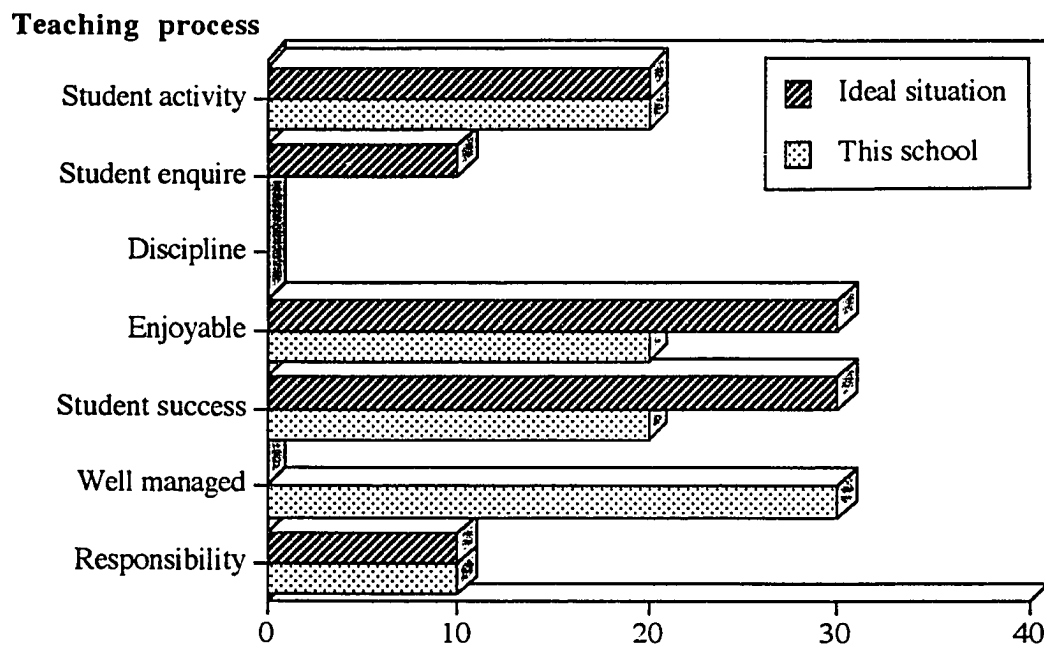
Teaching process

Figure 13. Jussi's attitudes and values for the teaching process.

Finally, students' needs were central to his instruction, though this had

not been true earlier in his career:

early on [my] teaching was like sport competitions. In everything we imitated these top athletes to a great extent. At best it perhaps is described just by old apparatus, or Olympic apparatus and equipments where one puts children. The conflict was large and I did notice it in the practical work. Then [I] had to change the system. (1In5)

The importance of competition had decreased and instead student practice

and outcomes have more often guided Jussi's instruction. He stated:

The competitiveness has decreased all the time and one starts from student needs, an ordinary student's needs, and not from the fact that, they are already good students. And that has been a good feature that one does not any more tremendously measure with clocks and competition rules. It has also changed. One can also apply one's own rules in games. (1In5)

Although Jussi used competition, he emphasized that it should serve instruction and not just separate winners and losers.

In addition, he wanted to include many activities and sports because students have their preferences and everyone should able be to find something they like. The heterogeneity of student skill levels made it difficult for Jussi to adjust instruction for individual students' needs:

> It is rather difficult to find some trick or gimmick for everyone that the instruction would start to go smoothly. There it is really complicated when those motor skills are so diverse. (3In10)

Students' experiences of physical education were revealed in their responses and feedback, which Jussi tried to use in evaluating his success in teaching. In the locker rooms, students commented the lessons and Jussi said: "They do give feedback to a great extent, these kids" (3In12).

Although Jussi stated he did not force students to practice and participate and that he wanted to create an instructional climate based on students' needs, he presented difficult and demanding tasks. As a beginning teacher he had wanted to be a popular and fun teacher, but now that was not important and he felt students should experience some challenge and stress in physical education classes.

The second category in Jussi's teaching strategies and principles was dynamic instruction, which included task presentation, teacher monitoring, spotting, and feedback. He explained about task presentation that he first wanted to provide a general picture about the tasks through both verbal information and task demonstration. He felt that teachers' appropriate demonstrations were critical, an aspect he indicated he had learned in his teacher education program. The students should see the task because:

when one sees such a performance which is almost correct, if from that there then remains a recollection. (3In5)

In addition, Jussi wanted to add critical elements to task presentation. He believed:

then one can emphasize it with some words, left side and left hand etc. That one can simplify somewhat the central issues from which they then start to work. (3In5)

Monitoring of student work was important for Jussi, though he had no tests to assess student learning. He said "One can just see it during the lesson" (1In9). If students were divided into groups based on their skill level, Jussi monitored the low skilled group more than the high skilled group. When using a station teaching format, he monitored the group with the most critical learning task.

To Jussi, spotting was another way of improving student learning in gymnastics:

If spotting is good [then] they learn the movement patterns and so but if not, then they always get the worse model. Here one now could tip over from hands to feet that it could help that they start to like it. (5L2)

He would like his students to spot each other in gymnastics, although he was not successful in it.

That student spotting is really a problem. They don't know the critical elements for the movement and can't help at the right moment and it is rather difficult. (4L3)

High school students were more skilled in spotting because they understood more about the task, although he felt he did not have any absolute solutions in how to deal with the problem.

Another way of facilitating student learning was for Jussi to provide feedback, which could be individual feedback, group feedback, or group

feedback including a refining task. He believed immediate feedback helped students learn skills in physical education:

> that one can achieve the proper performance and that learning would happen and then feedback immediately after the performance. (3In3)

Jussi saw four different ways of providing feedback to students. First, he could say the student's name and a general supportive comments after an appropriate performance. Second, he could guide the student and say: "at that moment you could perhaps have gained from doing a lay up" (1In8). Third, he expressed he could give critical feedback, while he corrected student performance. Finally, he was concerned about discipline and safety and he stated "of course one has to intervene in violence" (1In8).

In addition to individual feedback, Jussi talked about post task group feedback, where in gymnastics he particularly wanted to facilitate further learning and support students who improved. He believed students should think about and feel what they did. In post task group feedback Jussi also wanted to identify students who learned and that:

> they have got it, then a pleasant feeling remains from it and after all everyone somehow improved a little at their own level. Reinforces that it has worked. (3In4)

The second way of providing group feedback was to use refining tasks. Jussi wanted to correct the whole group without pinpointing a single student. This was a way to correct initial problems and thereby help students to be successful learners.

The third category in Jussi's teaching strategies and principles was theories about student practice. This element described student activity, guided practice, and individualization. Jussi believed student should be active during physical education lessons and he was willing to lower skill demands in favor

of increased student activity. In addition, figure 13 shows Jussi valued a

smooth managed class that uses time efficiently for student activity. He felt

student activity could be increased through applied rules, developing skill

sequences, and providing tasks according to students' levels. Maintaining

student activity was a way of avoiding inappropriate student behavior and he

said:

> If they have to be aside watching, there will become restlessness and
> uneasy situations and one has to tell them off and they can wag their
> tongue. That is the starting point that they have something to do and
> activities. (3In5)

In student practice, Jussi believed everyone should learn the skills, because

skills were not demanding in physical education classes. If he saw wrong

performance then the student had to do it again and Jussi expected the

students to improve and learn:

> the goal is that the student learns the performance and that it becomes so
> automatic that he [the student] can use it. (3In3)

He stated that if the student did not learn after some attempts, he stopped to

focus on this particular student, because otherwise:

> the student ends up in an unpleasant situation compared to the others.
> Then one can take it [teach the student] for example after the lesson or
> sometime else. (3In3)

In addition, he felt that the students already knew when they couldn't do

tasks.

Secondly, Jussi described guided practice as students imagining movement

patterns and doing basketball tasks without the ball. He believed guided

practice: "would help [them] somehow [to reach] the proper performance"

(3In1). He had learned to employ guided practice from his teacher education

program and he believed research had shown the effectiveness of it.

Finally, Jussi wanted to individualize student practice while then all students had a chance to improve. In addition, he had practical reasons for individualization, because:

> of course if one has one half of the gym, then it is more pleasant for everyone when there are not 20 or 25 [students]. And these are factors controlled by reality. (3In5)

By splitting the class, he had one half of the class practicing under his direction in the gym and the other half in the fitness room or playing table tennis. He did not specify the tasks for the students when they were out of the gym and the students were responsible for their own activity.

Jussi frequently divided students into groups based on their skill levels because "when they are in their own groups, it [teaching] goes better" (3L3). However, the skill based grouping was not a rule, rather Jussi acknowledge flexibility:

> it is not definite, that one always does like this, but there can be flexibility and [teaching] must live. That sometimes one can take the low skilled players together with the high skilled. Then it can create a feeling, I always change like that sometimes. (3L3)

Jussi perceived that skilled based grouping increased student equity because everyone could practice at their own level. Furthermore, he believed most students liked to practice and play with peers of the same skill level.

Evaluation was the last category in Jussi's espoused theory. He stated he could live without number grades in middle school physical education. He said: " Verbal evaluation could be just fine" (2In4). To be physically active is personal and he indicated that although a student actively participated in physical education classes they were not skilled enough to receive a good grade. Jussi graded separately each sport they covered, which then was a part

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of the final grade in physical education. In middle school, he described that physical fitness and student interest were most important in determining student grade. Four was a failing grade, and he indicated that students seldom received as low as a five or six. Contrary, to get a ten, a top grade, students had to be skilled in all sports, not just in one particular sport. In addition, he stated that a top grade required fair play and cooperation. He said students:

> should have really good behavior and attitude and know how to care about others. [they] are not only selfish and call others names and then you can't get a ten although you have the prerequisites. (2In5)

Jussi perceived that student hard work was not reinforced, particularly for students who were overweight. Although the new grading directives emphasized an individualized grading approach, he believed teachers still compared students to each other when grading.

Jussi used national fitness tests because he wanted students to know their fitness level compared to peers at the same age. According to Jussi, the test should have a motivational role:

> if flexibility is poor then if they wake up there and direct attention to that, then according to me that would be the function of the test. (2In4)

Summary of Jussi's espoused theory of action

Jussi believed physical education had an central role in educating the whole child and that he should nurture students in addition to teaching physical education. This meant to really teach students, while one of his main goal was to teach student for skill learning. He believed student skill improvement was a prerequisite for his second major goal, a persisting life-long interest in physical activity. He was concerned about skill learning for each individual student, which also included student thinking and broadening their knowledge about particular sports. Student activity and

success in practice was important to Jussi and his concern about student learning affected his beliefs about instruction in physical education. He wanted to hold students accountable for learning through teacher monitoring and feedback. His instructional goals were facilitated through a strong content background. Although he accepted the reality of his school context, he continuously reflected on his teaching to improve instruction. In addition, his experience helped him in problematic situations.

The Ecology of Jussi's Learning Environment

Data about the ecology of the teacher's learning environment are presented in three parts. The subresearch questions guide data presentation. Part one presents results based on an analysis of individual lessons. The second part describes results from the task system analysis of two short units, basketball and gymnastics. Finally, student experiences of the physical education program are presented in part three.

Defining individual lessons

Classroom work in two lessons is outlined in detail and enriched with teachers' views on goals and reactions after the lessons and with student comments about the lessons. One basketball and one gymnastics lessons are described.

The second lesson of three basketball lessons was a typical basketball lesson for Jussi. He had 15 students and half of the gym, which gave him a space of 10 x 12 meters. His goal was for the students to work on several different skills, which included ballhandling, shooting, lay up, give and go, and passing. Given the small court, Jussi explained students typically did not move during game play, while he emphasized the student should: "start to move after the pass and try to find an open place" (2L1). Furthermore, he

wanted to form teams based on student skill levels.

The lesson lasted 92:48 minutes, of which 17:44 minutes (19.1 %) in instruction, 16:46 minutes (18.1 %) in transitions, and 58:18 minutes (62.8 %) in students practice. About one third of the lesson was game play, and during this time Jussi spent 2:33 minutes (8.3 %) in transitions, 7:19 minutes (23.8 %) in instruction, and 20:55 (67.4 %) in students actively playing. Given the small court, half of the student group was in unsupervised conditioning work in the fitness room or played table tennis. The fitness room was small, 5 x 7 meters and had one station for bench press, leg press, high bars, and a few dumbbells.

Figure 14 shows the instructional tasks for the lesson and the time spent in each task. Jussi started the lesson with a description of the content for the lesson and the students sat at one wall. He presented two short shootings tasks in a guided practice format where students practiced shooting sitting on the floor and without the ball. Jussi continued with teacher directed dribbling and ballhandling drills, where he employed extending, refining, and routine tasks and every student had their own basketball. He continued with short guided practice task where students reviewed and refined shooting skill before shooting practice in three groups at three baskets.

Then he divided the students into three groups and three stations, where they practiced passing and dribbling. He supervised actively and adjusted the tasks in each station according to the students. Students did not spend equally long time at each station. Prior to additional skill practice in skill based groups, they could choose if they wanted to play and practice in the high or low skilled group. During this practice the observer followed a student from the high skilled group. First, this group worked on passing and lay up in three

extended tasks. Second, the high skilled students practiced rebounding in five tasks. Then they went to the fitness room and table tennis, which was followed by basketball game play and this sequence was repeated once again. Initially, he described positions and strategies before they started to play and he actively guided student performance during game play.

Jussi described all tasks verbally and he demonstrated the skill at least once during each skill sequence. In addition, student demonstrations were used in four tasks to present organizational features for student practice. He described the task mainly in general terms, although he focused on critical elements and organization in a few tasks. Field notes revealed he frequently used prompts to guide student practice after the initial task presentation. Practice conditions for some tasks had been routinized so that Jussi did not need to attend to these, while for other tasks be explained the conditions in general terms. Teacher directed whole group practice which consisted of shorts tasks with Jussi monitoring practice. He provided individual feedback in some tasks.

Figure 15 shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target students had nine OTRs during guided practice of shooting and all responses were congruent while about half of them were technically correct. Jussi employed three sequences of dribbing tasks. Student active practice time varied from dribbling all the allocated time to dribbling 31.0 % of the time allocated to practice in a sequence. Similarly, response congruence and appropriateness varied from being congruent and correct all practice time to respectively 24.3 % of the practice time. Students had high OTR rates during ballhandling practice.

#	Task	Focus	Type	How	What	Situation	Task time
1	Shooting	Guided practice	Extend	Verbally Teacher	General Skill	General	0:16
2	Shooting	Hand positions	Refine	Verbally Teacher	General Skill	Routine	0:09
3 - 7	Dribbling	While running	Refine Extend Routine	Verbally Teacher	General Skill	General Routine	1:20
8 - 17	Ballhandling	Around the world	Extend Routine	Verbally Teacher	General	Routine	1:28
18 - 23	Dribbling	Stationary	Extend Routine	Verbally Teacher	General Skill Outcome	Routine	2:53
24	Dribbling	Across the gym	Extend	Verbally	General	General	0:49
25	Passing	Chest	Extend	Verbally	General	General	1:05
26	Passing	Overhead	Extend	Verbally Teacher	General	Routine	0:31
27	Passing	One hand	Extend	Verbally	General	Routine	0:06
28	Dribbling	Slalom	Extend	Verbally	General	General	2:44
29	Shooting	Without ball	Refine	Verbally Teacher	General Skill	General	0:18
30	Shooting	In three groups	Extend	Verbally Teacher	General Skill	General	3:45
31	Passing	Give and go	Extend	Verbally Teacher Student	General Organisation	General	1:37
32	Lay up	Lay up and rebound	Extend	Verbally	General Organisation	General	1:42
33	Lay up	Fake and pass	Extend	Verbally Teacher Student	General Organisation	General	2:33
34	Rebound	In pair	Inform	Verbally Teacher Student	General Organisation	General	0:16
35	Rebound	Jump	Refine	Verbally Teacher	General Skill	Routine	1:09
36	Rebound	And pass	Extend	Verbally Teacher	General Skill Organisation	General	1:06
37	Rebound	Jump	Refine	Verbally Student	General Skill	Routine	0:08
38	Rebound	Pivot	Refine	Verbally Teacher	General Skill	General	0:34
39	Conditioning	Work out	Routine	Verbally	General	Routine	14:00
40	Game	4 v 4	Apply	Verbally	General	General	8:44
41	Conditioning	Work out	Routine	Verbally	General	Routine	11:28
42	Game	4 v 4	Apply	Verbally	General	Routine	6:00

Figure 14. Teacher task presentation in the basketball lesson.

In the passing practice during station teaching, the target student had high OTR rate with moderate congruence and appropriateness. The target student had 17 OTRs (4.2/minute) in shooting tasks and all responses were congruent with the stated task and technically correct. In the high skilled group, the target student's practice was congruent with stated tasks in lay up and rebound practice, although not always technically correct. Finally, in game play the target student had 28 OTRs with a frequency of 1.9 responses per minute.

No systematic data were collected when students were in the fitness room or playing table tennis. However, field notes revealed that at least two students played table tennis all the time and initially students were a moment in the fitness room. After a while most students came up on the stage to observe the other group practice and play.

Jussi felt that the lesson went as he had planned, although he pointed out that some low skilled students would need more individualized practice. He felt that the small court was a constraint because he had not solved how to improve the game to a functioning game where students were thinking. He expressed that particularly for some students:

> the head does not follow along, the game is simply too fast for that, so the thought and the character of the game don't synchronize and then one does see it. (2L2)

In addition, Jussi explained that all students did not learn the rhythm for successful lay ups.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1	Shooting	0:16	5	5	0	Monitor
2	Shooting	0:09	4	4	4	Monitor
3 - 7	Dribbling	1:20	1:20	1:20	1:20	Monitor
8 - 17	Ballhandling	1:28	45	45	45	Monitor
18 - 23	Dribbling	2:53	1:47	1:40	1:40	Monitor
24	Dribbling	0:49	0:18	0:18	0:18	Monitor
25	Passing	1:05	15	7	7	Monitor
26	Passing	0:31	4	4	4	Monitor Interaction
27	Passing	0:06	2	2	2	Monitor Interaction
28	Dribbling	2:44	0:48	0:40	0:40	Monitor Interaction
29	Shooting	0:18	1	1	1	Monitor
30	Shooting	3:45	16	16	16	Monitor Interaction
31	Passing	1:37	5	5	5	Monitor Interaction
32	Lay up	1:42	6	6	1	Monitor Interaction
33	Lay up	2:33	5	5	5	Monitor Interaction
34	Rebound	0:16	1	1	1	Monitor Interaction
35	Rebound	1:09	2	2	2	Monitor Interaction Feedback
36	Rebound	1:06	2	1	1	Monitor Interaction
37	Rebound	0:08	0	0	0	Monitor Interaction
38	Rebound	0:34	1	1	1	Monitor Interaction
39	Conditioning	14:00	0	0	0	No
40	Game	8:44	21	0	0	Monitor Interaction
41	Conditioning	11:28	0	0	0	No
42	Game	6:00	7	0	0	Monitor Interaction

Figure 15. Student response and teacher accountability in the basketball lesson.

The students hesitated about the goal for the lesson and one student said in the interview the next day: "I can't say just like that". The post lesson survey also showed a diversity in student responses. Some indicated learning basketball, or practicing a particular skill, while others reported basketball in general as a goal for the lesson. On the other hand, students stated they had learned rebounding and "how to throw that ball".

The students were satisfied with the lesson and they would not have changed anything Jussi did. Likewise, the lesson was enjoyable for 88.7% of the students and 88.7% of the students reported they had been successful in practicing the stated tasks. Jussi had students grouped into low and high skilled students in skill practice and game play, which they liked because:

> those low skilled players play together, or [those] somewhat shorter [students]. Then they are not so helpless.

The students liked to be in the fitness room and to play table tennis because then they did not have to sit and watch at the sideline when others played. One student explained:

> It is good if one plays longer so one can somehow rest in between and that one is then able to play again.

However, the conditioning work was a break for the students and they acknowledged they sit and chat and: "one doesn't do a lot there but some things". They felt each individual student could choose what and how much to practice.

The gymnastics lesson was the second of two such lessons. Jussi had one half of the gym and 15 students. He explained they would:

> review the previous [skills] and then forward handspring would be one of the themes. And then for part [of the students] forward somersault from the trampoline. (5L1)

He pointed out that he would not allow all students to do somersaults because of the safety issue. Based on the gradually increased task difficulty, he would decide if a student was able to do the final task. In addition, he wanted as many students as possible to be able to perform a handspring, and his goal was between one and five successful students. Jussi stated a general goal for the lesson was to "get an energetic feeling" among the students.

The lesson lasted 88:36 minutes, of which 19:23 minutes (21.9 %) in instruction, 26:41 minutes (30.1 %) in transitions, 7:08 minutes (8.0 %) in warm up, and 35:24 minutes (40.0 %) in skill practice.

Figure 16 shows the instructional tasks and time allocations for the gymnastics lesson. Initially Jussi's students helped him take out equipment and then he described the content for the lesson to the students, which was followed by warm up and conditioning tasks at the wall bars. Jussi demonstrated the tasks, pointed out the critical elements, stated how many repetitions students should perform of each task and provided individual feedback to students. The tasks included conditioning work for legs, arms, back, and abdominals. He carried on with 12 stretching tasks, which were teacher directed and supervised.

Actual skill practice started with work on low bars at chest height. The students were in one large group lined up in front of two bars. Jussi showed swing under dismount and the students practiced the informing task once followed by four extending tasks, where they should performed the swing under dismount over a gradually increased rope. In the second extending task Jussi stated students after the low bar task should do cartwheels on the mats prior to lining up for their next attempt at the low bar.

In the next practice phase, Jussi introduced vaults on trampoline with an informing task where students tried to reach the basketball basket. He developed the skill through two refining tasks to students trying to dunk a basketball by jumping of the trampoline. Similarly to low bar practice, students were expected to perform pull-overs, pullups, and cartwheels after each vault. He continued with eight extending and routine tasks to develop vaults on trampoline to a somersault. Students not preferring to practice the final skill could go to the fitness room or play table tennis and nine students remained practicing the somersault. However, all students were back in the gym when Jussi demonstrated the handspring task. In the informing tasks students practiced the handstand spotted by their peer, and carried on with two extending and one refining task in developing skill practice. Finally, the class participated in a cooperative game with the thick mats.

In actual skill practice, Jussi frequently used extending tasks to develop student skills. In addition to a verbal presentation of the task, he demonstrated the task at least once for each skill sequences. Each task was generally described, while the skill features were described in more than half of the tasks. Jussi specified outcome criteria in most conditioning tasks and in one of four handspring tasks. When the practice conditions were not the same as in previous task, Jussi described them in general terms. He monitored and provided individual skill related feedback in all instructional tasks. In addition, one student could show the handspring in front of other students at the end of skill practice.

#	Task	Focus	Type	How	What	Situation	Task time
1 - 6	Conditioning	At wall bars	Inform Extend Routine	Verbally Teacher	General Skill Outcome	General Routine	2:56
7 - 8	Conditioning	Like apes	Inform Routine	Verbally Teacher Student	General Skill	General Routine	2:06
9 - 20	Stretching	Teacher directed	Inform Extend Routine	Verbally Teacher	General Skill	General Routine	2:06
21	Swing under	Try once	Inform	Verbally Teacher	General Skill	General	0:40
22	Swing under	Over a rope	Extend	Teacher	General Skill	Routine	0:38
23	Swing under	Extra cartwheel	Extend	Verbally	General	Routine	0:46
24 - 25	Swing under	Higher	Extend	Verbally	General	Routine	2:34
26	Vault	Basic vault	Inform	Verbally Teacher	General Organisation	General	0:48
27	Vault	Reach up to basket	Refine	Verbally Teacher	General Organisation	General	0:42
28	Vault	Same	Refine	Verbally	General Skill Organisation	Routine	1:35
29	Vault	Donk in basket	Extend	Verbally	General Skill	Routine	5:14
30	Vault	Straight position	Extend	Verbally Teacher	General Skill Organisation	General	1:28
31	Vault	Grouped position	Extend	Verbally Teacher	General Skill	Routine	1:12
32	Vault	X- position	Extend	Verbally Teacher	General	Routine	1:19
33	Vault	Forward roll	Extend	Verbally Teacher	General Skill	General	1:33
34	Vault	Same	Routine	Verbally	General	Routine	1:48
35	Vault	Lower madrass	Extend	Verbally Teacher	General Skill	Routine	1:46
36	Vault	Lower madrass	Extend	Verbally	General Skill	Routine	1:21
37	Vault	Somersault	Extend	Verbally Teacher	General Skill	Routine	1:15
38 - 39	Vault	Same	Routine	Verbally	General	Routine	2:58
40	Handspring	Handstand	Inform	Verbally Teacher	General Skill Outcome	General	1:14
41	Handspring	With run up	Extend	Verbally Teacher	General Skill	General	1:51
42	Handspring	Same	Refine	Verbally	General Skill	Routine	1:55
43	Handspring	No spotting	Extend	Verbally	General	General	1:40
44 - 45	Cooperative game	Dive	Apply	Verbally Teacher	General Organisation	Specific Routine	1:07

Figure 16. Teacher task presentation in the gymnastics lesson

Figure 17 shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target student had 40 OTRs (13.6/minute) during initial conditioning tasks, while 80% of the responses were congruent and appropriate. In stretching, the target student participated actively 96.8% of the practice time. The target student had 13 OTRs (2.8/minute) in swing under dismounts, 27 OTRs (1.2/minute) in vault practice, and seven (1.1/minute) in handspring practice.

Jussi described after the lesson that he would not change anything in the lesson. He explained that warm up at the wall bars was a variation to not always perform all tasks on the floor and it was favorable for a gymnastics lesson. The students had improved since Jussi indicated that more students performed the somersault from the trampoline during this lesson as compared to last year. Nonetheless, somersault practice was dangerous and he neither forced students to practice nor did he allow everyone to try the final task. Jussi said:

> Now in this group there were not those, who wanted to try without preconditions. They came here [to this station] those who in a way felt that it perhaps starts to work, they were then here. (5L2)

Jussi pointed out that he did not have time for handspring practice: "[it] was somehow covered it in a hurry" (5L2). In addition to the fact that the skill itself was difficult, Jussi stated that spotting did not always work in handspring practice. Jussi said "about two" students learned the handspring, but, all his students will practice this skill in the future. Furthermore, he noticed that some students learned the pull-over as a by-product from somersault practice.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1 - 6	Conditioning	2:56	40	32	32	Monitor, Interaction
7 - 8	Conditioning	2:06	0:22	0	0	Monitor, Interaction
9 - 20	Stretching	2:06	2:02	2:02	2:02	Monitor, Interaction
21	Swing under	0:40	1	0	0	Monitor, Interaction
22	Swing under	0:38	1	1	1	Monitor, Interaction
23	Swing under	0:46	4	4	4	Monitor, Interaction
24 - 25	Swing under	2:34	7	7	7	Monitor, Interaction
26	Vault	0:48	3	1	1	Monitor, Interaction
27	Vault	0:42	0	0	0	Monitor, Interaction
28	Vault	1:35	3	1	1	Monitor, Interaction
29	Vault	5:14	7	2	2	Monitor, Interaction
30	Vault	1:28	2	2	2	Monitor, Interaction
31	Vault	1:12	2	2	2	Monitor, Interaction
32	Vault	1:19	2	0	0	Monitor, Interaction
33	Vault	1:33	1	0	0	Monitor, Interaction
34	Vault	1:48	1	0	0	Monitor, Interaction
35	Vault	1:46	1	1	1	Monitor, Interaction
36	Vault	1:21	1	0	0	Monitor, Interaction
37	Vault	1:15	1	1	1	Monitor, Interaction
38 - 39	Vault	2:58	3	2	2	Monitor, Interaction
40	Handspring	1:14	4	3	3	Monitor, Interaction
41	Handspring	1:51	1	0	0	Monitor, Interaction
42	Handspring	1:55	1	0	0	Monitor, Interaction
43	Handspring	1:40	1	1	0	Monitor, Interaction Public Recognition
44 - 45	Cooperative game	1:07	4	4	4	Monitor, Interaction

Figure 17. Student response and teacher accountability in the gymnastics lesson.

The students reported in the post lesson survey that the somersault and handspring were the goals for this lesson, while some students indicated "learning somersault" and "learning handspring" as the goal. In the group interviews, several students stated they had learned the somersault from trampoline during the lesson. The lesson was enjoyable for 73.3 % of the students and 60.0 % of the students reported they were successful in practicing stated tasks.

The students practiced as a whole group and they had to wait in lines before their next attempt. While most students said they followed from the line when other student vaulted, one student stated: "when one knows one's own place [then] one can go [and] do pullups or walk on hands". When Jussi had organized additional stations for cartwheel and low bar practice, the students felt they did not have to wait so long before the next attempt. In addition, the students did not care about performing in front of other students, because "it is not that special compared to vaulting alone", "after all everyone has to do the same", and "everyone knows everyone".

The task system at a macro level

This section presents result from the task system analysis of the basketball and the gymnastics unit. Results are presented for task type and sequence, performance requirements, student work, and accountability.

Task type and sequence are presented separately for each sport in Table 9. Jussi most frequently used extending tasks in basketball and gymnastics since he tried to gradually increase skill difficulty in tasks and thereby help students learn. Refining tasks was another method he used in promoting skill learning. In basketball informing, extending, and refining tasks were shorter than one minute and the focus was on skill practice, while routine and

applying tasks were longer in duration. These longer tasks were related to game play, which was either actual game play or unsupervised conditioning work.

Table 9.

Frequency and Duration for Different Tasks in Each Sport

Type of task	Numbers of tasks	%	Total time	%	Average length
Basketball					
Inform	7	6.7	2:47	1.7	0:24
Refine	14	13.3	10:39	6.3	0:46
Extend	68	64.8	53:44	32.1	0:47
Routine	8	7.6	39:38	23.6	4:57
Apply	8	7.6	60:47	36.3	7:36
Total	105	100	167:35	100	
Gymnastics					
Inform	10	20.0	12:48	17.0	1:17
Refine	9	18.0	15:29	20.6	1:43
Extend	21	42.0	37:26	49.7	1:47
Routine	5	10.0	6:01	8.0	1:12
Apply	5	10.0	3:34	4.7	0:43
Total	50	100	75:18	100	

In gymnastics, extending and refining tasks were longer than than other tasks. Additionally, skill practice tasks for were longer in gymnastics than in basketball because in basketball he employed teacher directed whole group practice and he had several short tasks in a sequence.

Figure 18 shows the tasks sequence for the basketball unit. Jussi used between 22 and 43 instructional tasks in the basketball lessons and the students practiced several different skills during each lesson. The lessons were not exactly the same for each student because he individualized his instruction and the tasks reported here are for the target student. In addition, each skill included informing, refining, and extending tasks and each skill was practiced during more than one lesson.

Figure 19 shows the task sequence for gymnastics lessons. Similar to basketball, Jussi employed a task sequence of informing, refining, and extending tasks for each skill in gymnastics. In contrast to basketball, in gymnastics Jussi focused on particular skills during the first lesson and then on other skills in the second lesson. Although he emphasized different skills for each lesson, the second lesson Jussi reviewed cartwheel together with practice on other skills. In these tasks students worked in a whole group format, and after the student performed the main skill, he performed the review skill prior to lining up for the main skill.

Lesson one			Lesson two			Lesson three	
Dribbling	Inform		Shooting	Extend		Moving	Inform
Dribbling	Extend		Shooting	Refine		Moving	Extend
Dribbling	Extend		Dribbling	Refine		Moving	Extend
Dribbling	Extend		Dribbling	Extend		Moving	Routine
Ballhandling	Inform		Dribbling	Routine		Moving	Extend
Ballhandling	Extend		Dribbling	Extend		Moving	Routine
Ballhandling	Extend		Dribbling	Extend		Moving	Extend
Ballhandling	Extend		Ballhandling	Extend		Moving	Extend
Ballhandling	Extend		Ballhandling	Extend		Dribbling	Extend
Ballhandling	Extend		Ballhandling	Extend		Game play	Apply
Ballhandling	Extend		Ballhandling	Extend		Game play	Apply
Ballhandling	Refine		Ballhandling	Extend		Lay up	Extend
Ballhandling	Extend		Ballhandling	Routine		Lay up	Refine
Dribbling	Extend		Ballhandling	Extend		Lay up	Refine
Dribbling	Extend		Ballhandling	Extend		Lay up	Extend
Dribbling	Extend		Ballhandling	Extend		Lay up	Refine
Dribbling	Extend		Ballhandling	Extend		Passing	Extend
Ballhandling	Extend		Dribbling	Extend		Passing	Extend
Ballhandling	Extend		Dribbling	Extend		Passing	Refine
Ballhandling	Extend		Dribbling	Extend		Passing	Refine
Conditioning	Inform		Dribbling	Extend		Game play	Apply
Conditioning	Extend		Dribbling	Routine			
Conditioning	Extend		Dribbling	Extend			
Conditioning	Extend		Dribbling	Extend			
Conditioning	Extend		Passing	Extend			
Conditioning	Extend		Passing	Extend			
Passing	Inform		Passing	Extend			
Passing	Extend		Dribbling	Extend			
Passing	Extend		Shooting	Refine			
Passing	Extend		Shooting	Extend			
Passing	Extend		Passing	Extend			
Passing	Refine		Lay up	Extend			
Game play	Apply		Lay up	Extend			
Shooting	Inform		Rebound	Inform			
Shooting	Extend		Rebound	Refine			
Shooting	Refine		Rebound	Extend			
Shooting	Extend		Rebound	Refine			
Shooting	Extend		Rebound	Refine			
Shooting	Extend		Conditioning	Routine			
Game play	Apply		Game play	Apply			
Conditioning	Routine		Conditioning	Routine			
Game play	Apply		Game play	Apply			

Figure 18. Skill development and task progression in basketball.

Lesson one			Lesson two	
Vault	Inform		Swing under	Inform
Vault	Inform		Swing under	Extend
Circuit	Inform		Swing under	Extend
Circuit	Extend		Swing under	Extend
Pull-over	Refine		Swing under	Extend
Forward roll	Inform		Vault	Inform
Forward roll	Routine		Vault	Refine
Forward roll	Refine		Vault	Refine
Forward roll	Refine		Vault	Extend
Forward roll	Refine		Vault	Extend
Forward roll	Apply		Vault	Extend
Backward roll	Inform		Vault	Extend
Backward roll	Extend		Vault	Extend
Backward roll	Apply		Vault	Routine
Backward roll	Extend		Vault	Extend
Cartwheel	Inform		Vault	Extend
Cartwheel	Routine		Vault	Extend
Cartwheel	Refine		Vault	Routine
Cartwheel	Extend		Vault	Routine
Headspring	Inform		Handspring	Inform
Headspring	Extend		Handspring	Extend
Headspring	Extend		Handspring	Refine
Headspring	Extend		Handspring	Extend
Headspring	Refine		Cooperative game	Apply
Headspring	Apply		Cooperative game	Apply

Figure 19. Skill development and task progression in gymnastics.

Table 10 presents the performance requirements in Jussi's task

presentation. In basketball and gymnastics Jussi described all tasks verbally

and he demonstrated the skill in about 60 % of the tasks, while he used

student demonstrations in about 10 % of all instructional tasks.

Jussi presented in general terms what students were expected to practice

and he stated more frequently skill features in gymnastics than in basketball

lessons. Student organization in practice was presented in about one fifth of

Table 10.

Performance Requirements for Instructional Tasks in Different Units

| Sport | Task communication | | | |
	Verbally	Teacher demonstration	Student demonstration	Materials
Basketball (n=105)	100 %	65.7 %	11.4 %	0 %
Gymnastics (n=50)	100 %	58.0 %	10.0 %	0 %

| | What is described or demonstrated? | | | |
	General	Skill features	Outcome	Organization
Basketball (n=105)	100 %	27.6 %	3.8 %	17.1 %
Gymnastics (n=50)	100 %	60.0 %	4.0 %	18.0 %

| | Specification of practice situation | | |
	Only generally	Clearly specified	Routine task
Basketball (n=105)	30.5 %	3.8 %	65.7 %
Gymnastics (n=50)	38.0 %	4.0 %	58.0 %

the tasks and outcome criteria in 4 % of the task in both basketball and gymnastics.

The situation for practice was similar to previous tasks in 65.7 % of tasks in basketball and 58.0 % in gymnastics while he did not attend to practice conditions in task presentation. When Jussi attended to the practice situation, it was described generally, while he infrequently specified practice conditions.

In addition to an analysis on the level of a single task, performance requirements need to be analyzed at a skill sequence level. Jussi demonstrated the skill at least once in each skill sequence while the use of student demonstrations was related to tasks where Jussi wanted to specify spotting, skill features, organization, or when completion of the task involved two or more students. Skill features were presented at least once for each skill sequence in gymnastics, while many of the short teacher directed basketball tasks which were related to beginning skills (e.g.. dribbling, ballhandling) had no skill features in presentation.

Student work depends on teacher allocated time for practice and also on what students do during this time. Table 11 shows that Jussi spent on average 21.7 % of the time in instruction, when he typically presented practice tasks, while 23.7 % of the time was spent in transitions. The students were able to practice in 52.6 % of the lesson time. A difference in time distribution was noticed between basketball and gymnastics, when students in basketball had more time for practice than during gymnastics lessons. Likewise, Jussi spent more time in instruction and transitions in gymnastics than in basketball. However, these findings don't describe actual skill practice, the results only showed how the teacher allocated time in lessons.

Student response will be presented separately for each sport due to the nature of the sports. Table 12 shows shows student responses in the basketball unit. Jussi spent most time in game play tasks (36.3 %) and conditioning work (24.0 %) and the target student had an OTR rate in game play of 1.2 per minute, while student response during conditioning work was not measured. Of regular game play time, often scrimmage, Jussi spent one fifth instructing and providing feedback to the students while he used 9.7 % to transitions.

Table 11.

Jussi's Time Distribution during Lessons

Lesson	Content	Management Time	%	Instruction Time	%	Transition Time	%	Warm up Time	%	Practice Time	%	Total
1	Basketball	1:26	1.6	13:03	14.9	21:53	24.9	0	0	51:30	58.6	87:52
2	Basketball	0	0	17:44	19.1	16:46	18.1	0	0	58:18	62.8	92:48
3	Basketball	0	0	26:11	28.0	19:16	20.6	0	0	47:58	51.4	93:25
4	Gymnastics	0:10	0.2	25:48	28.5	24:43	27.3	0	0	39:54	44.0	90:35
5	Gymnastics	0	0	19:23	21.9	26:41	30.1	7:08	8.0	35:24	40.0	88:36
Mean		0:19	0.4	19:46	21.7	21:29	23.7	1:26	1.6	47:40	52.6	90:39

Of actual skill practice, he spent most time in dribbling, passing, lay up, and shooting. In dribbling, the target student was actively practicing about half of the time allocated to dribbling practice, while shooting and passing had much higher OTR rate than lay up, which was related to the number of balls and baskets. Student responses were most congruent with the stated tasks in moving and ballhandling tasks and least congruent in passing tasks. Similarly, student responses were technically most correct in moving tasks, while technically incorrect responses were most frequently found in lay up and shooting tasks.

Table 12.

Student Engaged Time/Response for Different Skills in Basketball

Skill	Tasks #	Practice time	%	Activity time	%	Total OTR #	OTR rate #/min.	Congruence %	Appropriate %
Moving	8	7:22	4.4	2:26	33.0			100.0	100.0
Dribbling	22	14:19	8.5	7:37	53.2			86.9	86.9
Ballhandling	22	4:17	2.6			114	26.6	95.6	95.6
Passing	14	14:17	8.5			91	6.4	80.2	80.2
Rebound	5	3:13	1.9			6	1.9	83.3	83.3
Shooting	10	10:43	6.4			79	7.4	86.1	72.2
Lay up	7	12:24	7.4			22	1.8	86.4	63.6
Game play	8	60:47	36.3			72	1.2		
Conditioning	9	40:13	24.0						
Total	105	167:35	100			384			
Mean							2.3	88.4	83.1

Table 13 reveals students responses in the gymnastics lessons. Jussi spent most time in vaulting practice, although with a low response rate. Headspring and cartwheel were other skills he emphasized during the unit in gymnastics. Student response rate was typically between one to three responses per minute, except in forward roll practice where the target student had 5.5 OTRs per minute because Jussi organized a whole group practice where all students could work across the mats.

Table 13.

Student Response for Different Skills in Gymnastics

Skill	Tasks #	Practice time	%	Total OTR #	OTR rate #/min.	Congruence %	Appropriate %
Cooperative games	2	1:07	1.5	4	3.7	100	100
Forward handspring	4	6:40	8.9	7	1.0	57.1	42.9
Swing under	5	4:38	6.2	13	2.8	92.3	92.3
Headspring	6	11:24	15.1	22	1.9	72.7	72.7
Cartwheel	4	10:06	13.4	17	1.7	5.9	5.9
Backward roll	4	5:50	7.7	8	1.4	37.5	37.5
Forward roll	6	1:05	1.4	6	5.5	83.3	83.3
Pull-over	1	2:05	2.8	3	1.4	33.3	33.3
Vaults	16	24:56	33.1	29	1.2	48.3	48.3
Apparatus circuit	2	7:27	9.9	26	2.8	80.8	80.8
Total	50	75:18		135			
Mean					1.8	61.1	59.7

An analysis of the congruence and appropriateness of student practice showed that because Jussi taught difficult skills students were not as successful as in basketball. Students were most successful in swing under and forward roll, while both congruence and appropriateness of student performance in cartwheel was low, because the target student belonged to the low skilled group. Although Jussi individualized instruction and provided supportive feedback, these low skilled student were still unsuccessful. In

addition, the pull-over and backward roll were difficult for students to perform. Generally students stayed on stated tasks and task modification was noticed when the student could not perform the task.

Accountability relates to strategies teachers' employ to maintain appropriate student work (Siedentop, 1991). Table 14 shows Jussi's accountability practices. He did not monitor student work during one task in gymnastics and during 2.9 % of the tasks in basketball. The field notes revealed that student practice during conditioning tasks in basketball was unsupervised because Jussi had divided the class into two groups and he was instructing one group while the other group practiced unsupervised. In basketball, Jussi monitored student practice in 54.3 % of the tasks. In this situation, he had several short teacher directed tasks and did not provide individual feedback to the students. However, in addition to task presentation he frequently used teacher prompts to guide student practice.

Jussi monitored and interacted with individual students in most tasks in gymnastics and he also provided individual feedback during 42.9 % tasks in the basketball unit. Field notes showed Jussi provided feedback all the time to his students and he also physically guided students to the right performance. He not only provided feedback to students about mistakes in their performance, he frequently had the student to perform the skill again so he could make sure the student understood the feedback. If the second attempt also was wrong, he asked the student to do a third one, and thereby ensured student learning. Although he provided frequent individual feedback, he was also aware of what went on in the rest of the gym, because if needed he attended to minor distractions without breaking the momentum of practice.

Table 14.

Student Accountability

Sport	No monitoring	Monitor	Monitor Interaction	Post task feedback	Public recognition
Basketball (n=105)	2.9 %	54.3 %	42.9 %	6.7 %	0 %
Gymnastics (n=50)	2.0 %	12.0 %	86.0 %	8.0 %	2.0 %

Another form of accountability was observed when he refereed the game. In addition to the referee task, he tried to guide student game play by leading the game and directing student movement and passing. Furthermore, he provided post task feedback in between 6.7 % and 8 % of the instructional tasks, while Jussi provided a review of critical elements and identified students, who did well in the task.

Students views of the physical education classes.

This section presents result for student experience about physical education and particularly the basketball and the gymnastics units. Information about student perceptions and experiences were collected a through sentence completion task and small group interviews.

Students' experience of enjoyment and success is presented in Figure 20. More students reported they enjoyed the lesson than were successful in it. More than 80 % of the students enjoyed the basketball lessons, while about 70 % enjoyed the gymnastics lessons. Between 64 % and 83 % of the students felt they were successful in basketball while 39 % and 60 % of the students felt successful in gymnastics.
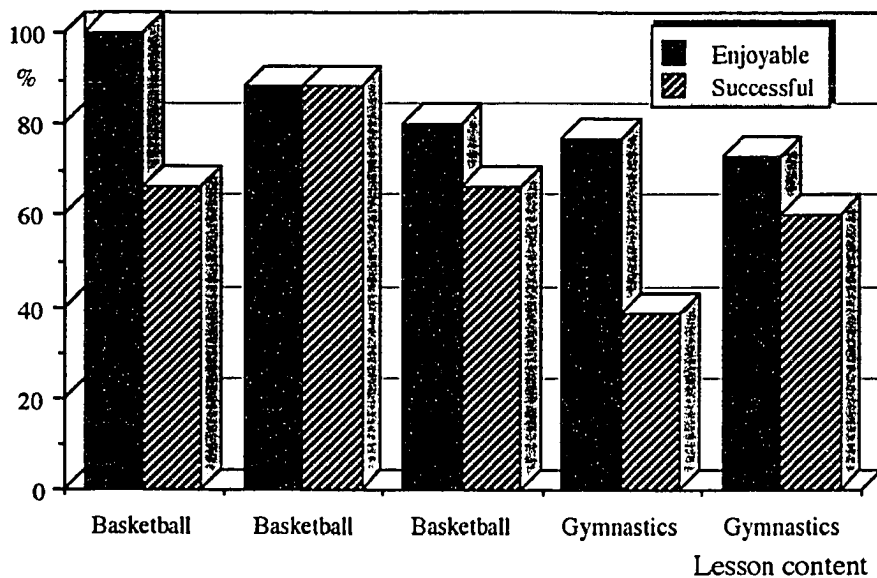
Figure 20. Percentage of students reporting the lesson was enjoyable or they were successful.

The students pointed out that in eighth grade and middle school it "was fun to come to physical education lessons" and that it was not difficult compared with their elementary school physical education program. The flexibility with elective lessons was highly appreciated by the students and they also liked that the curriculum was planned in detail for each semester. Finally, they explained that they were supposed to learn in physical education while in middle school "one focuses more specifically on sports than in elementary [physical education] where one just played".

The students stated the goal for physical education was to be physically active as a contrast to all theoretical lessons where they just sit all the time. They said the intent was to " let off one's energy" and "move". The students

viewed as another goal that it was important to participate and try their best together with other students in tasks which the teacher presented. In addition, they indicated Jussi wanted them to learn the basics from different sports because "if one plays something during leisure time, [one] knows the rules". They stated they can "learn new things" which included they wanted to learn "the somersault", "to play", "to dribble" while one student wanted to learn "everything". The students explained they had learned particular skills in different sports as a result of physical education and that nothing prevented them from learning: "everyone has the opportunity [to learn] if one has the desire".

Learning was central to the students and they explained Jussi helped them "to improve their performance", "in things I really can't do", and "in everything" by his demonstrations and verbal feedback. The students stated: "if someone can't do the skill, he shows how to do it" and "if [something] goes wrong he tells or advises". In addition, they pointed out teacher praise was important for student motivation:

> If something is performed relatively well, he praises. There one gets a higher desire to finish it off well.

They indicated both low and high skilled received teacher praise, and particularly students learning the skill for that lesson. Moreover, they liked that he did not give negative feedback when they were unsuccessful: "fortunately he doesn't tell someone really off if one fails".

Student grades are an essential part of the physical education program and the students explained skill learning, effort, and active participation were expected for a good grade. They felt they had to "learn those things which are there" and "just try their best". In addition, active participation included to

"be there on physical education lessons" and "do what Jussi had planned", to practice, and to dress appropriately. One student explained that to be a successful student one had to "be good at sports".

Before the basketball unit, the students indicated the goal was to have "a good game so that there is no such small hassle" which also included skillful dribbling, learning of lay up, and zone defense. In addition, one student stated that the goal was a "team game where one passes to everybody". After the unit the students explained that they had learned a "passing game", "shooting", "lay up", and "dribbling". However, one student refused to identify the learning gains and said: "I have not learned anything. I play basketball but I have not really learned anything".

Most students liked the basketball lessons when they played while others liked to practice shooting and one student enjoyed both game play and skill practice. One student detailed why he liked the game play in basketball lessons:

> one doesn't all the time have to do something so carefully and try hard. So that one doesn't all the time have to try something carefully and someone is beside one and stares at how one throws or so, [one] can just do [things].

Similarly, the students indicated they disliked basketball lessons when they did not play and and because "we reviewed too many old things" and "I already knew everything". Yet, one student felt basketball was too demanding since:

> I was certainly not capable of running after those others ... when you run there then they are soon [back] at the basket and you run back to your own half [of the court].

Although game play was an important part of basketball, the students recognized that they needed to practice skills because:

if one doesn't practice [skills], the game play can't be called game play, it would be such a hassle.

They believed they should have skill practice half of the lesson and the other half should be game play. However, this division into game play and practice should be flexible and be related to student performance in practice and game play.

The students said that a team game where students pass to each other was the most important aspect in game play. Similarly, the students defined a team player as a student who in addition to good shooting skills could "maintain a good team spirit" and "passes enough". To win a game during a basketball lesson was not at all important. The students rather preferred "when we just played and everyone tried to participate". It was not essential to keep score because "no matter how well one plays, one will not necessary win". In addition, students felt successful performances created the good feeling, not whether they won or not.

In gymnastics, the students perceived the lessons were rather difficult, particularly in the initial practice of a skill. One student explained:

in the beginning [it is] difficult of course, because when one vaults the first time from the trampoline, then one understood what not to do the second time and what to do.

One student felt he had to think:

there one had to somehow be straight. One ought to remember to lift [one's] hands, which one doesn't always then remember anyway.

However, the students indicated they had learned several skills in gymnastics. Most students stated they had learned the somersault, while others had learned a forward handspring and cartwheel, and some students pull-over. Two students said they had learned a lot.

Many students liked to practice somersaults and basketball dunks from the trampoline. Other students enjoyed when they learned something, while one student liked gymnastics when tasks "are partly voluntary". Moreover, one student stated that gymnastics was fun when "one could quit the lesson". Students' dislikes from gymnastics were related to not learning the skills and they explained: "that somersault when I failed there", "pull-over, I really can't do it", and "cartwheel, yet I can't do it well". The students felt learning was a slow process, although skills always improved through practice.

The students pointed out several positive aspects in Jussi. First, the students indicated he was "funny" and "nice". Secondly, students appreciated Jussi's personal skills in all sport, since one student said: "at least he can perform all the things himself". Third, the students explained he had a good sense of humor and did not loose his temper very easily. Finally, one student felt Jussi:

> understands somehow us youngsters... No old teacher would come when one succeeds in that stuff, yeh now celebration, give me your hand, give me five, then Jussi comes.

The students indicated they had good relations with Jussi and they got well along with him. According to the students Jussi treated them as "regular students" and as " human beings" although one student felt Jussi demanded too little from his students. However, some students felt Jussi was too energetic because one student said "he is a little too active". Other student commented about him: "commands too much", "is too demanding", and "advises others and sometimes tells someone off". In addition, the students knew when they misbehaved, which was when they "talk a lot" and "fool around". One student stated Jussi did not like when the student did not

concentrate while another wanted the teacher also to notice low skilled students.

Summary of the ecology of Jussi's learning environment.

In the pre-lesson interviews Jussi emphasized the skills to be covered during the lesson, often in terms of what particular drill he would employ. He showed a concern about students' learning and he said: "we still work on that a little bit if it would then start going" (3L1). In addition, his plans were not finalized and the lesson would be modified based on how tasks worked.

The instructional ecology in the lessons was developed by Jussi, who structured everything around students learning skills in physical education. He established clear boundaries for student work, both in the managerial and instructional system. Students complied within the managerial tasks, although Jussi's transition time was somewhat high. His instructional style seemed to affect his transition time, as he used much equipment in gymnastics and frequently grouped and regrouped students for individualized instruction. The small gym created further pressure on instruction. Jussi implemented many tasks during each lesson and he used sequences of informing, refining, and extending tasks to develop student performance in a particular skill. In task presentations, Jussi often demonstrated the task, focused on skill features, and described the practice situation in general terms. Although instruction focused on student skill learning, Jussi showed he did not forget low skilled students while he frequently individualized instruction.

Student work was at a moderate level, judged on allocated practice time. Similarly, student response rates were at low to intermediate level in most tasks. Students stayed on stated tasks more in basketball than in gymnastics, as

the instructional tasks included practice of difficult and challenging skills in gymnastics. Task modifications occurred mainly while students were unable to perform the skill. Student were held accountable for their work through active supervision, which included Jussi monitoring and providing skill related feedback to students. Students were not only held accountable for behaving well, he expected students to perform the skill correctly while otherwise they had to repeat the performance. Jussi frequently used teacher prompts to sustain student work. At the end of an instructional task, he sometimes provided group feedback to the students about their success in practice.

Jussi thought the lessons went as planned, although he indicated in some lessons he did not have time to cover everything he had planned. Other comments were related to the difficulty of teaching a functioning game, which could have gained from additional instruction in a game like situation. He showed concerns about student learning, when he in post lesson interviews pointed out how he dealt with low skilled students and individualized his instruction.

Most students perceived physical education as fun and enjoyable. They believed the goal was for them to learn the basics in different sport, to be physically active, and to show effort in practice. These were also factors they believed affected their grades. The students indicated they had learned different skills, although it was a slow process. They felt Jussi helped them to learn by teacher demonstration, general praise, and positive, skill related feedback. According to the students, to cooperate and to pass to everyone was more important than winning in game play. Moreover, students enjoyed practice when they were successful. Finally, these students liked their teacher

and felt they got well along with him.

Jussi's Espoused Theory Related to the Class Ecology

This section presents results for research question three: to what extent is the teacher's espoused theory of action (ETA) evident in the ecology of the learning environment. The teacher's ETA was used as the starting point to determine levels of congruence and discrepancy with the ecology of the learning environment.

Empathy was one category in Jussi's educational values and beliefs and he valued an open and trustful relationship with the students. Observations showed Jussi frequently interacted with individual students and groups of students. In addition, the students indicated they had a good relationship with him and Jussi was a popular teacher.

The second category of his educational values and beliefs was teacher nurturing. Jussi believed physical education contained many opportunities to nurture students as good citizens. The observations revealed that Jussi had created a learning environment with few discipline problems. In addition, field notes showed nurturing was combined to specific situations and he dealt with student inappropriate behavior when needed.

Jussi's educational values and beliefs included a category with theory about the teaching process, which he believed was dynamic. Data showed some of the lessons did not go exactly as he had planned and that was not a problem because he was prepared to continue with the missing part the next lesson.

Jussi's life philosophy was one category of his educational values and beliefs and he indicated he had accepted his teaching environment. Observations revealed that Jussi had adapted but not given up on his context.

Instead of rolling out the ball, he wanted to provide skill focused instruction. Only having one half of the gym forced him to split up the class into two groups, where one group worked with him and the other had independent conditioning work. Then, he had a small teachable group and he could get his message through.

This supported one of Jussi's major goal in physical education, students learning sport skills. Observations showed Jussi focused on skill learning in his instruction. In task presentations, he demonstrated the skill and pinpointed critical elements. His task development included gradually more difficult skills and he provided frequent skill feedback to individual students. If he noticed a wrong performance, he took time to explain the task to the student and have him perform again. In addition, he individualized instruction to provide each an opportunity to learn. Similarly, students reported they were supposed to learn in his lessons.

Another goal Jussi had for the physical education program was to develop a persisting life long interest in physical activity. The unsupervised conditioning practice was a situation where the students had to take responsibilities for their own practice, though not very actively. In addition, most of the students enjoyed physical education lessons, which showed Jussi had been successful in the short term goal. How well he reached the long term goal could not be evaluated in this study.

Teaching strategies and principles was the third theme in his theory of action and included instructional climate, instructional format, student practice, and evaluation. In instructional climate he believed in a motivating and supportive attitude towards the students. Jussi had frequent interactions with the students and he supported their practice. In addition, the students

reported Jussi praised every student and that teacher praise was helpful in practice. Therefore, his theories about motivating students in teaching were apparent in his behavior. Jussi wanted to create a safe learning environment, which also was observed from his lessons. He arranged practice to avoid injuries and reacted to student inappropriate behavior, which could to lead to dangerous situations. In addition, he wanted to teach according to the students' needs, which meant differentiation between competitive sports and school practice and rules. In game play, he did not emphasize the result, rather he preferred a good and functioning game where he could guide students play. He also employed non-traditional games to facilitate student learning.

In task presentation Jussi believed in both a verbal presentation with critical elements and a visual demonstration of the skill. Jussi demonstrated the skill and presented the critical elements at least once in each skill. He did not specify these in each task. Monitoring was central in his teaching because he did not use any skill tests. The observations revealed Jussi moved actively around supervising student practice and provided frequently feedback across space to keep students focused on their practice.

Jussi believed teacher feedback helped students learn in physical education. He used prompts, group and individual feedback to guide student practice. In addition, he physically guided students to learn the skill and he demanded students to perform the skill until they have learned it, however not more than three attempts in a row. Jussi also provided post task group feedback, where he could review critical elements or pinpoint students who did well in the task.

In Jussi's theory about student practice, within his teaching strategies and principles, he believed students should be active. Jussi allocated about half of the lesson time to student practice. In reality, students activity time was between 30 and 50 % of the time allocated to practice and student response rate was less than two per minute in many tasks, although students had high OTRs in a few tasks. Furthermore, he divided the class into two groups to increase student practice, although the group in the fitness room and playing table-tennis practiced without supervision and they were not active. Altogether, Jussi made efforts to keep the students active but the contextual constraints lessened his success.

Jussi believed guided practice would help students learn and the observations showed he used this strategy in the initial practice of a task sequence. In addition, Jussi wanted to individualize student practice. The observations revealed that the students often practiced in small groups, where Jussi could adjust instruction according to student level. This occurred both in basketball and gymnastics and he grouped the students by skill or student free choice.

To Jussi, student fitness level and interest were the most important criteria for a good grade. In addition to these, a top grade required fair play and sportsmanship. On the other hand, the students explained skill learning, effort, and active participation to get a good grade. No observational data about evaluation was collected during the study, but there was an incongruence between Jussi's theory, actions, and students' perceptions.

Case Conclusion

Jussi had a firmly espoused theory about teaching physical education. His theory was personal and reflected the context where he taught. Jussi's

espoused theory was mostly congruent with his actions in the gym. He had a strong content background and he reflected on his teaching to maximize a total development of his students through physical education. Jussi believed students should learn skills in physical education, which would facilitate a future involvement in physical activity. To Jussi, he as a teacher had a central role in creating a fruitful learning environment, though students should be considered. He provided quality practice, where students were to learn. While students were not formally held accountable for skill learning through their grades in physical education, Jussi employed informal accountability. Finally, there was no evidence that his approach would increase student future interest in physical activity. Yet, he accomplished his goal for student learning skills, and most students liked physical education and Jussi as the teacher.

Case #3: Liisa

Liisa, has taught for seven years, with two leaves of absence, totaling one and one half years, to have children. Her present school is her third. She taught one and a half years at her first school, which was a sport high school with an emphasis on cross country skiing. She stayed half a year at her second school, a middle school in eastern Finland. She has been at her present school since fall 1988 and the school has about 320 students. Liisa teaches physical education and health in the middle and high school.

Liisa completed a five year program and graduated with a masters degree in teaching physical education. She believed that her teacher education in general had not prepared her for practical teaching in schools and her experiences from methods classes were mixed. She felt that course work in gymnastics had been beneficial, because she had little experience in gymnastics. Liisa had become interested in gymnastics at a workshop prior to her teacher preparation. She then became more interested in gymnastics during her teacher education program. Together with the instructor and another friend she had prepared a small handbook about teaching gymnastics for contexts without formal equipment.

Although dance and rhythmic gymnastics had always been her weakest sports activities, Liisa felt instruction in ballroom dance had given her everything she needed. However, more specific dance areas, like jazz dance, step dance, and different kinds of aerobics, were not properly covered in her preparation. She stated:

> aerobics was not at all in the program. One had to learn it oneself except then for example in student teaching I had two aerobics lessons, I had to teach, and they had never even been taught in the teacher education program. (3In2)

Liisa had never played basketball. She described the instruction in her teacher preparation as scattered drills without the whole picture of the game. She felt the drills were easy to learn and teach because "one learns them at once even by reading handouts on how to do such a task" (2In2). She explained it was difficult to learn to understand the game and she got no instruction in that. In addition, no attention had been paid to how to referee basketball.

While she had mixed feelings about the content classes, Liisa felt she learned a lot during student teaching because she taught in schools and received feedback on what she did. However, she was not ready for her first full time teaching assignment:

> Yes I was unsure but on the other hand it was a good thing that I was young and energetic so that one can compensate a lot with that, although one couldn't do everything. (1In1)

She indicated her background in cross country skiing was helpful because she also coached. When she then came to her second school, she pointed out she was a "fully learned teacher" (1In1) and that she had learned from solving the practical problems while teaching. Liisa also felt that workshops had helped to improve her teaching. She said: "I am such a person that I always participate in every workshop which one can [participate in]" (1In2) and "I always get new hints from them" (1In2). Finally, she described how she had learned refereeing in basketball by watching video tapes about basketball together with her husband.

Liisa now enjoyed teaching gymnastics, basketball, dance, and aerobics. About gymnastics she stated "I like it" (2In1) and about basketball "[it] is quite nice to teach" (2In2) although she still did not feel competent in refereeing. In

addition, she felt she was capable in teaching aerobics and dance, though all new dances were demanding because she had to first learn it her self and then learn how to teach it. However, this challenge motivated her to seek help from workshops.

Liisa taught coed physical education at her first school. However, at her present school boys and girls were separated. She believed the students were used to the situation and therefore it was natural to them to be separated. She and her colleague had sometimes tried to mix groups but there were girls who definitely did not want to be together with boys.

During the observed sequence Liisa taught 32 hours a week and she felt she was always busy. It was not only teaching Liisa said:

> There are discussions and meetings related to the job all the time. I feel that these lessons are a small part of this job. Then there is a tremendous lot of everything else coming on top of that. (1In2)

Liisa described the students in the group as heterogeneous:

> Most of them are rather skilled. Then there are really one third low skilled girls. Then such [students] who have a strange period going on with regard to clothing [how they dress]. Some are really motivated and then a few who prefer to do nothing. There are people of many different sorts. (1In8)

The eighth grade physical education group was from two classes and had 15 students. Liisa felt that because the group was small students interacted well. However, she explained that the other eighth grade group was more skilled than this group, although it was bigger.

During the first lesson in fall semester Liisa and the students talked about the summer and how they had been physically active. Then they planned the physical education program for the fall semester. Liisa explained she stated particular sports to be included, while the students in small groups made

other suggestions. The fall program was finalized from a summary of the students' suggestions and her proposed sports. Furthermore, she typically gave seventh graders handouts, about dressing and grading in physical education, to take home for the parents to sign. Liisa reviewed the handouts with eighth graders during the first lesson.

Liisa's Espoused Theory of Action

Liisa's Espoused Theory of Action was analyzed based on data from the values questionnaire, formal interviews, and informal interviews and organized into three themes. These were educational values and beliefs, goals in physical education, and teaching strategies and principles.

Educational values and beliefs.

Liisa's educational values and beliefs were grouped in five categories that emerged from the data; life philosophy, the teacher's role, student input, student motivation, and constraints in teaching.

Liisa's life philosophy was one category in her educational values and beliefs. She valued a healthy life and honesty. She believed health was needed for a happy life: "how important is health, after all it is the foundation of life" (3In5). Secondly, Liisa saw honesty as a basic value in life.

The second category in her educational values and beliefs was how she viewed the teacher's role. Liisa believed she was the same person in private life as when teaching. She thought teaching: "would be demanding if one had to play a particular role" (1In4). She explained teaching was related to the teacher's personality and she would not like to tell and advice another teacher about how to teach because: "it [instruction] is somehow a question of personality and everyone has their own way of teaching" (3In5).

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Liisa expressed her conceptions about physical education and about teaching physical education which originated from her teacher education preparation and had not changed much after that. However, in another interview, she pointed out:

In a way I have changed rather radically. I, then, started at a sport high school and we always strived for good results and competitive performances. I have now gradually lost my interest in competitive sport. (1In3)

According to Liisa, a central role for the teacher was to provide models for student practice, which meant that teachers ought to be skilled in different sports. She felt she could perform all sports fairly well. In addition, she indicated she needed to be creative in the future when she no longer could perform. However, she was open to new sports and willing to first learn and then learn to teach sports selected by her students. She explained: "In those [sports] where I have been weak, I have tried to improve myself" (3In6).

Liisa believed that physical education as a school subject provided a favorable context for meaningful interactions with the students. She indicated she had good relationships with the students because it was a natural thing for her and she did not have to work hard for it. Although students had physical education only once a week, Liisa often listened to students' problems, even to the extent that students called her privately.

Student motivation was the third element in her educational values and beliefs and Liisa believed student motivation was critical for student participation. She stated: "If one is not motivated to learn a particular task then one doesn't learn it" (2In4). Similarly, Figure 21 shows that feeling confident and positive about oneself related to the activity (self-esteem) was the most important learning dimension to Liisa.

Learning dimension
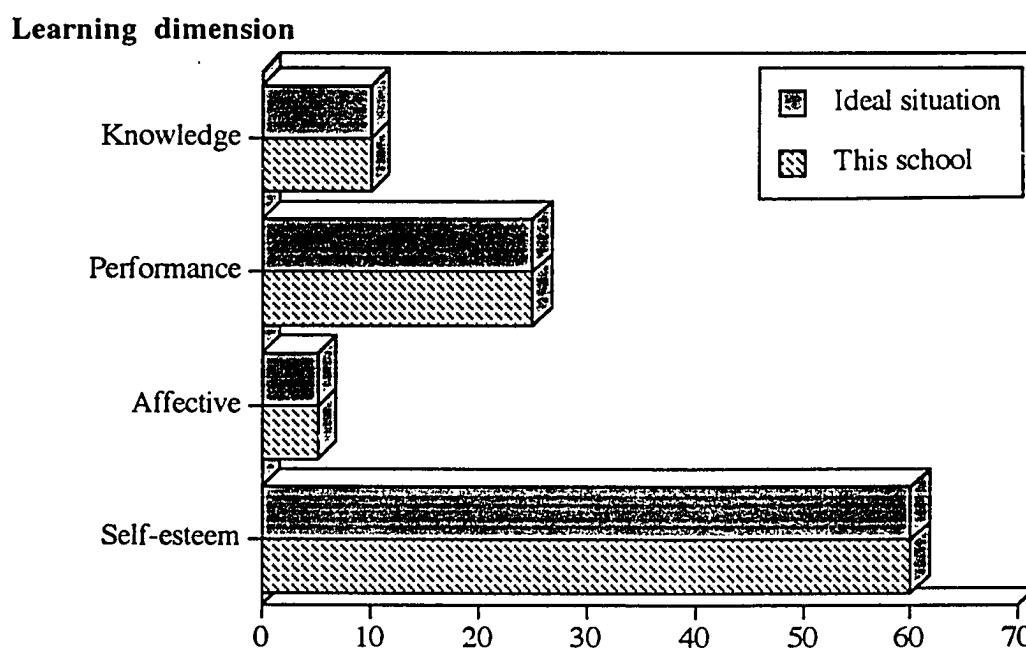
Figure 21. Liisa's attitudes and values to different learning dimensions

She expected students to be motivated and to have positive attitudes towards physical education. That was an important criteria when she judged how successful she was in teaching. If the students were not motivated to practice, Liisa tried to identify the problem and solve it. Finally, she believed an enthusiastic teacher enhanced student motivation.

The fourth element in Liisa's educational values and beliefs was her theories about student input, which could be seen on several different levels. First, students actively participated in outlining the physical education program. She said:

> I have rather often done so that I have asked the group what they want [to do]. Because the groups differ so much, some [groups] want something like dance or gymnastics or then whereas other don't like such [content] at all but [they] only want to play games. I have tried to figure out what they want to do by noticing the students' suggestions.

In grade seven, Liisa decided the program, while ninth graders could affect the program to great extent.

Secondly, Liisa explained students had assisting roles while spotting and in peer teaching. However, according to Liisa the students were not skilled in these tasks. She also believed in student responsibility in physical education, but felt the students did not have many responsibilities while she taught and that she could increase these opportunities in her teaching.

Finally, student feedback was important for Liisa and she used their reactions to the lessons to adjust the content. She particularly noticed positive student comments: "they like it a lot" (1In4) and "they said at the end that [it] was an enjoyable lesson" (6L1).

Lastly, Liisa described her beliefs about the constraints in teaching physical education in her context. The school had one gymnasium which could be divided into two parts, a limitation during indoor periods. Half of the gym was not enough for a large group; students had to wait, and learning environment was not always safe with such crowded conditions.

Moreover, she pointed out the noise was tremendous when the boys played games and she then tried to teach. According to Liisa, the students could hardly hear her and she had to scream, with the result that everybody was stressed. Additionally, the air conditioning had broken making the work situation even worse. Liisa had adjusted to the conditions and planned her program with the gym situation in mind. The eighth grade girls played basketball when the boys had health, so the girls could have the whole gym.

Class size was described by Liisa as another constraint in teaching. She believed that student learning was related to class size because "one can go much further with a group of about 15 [students]" (2In4). In addition, Liisa

indicated that in a small class she had more time and could help individual students while a large class (about 30 students) "moves forward just as masses" (2In4). Although she previously had taught many large classes, this year she had only one large class.

Goals in physical education.

Liisa described the two most important goals in her physical education program as student joy and a persisting interest for physical activity. In addition, she had a secondary focus on developing fitness and social skills. In basketball her goal was to develop a functioning game while in gymnastics body control was the goal.

Student joy in physical education was Liisa's major goal in physical education and she described the goal in terms of; "get pleasure from physical education" (1In3), "a good atmosphere" (1In4), "get positive experiences" (1In3), and "the students would like the lessons" (3In3). Liisa wanted her students to be happy in all her lessons also because of the critique from other persons in the society:

> There have been people's articles in the newspapers, over the years complaining that school destroyed all joy in physical activity .... Yes, from that one can really conclude that it should be important that they could get these positive experiences. (3In3)

As figure 22 shows, Liisa considered a happy class that is enthused to be the most important part of the teaching process. Liisa also believed that boys particularly needed physical education to act as counterbalance to all theoretical lessons in school. Physical education was for the students a way to get rid of their energy, which she considered was beneficial to other teachers.
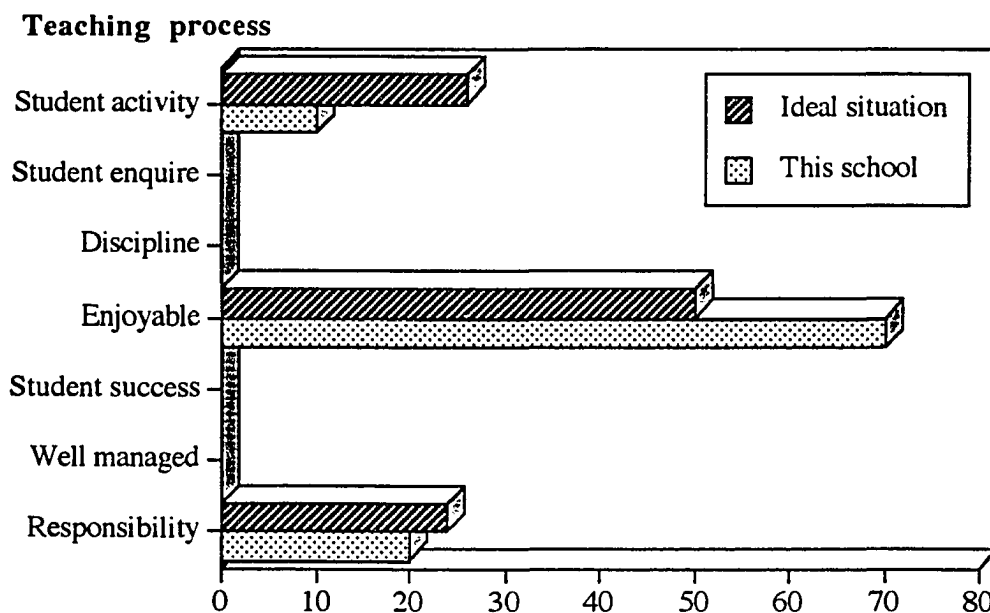
Teaching process

Figure 22. Liisa's attitudes and values about the teaching process

Liisa's other major goal for physical education was to develop a persisting interest in physical activity and Liisa saw student joy during her lessons as a prerequisite for a persisting interest. She explained students:

> would through it [school physical education] find for themselves a physical life style, where they are active (1In3)

According to Liisa, physical education and her role were to:

> give them stimuli, models of what one can do and then through that they learn to find their own sport and to be active in. (3In6)

Student fitness was a secondary goal. Liisa stated that students were not fit. She explained she was concerned about student fitness, because medical research had showed back degeneration symptoms in many adolescents. In addition, she felt she was in much better shape than the students. Liisa

believed that a physically fit student had an advantage in all forms of school work:

> the more fit the student, the better and faster she can then take in also these theoretical subjects. (3In6)

However, Liisa was resigned about the possibilities to improve the students' fitness during physical education lessons:

> Of course they ought to get the basic fitness from there but I think that we can't give that at present because we have [physical education] only once a week. And one doesn't really maintain it during this one time, even that would require two times that one would maintain [the fitness level]. That it is a rather demanding task that one could maintain their fitness but perhaps somehow that they then at least understand that why is it worth being active. (3In3)

Another secondary goal for physical education was related to personal and social growth because physical education was different compared to other school subjects. Figure 23 shows Liisa valued personal growth and group social growth as goal areas in teaching physical education. In addition, Figure 22 shows that a class in which students show responsibilities for their own actions was important in the teaching process, although more important in an ideal context than in her present school.

In basketball, her goal was to have a functioning game, where students followed the rules and played without aggressive contacts. She said:

> In basketball for girls it is typical that the feelings run high rather easily. Then it is often such a hassle. I try to make it a more peaceful game. (1In4)

In addition, she wanted to promote fair play, where students paid attention to each other. In gymnastics, Liisa's goal was to develop student body control and she was also concerned about students' safety because: "some students are so tremendously afraid of some apparatus that they'd rather stay at home" (2In1).
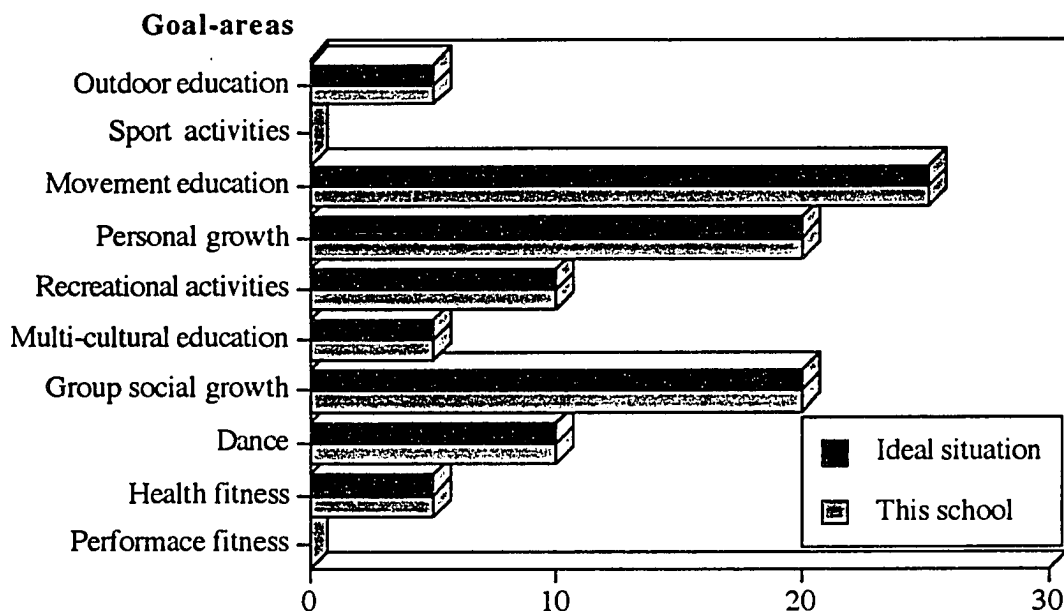
Goal-areas

Figure 23. Liisa's attitudes and values about different goal-areas

Teaching strategies and principles.

Teaching strategies and principles was the final theme of Liisa's espoused theories of action. This theme had four categories; instructional format, dynamic instruction, student behavior, and evaluation.

Liisa indicated she used several instructional formats and she employed teacher directed whole group instruction more often with seventh graders than with ninth graders. She described this method included teacher initial demonstration of the complete performance and that she gave clear directions about the task Liisa explained she then "taught part by part" (1In6) and she stated her experience supported that it worked:

> I have found that it [some skill] is very difficult for some [students], they do definitely not understand it, if one doesn't somehow teach it in a really simple way and emphasize some detail. (2Vi1)

She indicated this method saved time and she employed the same method in different sports although it was not suitable in all sports.

Another format Liisa used was station teaching, where she always stayed at the station with the most difficult tasks. She planned the other stations: "in such a way that [they] can with the help of a partner or alone do some skills (2In1). Liisa had as a beginning teacher prepared task cards:

> They [students] are there alone as a group so they suddenly don't remember what she had actually said that they had to do here. They [task cards] are therefore there that they [the students] can check if they forget. (2Vi2)

In addition, she felt students could get ideas for creative tasks from the task cards and she felt the students did use the cards. Students tasks varied at the stations and Liisa explained she students sometimes had to prepare a short presentation of what they had practiced at the station. While she could not supervise every station, she described the group performance was a way for her to "control that they have done it [the task]" (1In7). Moreover, Liisa stated: they [the students] like it when they can show [their task] to others" (1In7).

In gymnastics, Liisa used apparatus circuit format. Apparatus were distributed in the gym and the students moved from one piece of apparatus to another. The students did the circuit several times as tasks were a little different each lap. Liisa described scrimmage as one instructional format in basketball where she "stops the situation and explains it there" (1In4).

In the category student behavior, Liisa believed students should be active during physical education lessons. Although being able to use only half of the gym was a limitation, her aim was "that everyone would get as many performances as possible anyhow" (1Vi3). Figure 22 shows that a class where students are active and get many opportunities to practice was central to her

values for teaching.

According to Liisa, a strategy to increase student activity was to provide the students with basketballs as soon as they entered the gym so they could: "for a while get used to the ball" (2Vi1). She indicated the strategy provided her with a opportunity to observe student motivation by: "just watching that how actively they start to practice" (2Vi1). Furthermore, Liisa believed student activity was more important than how students performed the task because:

> It can be that such [students] who can't do it [the skill] then they don't dare to do anything there, nor do they perform if one emphasizes it [the skill] too much (5L2)

Although, Liisa felt some students tried to hide and avoid practice, their resistance was taken too seriously:

> Of course Saga and Nina are such [students] who mostly try to avoid doing things but they also start to practice when they have to. It is mainly a little pushing and shoving with each other. But they do practice then when they have to. (1Vi3)

Student cognitive involvement was not central to Liisa, although she stated students had to think more in some sports than in other sports.

Another category in Liisa's teaching strategies and principles was dynamic instruction, which included theories about student control, monitoring, and teacher feedback. Liisa wanted to have good discipline in her lessons, where "I'm the one who decides" (1In6). She explained students needed to attend to her task presentation because:

> I can't stand it that when I try to get stuff across [that] other [students] chat there all the time. (1In6)

Liisa believed "if one is not authoritative one can't teach" (3In4) and she was concerned about students being able to concentrate on their work. She said:

> I want to have a certain order to make the job work. If [it] works in a way by itself although there is hubbub, and if it doesn't disturb me I let it be

that way. Only if I feel that the job doesn't work so then I attend to the order. Often if nothing disturbs me so there can be more hubbub. (1In7)

Liisa could not describe when she reacted to student behavior because it depended on "the mood one was in" (1In7) and also on "the internal feeling" (1In7). However, she stated she watched and reacted when the students "don't obey but rather do their own things" (1In7). She thought the students would describe her as somewhat loose because she knew colleagues who implemented a more stringent discipline and climate.

Liisa indicated the start of school year was important for her while she then laid the groundwork down as regard to discipline and she said:

> In the fall when one starts one has to take a rather tight grip in the beginning.... Otherwise [it] doesn't work if there are not mutual rules. Then I usually start to loosen up a little from that. Then I'm after that rather easygoing until something happens which makes the order not work, then I can also explode. (1In6)

In monitoring student practice Liisa wanted to maintain a position where she could see as many students as possible. In station teaching she stayed at the most demanding station and prompted across space help to keep students on task. Liisa said she used monitoring to observe and control student learning and how motivated students were:"of course one can see it" (1In7). In addition, she explained she tried to attend to every student: "I go through all baskets and I do try to follow every [students'] performance"

> Liisa described positive student feedback was essential:

> I my self think that I encourage a lot. I try to find positive aspects though someone could be really wretched in something. So I always try to find something good. (2In4))

An ideal teaching situation was for Liisa one where she could provide a lot of individual feedback.

The final category in Liisa's teaching strategies and principles was

<u>evaluation</u> and she indicated she would prefer pass/fail grading in high

school. She explained:

> then when one evaluates, the students behave somehow differently. Or
> they do it just because they have to do it. Then if here was no evaluation
> then the atmosphere would surely be different. I think that in high school
> one could surely activate them differently if there was no evaluation
> (2In3).

However, she wanted evaluation with grades in middle school and said:

> It does affect them that they get grades and what grade it is, so [it] affects the
> way how they perform. (2In3)

Liisa felt the students were used to grades and that they see physical education

as a subject in the school, although she felt that students believed that they

could get a good grade if they only tried a little.

Liisa described how each student is evaluated with pluses and minuses in

each sport, not a regular grade and based on these she figured out the final

grade for the students. The evaluation for each sport included knowledge,

skill and activity, although she did not use any tests. Liisa explained how a

student can receive three pluses in a sport:

> one sees it immediately. If someone [a student] gets three pluses so one
> sees it immediately. She is really super when she get three pluses. (2In4)

She indicated students got one plus when they tried hard although they were

not very skilled.

Liisa described a method she used previously spring when during the last

lesson of the semester she discussed grades individually with each student.

She asked the students what grade they deserved and she told them what she

had given them and they then discussed if the grade was appropriate. Liisa

pointed out the students: "knew rather well what they deserved" (2In4)

which she felt was an indication that the grades were appropriate.

Summary of Liisa's espoused theory of action

Liisa held a personalistic view of teaching physical education, with the major goals of helping students to acquire a persisting interest in physical activity through experiencing a variety of activities in a joyful learning climate. Her espoused theory of action lacked specificity on how the persisting interest was to be acquired, as she manifested few specific, substantive goals for teaching. She wanted to build and sustain positive relationships with students, to pay attention to them and to support their efforts in a teacher centered instructional format. She expected them to behave well but otherwise sought a low-key, socially positive class climate. She had worked hard to become an enthusiastic and skilled role model, and this was an important ingredient in her personalized approach to teaching; that is, showing students a physically active, enthused adult in activity settings.in her approach to teaching so as to achieve the goals of the ETA.

The Ecology of Liisa's Learning Environment

Findings about the ecology of Liisa's learning environment are section presented in three parts. The subresearch questions guide the presentation. Part one presents results based on an analysis of individual lessons. The second part describes results from the task system analysis of three short units; basketball, gymnastics, and dance. Finally, student experiences of the physical education program are presented in part three.

Defining individual lessons

Classroom work in two lessons is outlined in detail and expanded with teacher goals and comments and with student reactions after the lesson. One basketball and one gymnastics lesson are presented.

During the second lesson in basketball, Liisa allocated more practice time and less game time compared to the other two basketball lessons. She had the whole gym and 15 students were present. Her goal for the lesson was to have a warm up part, to teach the lay up, and to play the game. She justified lay up practice with:

> Just those shooting situations, are such that they [the students] always somehow stop and then they try to shoot there. [the goal is] that it [lay up] would become smoother and at the same time the shooting skill would improve because it is much easier to score with lay up than just by shooting. (3L1).

Lesson two lasted 31:18 minutes, of which 9:08 minutes (29.2 %) was spent in instruction, 6:25 minutes (20.5 %) in transitions, 15:45 minutes (50.3 %) in student practice. Students spent 8:23 minutes (26.0 %) of the lesson in game play and of this time, students spent 88.1 % in actually playing the game, while the rest of game time consisted of Liisa substituting players or instructing skills and strategies.

As soon as the girls were dressed, they could come into the gym and start to play with the ball, although without any directions from Liisa. When everyone had arrived, Liisa described the content of the lesson. Figure 24 shows the instructional tasks for the lesson and the time spent in each task. In the first dribbling task, the students were to dribble and change direction at every line. However, it was too crowded and Liisa divided the students into two groups when they repeated the same task. Every student had one ball in all skill practice tasks during the lesson.

Liisa initially demonstrated the lay up skill, then the students practiced the skill in four short tasks where she used command style and all students started at the same time. She then paired students so that one kept the ball in

front of her and the other grabbed the ball and performed a lay up. However, in these two lay up tasks the students did not shoot towards a basket, just up in the air. With the same practice formation, she extended the practice where students performed lay up from dribbling, still not shooting at a basket. The final lay up task was done at baskets where the groups of two or three girls performed lay up. At the end of the lesson they played a game. Liisa formed two teams of six and nine girls based on which class the student originally belonged to, because the students could practice for intramurals. The girls from the team with nine did not all play because Liisa did not substitute often enough.

#	Task	Focus	Type	How	What	Situation	Task time
1	Dribbling	From line to line	Extend	Verbally Teacher	General Organization	Specified	0:23
2	Dribbling	The same in two groups	Routine	Verbally	General	Routine	1:00
3	Lay up	Rhythm	Inform	Verbally Teacher	General Skill	General	0:08
4	Lay up	Knee up	Refine	Verbally Teacher	General Skill	Routine	0:05
5	Lay up	Same	Routine	Verbally	General	Routine	0:07
6	Lay up	Right hand up	Refine	Verbally	General Skill	Routine	0:04
7	Lay up	With the ball in front	Extend	Verbally Teacher	General Skill	General	0:12
8	Lay up	Good jump	Refine	Verbally	General Skill	Routine	1:26
9	Lay up	From dribbling	Extend	Verbally Teacher	General Skill	General	0:08
10	Lay up	Same	Routine	Verbally	General	Routine	0:10
11	Lay up	Same	Routine	Verbally	General	Routine	0:48
12	Lay up	In pairs at baskets	Extend	Verbally Teacher	General Skill	General	3:51
13	Game play	Class game 5 v 5	Apply	Verbally	General	General	7:23

Figure 24. Teacher task presentation in the basketball lesson

In addition to describing each task verbally, Liisa demonstrated the skill when it differed from previous tasks and also once in a refining task. She described every task generally what students were to perform and emphasized skill features in new or refining tasks. Organization was described in one dribbling task, where practice conditions were specified with lines. Otherwise Liisa presented practice conditions in general terms for new practice situations, while she did not attend to practice conditions in refining and routine tasks. Liisa monitored dribbling practice while she did not monitor or only monitored in short lay up tasks and interacted with feedback in longer lay up tasks. In addition, she provided group post task feedback after the last lay up task.

Figure 25 shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target student was actively dribbling 80.1 % of the time allocated for dribbling practice and the target student's practice was congruent and technically correct in 65.6 % of actual practice. In teacher directed whole group lay up practice, the target student had 13 OTRs (4.1 OTR/minute) of which 84.6 % were congruent and appropriate. In the last lay up task the target student had 19 OTRs (4.9 OTR/minute) and all were technically correct and congruent with stated task. Finally, in game play the target student had seven OTRs with a rate of 0.9 responses per minute.

Liisa thought the lesson turned out mostly as planned, although she explained: "I really don't plan them [the lessons] so terribly exactly nowadays" (3L1).

However, she indicated the students had learned lay up:

> They did learn the lay up fairly well, we did not teach it properly last year, they learned it rather well. (3L1)

She noticed that some students received little game time, but she explained this happened because they practiced for the intramurals in basketball.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1	Dribbling	0:23	0:23	0	0	Monitor
2	Dribbling	1:00	0:44	0:44	0:44	Monitor
3	Lay up	0:08	1	1	1	No
4	Lay up	0:05	1	0	0	No
5	Lay up	0:07	1	0	0	Monitor
6	Lay up	0:04	1	1	1	Monitor
7	Lay up	0:12	1	1	1	No
8	Lay up	1:26	3	3	3	Monitor Interaction
9	Lay up	0:08	1	1	1	Monitor Interaction
10	Lay up	0:10	1	1	1	Monitor Interaction
11	Lay up	0:48	3	3	3	Monitor Interaction
12	Lay up	3:51	19	19	19	Monitor Interaction Feed back
13	Game play	7:23	7			Monitor Interaction

Figure 25. Student response and teacher accountability in the basketball lesson.

The students described the goal for the lesson as "we learn the steps", "[one] could get the dribbling firmer" and "we could get to use lay up also in game play". One student stated lay up was difficult while other said: "we were taught those [lay up] in elementary [physical education]" and "it was not really so difficult that one could think it would be. Yes one understood it".

Therefore, the students described things they had learned during the lesson: "Yes, one now knows those steps" and "Quite what we had to, those steps".

However, one student had negative experiences:

> I certainly did not learn anything. Perhaps I once learned those steps, but
> not I, I'm almost sure, that I would not be able to use it in the game,
> because it is so fast. I think I would need more practice, also in that stuff.

The students liked it when they were not forced to practice and one

student stated:

> I think it was such that it [the lesson] was not terribly official, so that one
> learns there rather well and it was not such that one had to learn, rather it
> was like that it [the lesson] went rather well.

Nevertheless, one girl preferred to remove some difficult tasks and add

tasks where students were successful.

In the second lesson of the gymnastics unit, Liisa had 15 students in one

half the gym. Liisa was trying to teach stunts, although she had never before

taught stunts to any groups. In addition, she indicated she would use station

teaching format with her primary focus on the station where she taught

vaults:

> Last year we had the horse during these lessons and they did not really
> dear to vault. (6L1)

Gymnastics lesson two lasted 91:23 minutes, of which 0:26 minutes (0.5 %)

was spent in management, 11:32 minutes (12.7 %) in warm up, 20:39 minutes

(22.6 %) in instruction, 15:57 minutes (17.5 %) in transitions, and 42:48

minutes (46.8 %) in student practice.

Figure 26 shows the instructional tasks and the time allocation in the

gymnastics lesson. The lesson was started by Liisa with two cooperative games

as warm up which was followed by teacher directed stretching tasks. Liisa

began actual skill instruction with backward roll practice. She first

demonstrated the skill, presented the critical elements, and stated how many

repetitions the students should perform. The informing task was followed by a routine task where Liisa expected all students to perform at least one backward roll. She continued with stunts for eleven tasks with students practicing in pairs or small groups. Liisa described, demonstrated, used student demonstrations, or showed from handouts what skill the students were to practice. During student practice she actively moved around and gave individual feedback.

Then Liisa divided the class into two groups and organized two stations for practice. She instructed at the vault station while at the stunts station, students practiced and built different stunts with all students involved. When students at the stunts station successfully performed a stunt, Liisa stopped vault practice so they could observe the stunt performance.

In addition to verbal presentation of the tasks, Liisa demonstrated the skills and employed student demonstrations and handouts to clarify the tasks. She showed stretching and vault tasks alone, while in stunts tasks she often demonstrated together with a student. General information of the tasks was frequently specified with skill feature, while outcome and organizational features were hardly employed. Liisa described practice conditions in general terms for the first tasks in a skill sequence but then did not attend to practice conditions any more during the sequence. She held the students accountable through monitoring and interactions with the students. Field notes revealed that although Liisa instructed at the vault station, she did monitor and provided feedback across space to students at the stunts station.

#	Task	Focus	Type	How	What	Situation	Task time
1 - 3	Cooperative game	The hospital germ	Inform Routine	Verbally Student	General Organization	General Routine	4:30
4	Cooperative game	Catch and roll	Inform	Verbally	General	General	2:48
5 - 15	Stretching	Different positions	Inform Extend Routine	Verbally Teacher	General Skill	General Routine	4:11
16	Backward roll	From sitting position	Inform	Verbally Teacher	General Skill Outcome	General	1:04
17	Backward roll	Same	Routine	Verbally	General Outcome	General	4:53
18	Stunts	Knees and hands on the back	Inform	Verbally Material	General Skill	General	0:15
19	Stunts	Knees on the back	Extend	Verbally	General	Routine	1:27
20	Stunts	Both only knees	Extend	Verbally Teacher Student	General Skill	Routine	1:08
21	Stunts	Standing on the back	Extend	Verbally	General	Routine	1:16
22	Stunts	The scale	Inform	Verbally Material	General Skill	Routine	0:24
23	Stunts	Same	Refine	Verbally Student	General	Routine	0:49
24	Stunts	Airplane	Inform	Verbally Teacher Student Material	General Skill	Routine	2:03
25	Stunts	In triads	Inform	Verbally Teacher Student	General Skill	Routine	1:05
26	Stunts	Standing on knees	Extend	Verbally Teacher Student	General Skill	Routine	2:15
27	Stunts	Other direction	Extend	Verbally Teacher Student	General Skill	Routine	1:53
28	Stunts	Sitting on the others feet	Inform	Verbally Teacher Student Material	General	Routine	0:51
29	Vaults	Just jumping on the board	Inform	Verbally Teacher	General Skill	General	1:06
30	Vaults	Knee to stand vault	Extend	Verbally Teacher	General Skill	Routine	2:09
31	Vaults	Squat-on vault	Extend	Verbally Teacher	General	Routine	3:05
32	Vaults	Flank vault	Extend	Verbally Teacher	General Skill	Routine	2:43
33	Vaults	Same	Routine	Verbally	General	Routine	0:52
34	Stunts	Free group stunts	Apply	Verbally Material	General	General	8:15
35	Stunts	Standing on shoulders	Inform	Verbally Teacher Student	General	Routine	5:16

Figure 26. Teacher task presentation in the gymnastics lesson.

Figure 27 shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target student was active all the time during the cooperative games and the performance was appropriate and congruent because the goal of the task was to be active and had no technical requirements. In stretching tasks, the target student was actively stretching 62.5 % of the time Liisa allocated for stretching and the performance was 82.2 % congruent and appropriate. One backward roll was congruent and technically correct of the two OTRs the target student performed during backward roll practice. However, the OTR rate was only 0.3 responses per minute in backward roll practice.

In the first part of stunts practice, where Liisa actively instructed and supervised the whole group, the target student had 26 OTRs (1.9 OTR/ minute) of which 42.3 % were congruent and technically correct. When the students practiced stunts during station teaching the target student had five OTRs of which three were congruent and technically correct while the response rate was only 0.4 per minute. The target student performed 12 OTRs in vault tasks with 1.2 responses per minute and all responses were technically correct and congruent with the stated task.

Liisa was satisfied with the lesson and she felt it was successful because: "when they [the students] at the end said that [it] was a nice lesson" (6L1). She explained she had planned to have more vault practice than she now had and she decreased vault practice since she spent more time on stunts and the students feared vaulting practice. This was a response that was typical for several post interviews. However, stunt practice was a positive experience also for Liisa and she pointed out she would teach stunts again and also to other groups.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1 - 3	Cooperative game	4:30	4:30	4:30	4:30	Monitor Interaction
4	Cooperative game	2:48	2:48	2:48	2:48	Monitor Interaction
5 - 15	Stretching	4:11	2:37	2:09	2:09	Monitor Interaction
16	Backward roll	1:04	0	0	0	Monitor Interaction
17	Backward roll	4:53	2	1	1	Monitor Interaction
18	Stunts	0:15	1	1	1	Monitor Interaction
19	Stunts	1:27	1	1	1	Monitor Interaction
20	Stunts	1:08	3	1	1	Monitor Interaction
21	Stunts	1:16	2	2	2	Monitor Interaction
22	Stunts	0:24	1	0	0	Monitor
23	Stunts	0:49	1	1	1	Monitor Interaction
24	Stunts	2:03	3	2	2	Monitor Interaction
25	Stunts	1:05	0	0	0	Monitor Interaction
26	Stunts	2:15	5	2	2	Monitor Interaction
27	Stunts	1:53	7	0	0	Monitor Interaction
28	Stunts	0:51	2	1	1	Monitor Interaction
29	Vaults	1:06	7	7	7	Monitor Interaction
30	Vaults	2:09	1	1	1	Monitor Interaction
31	Vaults	3:05	2	2	2	Monitor Interaction
32	Vaults	2:43	1	1	1	Monitor Interaction
33	Vaults	0:52	1	1	1	Monitor Interaction
34	Stunts	8:15	3	3	3	Monitor
35	Stunts	5:16	2	0	0	Monitor

Figure 27. Student response and teacher accountability in the gymnastics lesson.

The students stated in the group interview that the goal for the lesson was to learn the stunts. One student said: "we can have fun there when we do those stunts" while some students indicated vault practice as a goal. When asked about what they learned during the lesson, the students replied with divergent viewpoints. One student said: "I did not learn anything", while another student said:

> I really don't know because I could already do somehow all those vaults on the horse so one somehow learned those stunts now.

Several students indicated they learned the stunts and one student stated: "I got at least some more years [to live] because I laughed so much".

The post lesson survey indicated that the lesson was enjoyable for 78.6 % of the students and 71.4 % of the students reported they were successful in practicing the stated tasks. In the interview, one student said: "I loathe gymnastics more than anything, I can't stand [it]" while another said:

> I also usually loathe [gymnastics] but I think it was rather fun this stunts stuff. Then I did not at all like that horse thing.

However, one student had opposite feelings:

> it was super funny, it was so good that after all I don't remember such a funny physical education lesson.

These opposite positions were also found while discussing the content of the lesson. Some students said: "I think it was a very good lesson" and "I think it was rather good that I would not have changed anything". However, another student said:

> After all it was rather free, one was not forced to do anything, one could do if one wanted to, it was fun. But I would have left out vault practice.

The students disliked vaults because it was difficult, they were afraid and concerned about safety. They said: "I could not do them", "I fear it

tremendously", and "because at elementary school I sometimes injured my hand there".

The task system at a macro level

This section presents results from the task system analysis of instructional tasks from the basketball, gymnastics, and dance unit. Findings are presented for task type and sequence, performance requirements, student responses, and accountability.

Task type and sequence for Liisa's learning environment are presented separately for each sport. Task development in different sports is shown in Table 15. In basketball, Liisa most frequently employed extending tasks, followed by refining and routine tasks. She used only two informing tasks, for dribbling and the lay up. Applying tasks were game play lasting longer than other tasks.

In gymnastics, Liisa employed predominantly informing and extending tasks. Applying tasks were longer than other tasks. Instructional tasks in gymnastics were longer than in basketball and dance.

In dance, Liisa employed extending tasks most frequently, followed by routine and refining tasks. Extending tasks were longer than other tasks and instructional tasks were altogether shorter than in basketball and gymnastics. Different dances and step series were practiced through a progression of tasks, including informing, refining, extending, and routine tasks.

Figure 28 shows the tasks sequence in the basketball unit. In addition to game play, Liisa used 3 - 12 instructional tasks per lesson. She emphasized two skills, dribbling and lay up, which were practiced in two lessons each, through a sequence of informing, extending, refining, and routine tasks.

Table 15

Frequency and Duration for Different Tasks in Each Sport

Type of task	Numbers of tasks	%	Total time	%	Average length
Basketball					
Inform	2	9.5	1:09	2.3	0:35
Refine	4	19.1	3:09	6.2	0:47
Extend	8	38.1	12:11	23.8	1:31
Routine	4	19.0	2:05	4.1	0:31
Apply	3	14.3	32:30	63.6	10:50
Total	21	100	51:04	100	
Gymnastics					
Inform	13	43.4	37:31	43.0	2:53
Refine	1	3.3	0:49	0.9	0:49
Extend	10	33.3	16:33	19.0	1:39
Routine	3	10.0	6:42	7.7	2:14
Apply	3	10.0	25:36	29.4	8:32
Total	30	100	87:11	100	
Dance					
Inform	12	15.8	5:14	11.9	0:26
Refine	15	19.7	7:11	16.3	0:29
Extend	31	40.8	23:30	53.3	0:45
Routine	17	22.4	7:24	16.8	0:26
Apply	1	1.3	0:45	1.7	0:45
Total	76	100	44:04	100	

Lesson one			Lesson two			Lesson three	
Dribbling	Inform		Dribbling	Extend		Lay up	Extend
Dribbling	Extend		Dribbling	Routine		Lay up	Extend
Dribbling	Refine		Lay up	Inform		Lay up	Extend
Game play	Apply		Lay up	Refine		Game play	Apply
			Lay up	Routine			
			Lay up	Refine			
			Lay up	Extend			
			Lay up	Refine			
			Lay up	Extend			
			Lay up	Routine			
			Lay up	Routine			
			Lay up	Extend			
			Game play	Apply			

Figure 28. Task progression in basketball

Figure 29 shows the task sequences for gymnastics lessons. Like basketball, Liisa sequenced tasks for some skills in gymnastics, while other skills had only one task. In addition, Liisa focused on different skills during each lesson.

The performance requirements for Liisa's task presentation are shown in Table 16. In addition to a verbal task presentation, she used teacher and student demonstrations and also other materials. Teacher demonstration was employed in almost two thirds of instructional tasks in dance, in half of the tasks in gymnastics, and in one third of the tasks in basketball. Student demonstrations as used in situations were two or more persons were needed to show the task, most frequently in gymnastics. A typical situation for student demonstrations were stunt practice in gymnastics, the couple in dances, and organization of a drill in basketball. Liisa used task handouts in gymnastics for student practice at stations.

Lesson one			Lesson two	
Apparatus circuit	Inform		Backward roll	Inform
Bridge	Inform		Backward roll	Routine
Bridge	Extend		Stunts	Inform
Bridge	Inform		Stunts	Extend
Beam series	Apply		Stunts	Extend
Vault	Inform		Stunts	Extend
Floor series	Apply		Stunts	Inform
Uneven bars	Inform		Stunts	Refine
Uneven bars	Routine		Stunts	Inform
Uneven bars	Inform		Stunts	Inform
			Stunts	Extend
			Stunts	Extend
			Stunts	Inform
			Vault	Inform
			Vault	Extend
			Vault	Extend
			Vault	Extend
			Vault	Routine
			Stunts	Apply
			Stunts	Inform

Figure 29. Task progression in gymnastics

Liisa presented each task by generally describing what the students were to do. In addition, she explained skill features of the instructional tasks more in gymnastics and in basketball than in dance lessons. She presented outcome criteria for tasks only in gymnastics and organization in basketball, which shows the different nature of the activities.

This was also noticed in the way in which Liisa specified the practice situations. In dance, the practice situation was similar to previous tasks in most of the instructional tasks. In basketball and gymnastics she described practice conditions generally, when in tasks where the situation was not previously known.

Table 16.

Performance Requirements for Tasks in Different Units

| Sport | Task communication | | | |
	Verbally	Teacher demonstration	Student demonstration	Materials
Basketball (n=21)	100 %	33.3 %	9.5 %	0 %
Gymnastics (n=30)	100 %	46.7 %	30.0 %	16.7 %
Dance (n=76)	100 %	64.5 %	5.3 %	0 %

| | What is described or demonstrated? | | | |
	General	Skill features	Outcome	Organization
Basketball (n=21)	100 %	42.9 %	0 %	19.1%
Gymnastics (n=30)	100 %	46.7 %	10.0 %	0 %
Dance (n=76)	100 %	29.0 %	0 %	0 %

| | Specification of practice situation | | |
	Only generally	Clearly specified	Routine task
Basketball (n=21)	42.9 %	4.8 %	52.4 %
Gymnastics (n=30)	36.7 %	0 %	63.3 %
Dance (n=76)	13.2 %	0 %	86.8 %

Performance requirements were also analyzed at a skill sequence level and Liisa typically demonstrated the skill in tasks where the performance was different compared to the previous task. Similarly, skill features were

presented once for the same skill in basketball and gymnastics, while in dance she did not frequently attend to critical elements.

Student work during practice is related to how the teacher organizes student practice, although the student herself had a central role in mediating and negotiating stated tasks. In this study, the teacher's time allocation was divided into management, warm up, instruction, transition, and practice.

Table 17 shows Liisa's time distribution during different activities. Liisa used little time to management and warm up. On average, she spent 27 % in instruction and 18.4 % in transitions while 49.2 % was spent in practice. In gymnastics there was somewhat less instruction time and gymnastics was the only sport where she employed warm up tasks which were not related to the instructional tasks of the lesson. On the other hand, dance included more instruction time and less transition time compared with the other activities. In basketball, Liisa spent on average 42.7 % of the lesson time in game play. Of this time, students were involved in actual game play in 82.6 % of the time, while Liisa instructed and provided feedback 7.8 % of the game time and she used 9.6 % in transitions.

Tables 18, 19, and 20 show student responses for the three activities. Student response is presented separately for each activity due to the different structure of the lessons. In basketball, game play was the dominant form of practice. However, student response data reveals that they had few opportunities to pass, shoot, or dribble during game play. Student OTR rate was much higher in skill practice, although dribbling showed to be a difficult task.

Table 17.

Liisa's Time Distribution during Lessons

Lesson	Content	Management Time	%	Instruction Time	%	Transition Time	%	Warm up Time	%	Practice Time	%	Total
1	Dance	3:42	5.6	29:46	45.0	4:32	6.9	0	0	28:03	42.5	66:03
2	Basketball	0	0	9:33	30.3	6:30	20.6	0	0	15:29	49.1	31:32
3	Basketball	0	0	9:08	29.2	6:25	20.5	0	0	15:45	50.3	31:18
4	Gymnastics	0	0	14:14	16.3	24:10	27.7	4:28	5.1	44:22	50.9	87:14
5	Basketball	0	0	4:27	14.6	6:14	20.4	0	0	19:50	65.0	30:31
6	Gymnastics	0:26	0.5	20:39	22.6	15:57	17.5	11:32	12.7	42:49	46.8	91:23
7	Dance	0:13	0.7	12:19	37.5	4:19	13.1	0	0	16:01	48.7	32:52
Mean		0:37	1.1	14:18	27.0	9:44	18.4	2:17	4.3	26:03	49.2	52:59

Table 18.

Student Engaged Time/Response for Skills in Basketball

Skill	Tasks #	Practice time	%	Engaged time	%	Total OTR #	OTR rate #/min	Congruence %	Appropriate %
Dribbling	5	4:35	9.0	3:58	86.5			50.8	50.8
Lay up	13	13:59	27.4			51	3.6	96.1	96.1
Game play	3	32:30	63.6			27	0.8		
Total	21	51:04				78			
Mean							2.2	73.5	73.5

In gymnastics, Liisa allocated most time to stunts practice, vault practice, and apparatus circuit. The target student had the highest response rate in beam practice and apparatus circuit, while the response rate was low in backward roll and uneven bars practice. The congruence of student practice was high in tasks with few requirements and low when the target student could not perform the skill. While the congruence was high in complex, problem-centered tasks without close teacher supervision, the target students responses were technically less correct in these tasks.

Table 19.

Student Response for Different Skills in Gymnastics

Skill	Tasks #	Practice time	%	Total OTR #	OTR rate #/min	Congruence %	Appropriate %
Stunts	13	26:57	30.9	31	1.2	45.2	45.2
Floor series	1	7:30	8.6	17	2.3	100	76.5
Bridge	3	1:33	1.8	4	2.6	100	100
Backward roll	2	5:57	6.8	2	0.3	50.0	50.0
Vault	6	17:34	20.2	27	1.5	100	81.5
Beam	1	9:51	11.3	39	4.0	100	48.7
Uneven bars	3	5:26	6.2	3	0.6	66.7	66.7
Apparatus circuit	1	12:23	14.2	37	3.0	91.9	91.9
Total	30	87:11	100	160			
Mean					1.8	81.7	70.1

In dance, Liisa allocated one lesson to hip-hop, while another lesson consisted of three social dances; bunny jump, schottische, and waltz. Students were actively engaged about 80 % of practice time, and student practice time was less than half of the actual lesson. Hip-hop was a difficult dance for several students and they participated actively if they able to do the skill otherwise they just stood and observed. The target student was active more of the practice time in schottische and waltz compared to hip-hop, although the congruence and appropriateness was lower than in hip-hop. Field notes revealed that the students continued to practiced in schottische and waltz although the steps and performance were not congruent and technically correct.

Table 20.

Student Response in Different Dances

Dance	Tasks #	Practice time	Engaged time	%	Congruence %	Appropriate %
Bunny jump	3	2:17	2:05	91.2	83.5	83.5
Schottische	14	7:28	6:09	82.4	83.5	83.5
Waltz	6	6:16	5:07	81.6	62.5	62.5
Hip-hop	53	28:03	19:19	68.9	98.6	98.6
Total	76	44:04	32:40			
Mean				74.1	82.0	82.0

Accountability relates to strategies teachers' used to sustain appropriate

student work (Siedentop, 1991a). Table 21 shows Liisa's accountability

practices. The most frequent accountability form used by Liisa was teacher

monitoring and individual feedback to the students. Although she was

involved working with a single student, she knew what happened in the gym

and she provided feedback across space when needed. Liisa moved actively

around and monitored from the perimeter. In addition to verbal feedback, she

danced with individual students in order to facilitate learning in social

dances. Liisa employed post task feedback and public recognition infrequently.

In a few tasks, she did not monitor student work. Field notes indicated she

either performed the skill as a demonstration with her back to them similarly

with student practice or the students practiced unsupervised at another

station than where the teacher was. Monitoring without interaction was

typical in dance, while she tried to help students by demonstrating the steps

similarly with student practice or by leading the step series with her voice.

Table 21.

Student Accountability

Sport	No monitoring	Monitor	Monitor Interaction	Post task feedback	Public recognition
Basketball (n=21)	14.3 %	23.8 %	61.9 %	9.5 %	0 %
Gymnastics (n=30)	6.7 %	16.7 %	80.0 %	0 %	6.7 %
Dance (n=76)	4.0 %	61.8 %	34.2 %	1.3 %	1.3 %

Student views of the physical education classes.

This section presents result for student experience from the physical education program and particularly from basketball, gymnastics, and dance. Data about student perceptions and experiences were collected through a sentence completion task and small group interviews.

The students' experience of joy and success is presented in Figure 30. More students indicated they enjoyed the lessons compared to students being successful. The difference between enjoyable and successful experiences from the lessons was larger after dance classes compared to basketball and gymnastics, which meant that in dance students enjoyed lesson although they were not always successful. More students indicated they enjoyed the lesson in dance compared to gymnastics and basketball. However, the highest percent of student success was reported after one basketball lesson.
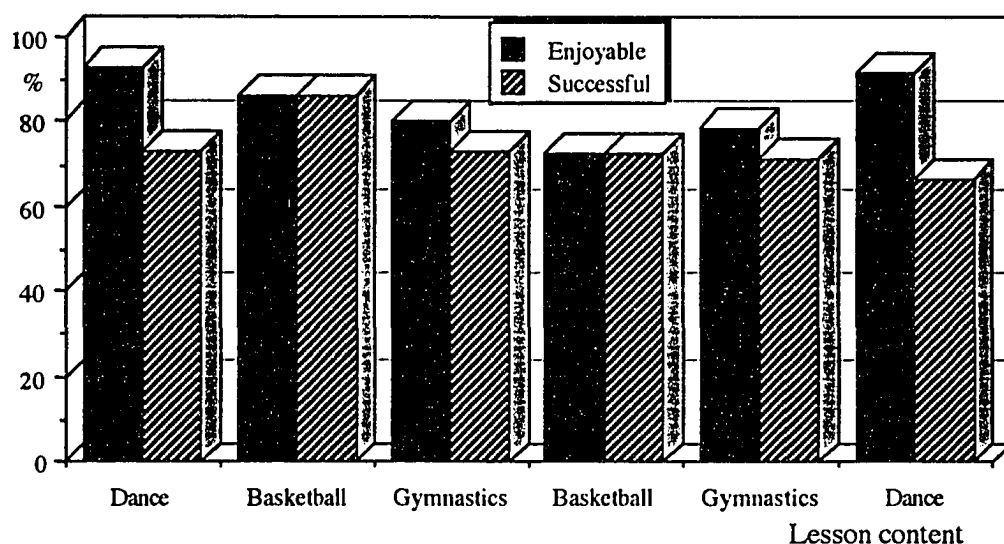

Figure 30. Percentage of students reporting the lesson was enjoyable and successful.

The students described middle school and eighth grade physical education "is almost the same" as sixth grade in elementary school although they stated they had more dance and elective lessons away from the school area. In addition, they pointed out physical education was more difficult because "there is certainly more stuff" and "if one plays so then all rules are more exact". The students stated instruction was similar to elementary physical education: "in all things the teacher teaches and everyone tries to do that" and they felt they could learn "everything fun", "all kinds of [things]" and "new things". Although the students described they did not play cooperative games as frequently as in elementary physical education, they still liked to play because "it is sometimes quite fun that one doesn't have to be so serious"

The students explained Liisa's goal for middle school physical education was to "learn the meaning of physical activity" because "you know it's fun, it's healthy". Physical education was also a place were students felt they could try out different sports:

> I at least believe she doesn't try so tremendously to teach rather shows all kinds of sports, you know physical activity is not only running or aerobic or something like that or then some games. To that belongs much more than those [sports]. She shows in a way that if one doesn't have any other chances to become familiar with other sports, so then here one can at least get a little [experience].

By participating in different sports the students indicated they could: "find an interest of one's own which one could then start to participate in".

In addition, the students pointed out one goal was: "to respect each other or act in a way to support others".

Physical education was important for the students because it provided a break from all the theoretical work at school and they described the climate was more relaxed than during other lessons. Some students felt this provided

a chance for them to interact and to learn to know each other. Others said they could "chat rather freely with friends" and "really be oneself and fulfill oneself".

Some students said that canoeing had been a positive experience because "I had never before learned something like that" Other students liked team games, while some preferred visits to fitness clubs and one student explained:

> It's really fun when we go to all those different places that everything is not in the school.

Other students described dance was their favorite activity and they preferred to have more dance lessons in the program. Furthermore, they stated they had learned and improved during dance lessons and one student believed:

> I think it's rather important to be able to dance all waltzes and those. It's also fun.

In addition, the students enjoyed hip-hop dance and one girl pointed out:

> I liked that hip-hop although I sometimes mixed up my steps but it was really funny.

The students practiced social dances in gender separated groups and they hesitated about dance lessons in mixed groups since one girl stated "then it could be that one doesn't like to [dance]. The students explained: "sometimes it could be that if one can't dance so the crowd laughs, if one then makes a boner" and "yes, I would really be so embarrassed". Moreover, the girls hesitated about mixed groups in other sports while

> the guys are so skilled in gymnastics, and in basketball we could never keep up with them.

However, one student thought: "sometimes it would be fun to try mixed teams in some other team sports [than basketball]".

On the other hand, the students said that they did not like every sport while some of sports were so demanding. Some students complained while their bodies were sore from practice. In addition, other students pointed out they were stressed when showering and dressing after the lesson and they did not have time to get to the following lesson.

The students described Liisa helped them "always when I can't perform something", "if I need help", and "to learn new [things]. The students pointed out it was valuable when she moved around and ensured that everyone could do the skill. They described Liisa identified wrong performances and that she provided help by "almost holding their hands, demonstrates and advises" when she covered the skills thoroughly. Teacher praise was perceived by the students as another form for facilitating their practice. One student explained:

> I have anyhow noticed that if someone can do something well then she also says it, that she doesn't keep it to herself; rather she says, perhaps good or something like that.

Other students believed Liisa was particularly concerned about low skilled students and one low skilled student said:

> when I can't do a lot [and] sometimes if I succeed she says it, if she has noticed that I was successful. It does encourage one to do it, to try even harder.

Likewise, teacher praise was important for their motivation while one student stated: "if she doesn't say anything then one could think that she doesn't care at all".

To students, a good grade in physical education required them "to participate", "to try one's best", and "to work really hard" and the effort was more essential than how skilled they were. In addition, one student pointed

out they had to be on time and behave well, while another believed cooperation and encouraging other students was needed for a good grade. Some students indicated they benefited from being active outside the school physical education. Nevertheless, several students explained it was difficult to receive a good grade "she doesn't give good grades easily". Another said: "it's not really hard but it's a little difficult to get an excellent [grade]".

The students identified several goals for the basketball unit. They said Liisa wanted them to learn rules, to improve their dribbling skills, and that they "could use lay up also in game play". In addition, the goal was to learn to play the game, which one student described as "that one doesn't stumble there all the time and things like that" where no one excelled rather everyone was on an equal level.

On the other hand, the students explained they had learned lay up and rules during the basketball unit and one student said: "one learns there what the teacher tries to teach". With regard to learning rules one student pointed out: "One does really remember those rules while Liisa tells when one makes mistakes". Another student was more reluctant about the usefulness of what she had learned:

> at least I didn't anyway learn anything or actually I have learned those steps [lay up] but I can't use that then in game play while it is so fast there and try things like that there.

Basketball divided the class into two groups, while nothing was fun in basketball to one student: "I hate basketball so much" another student did not find any negative sides: "I think it is fun". Most student liked to play game, although several students did not like the competitiveness with keeping score and playing official class games. One student explained:

> That was good, just that when one lesson was such that no one at all kept score there, That was good. Then it doesn't occur that we won and you lost.

In middle school, the students were not interested in who won the games:

> In elementary [physical education] when one won one talked about that still long after it, that we won, that you were worse than we. That is no longer so. Now it is actually, according to me, quite the same whether one wins or loses.

Another student said about winning: "There everyone is like friends, so that then it doesn't matter". While winning was not central to the students, they expressed team cohesion as the most important in game play. One student stated team cohesion was that:

> one takes the others in the team into consideration so that the one who is not so skilled [and that] one can pass to her and doesn't think that she can't shoot a basket anyway. It is important that [everyone] has an opportunity.

Another student said:

> that the team-mates encourage [and] that they don't say "are you somewhat bad, go and hide yourself, rather, good good try it again.

The students expressed the physical education group had good team cohesion which originated from themselves and that Liisa could not and had not influenced it.

Students liked basketball because they could be really active, "could be freely", learned something new, or were successful. Others disliked basketball while they had no success in practice.

Although gymnastics was a sport the students did not like to have in physical education classes, most of the students indicated the tasks were rather easy. However, some students stated the tasks were difficult and one said:

since I can't perform. That's why they [skills] are rather difficult. Just there on the horse, I don't dare, you know, that therefore it's difficult.

The students disliked particularly vaults and backward rolls because these skills were difficult and students had no success in practice. One student said: "if [practice] is too difficult, that one can't really do [the skills] so then it is no longer fun". Also in gymnastics, student positive experiences were related to success in practice and one student explained: "then it was fun when one succeeded in what one tried, from that remained a happy mood".

However, several students indicated it was fun when they "could try everything" during gymnastics and the students had learned "vaults, stunts, and "all those new skills". One student did not really know what she had learned, while another indicated she had learned "nothing".

Most of the students enjoyed stunts practice and one student explained:

there arose such a cohesion that everyone practiced together. It was such that one had to trust the other one when she was there.

To one student, another reason was while:

one could be terribly freely. Generally the other lessons are such that one has to listen to what the teacher says. [Here] one could be in one own's group, plan somehow oneself what to do.

This situation with loose boundaries occurred also in tasks where students had to create a group performance and the students indicated "it was fun" when "one could somehow make up what to do". One student pointed out that small group practice and group performance was a method that could be used in other lessons, while another student did not at all like group performances. In addition, while one student liked that "one was not forced to do all skills", another student did not like that "one was forced to do such things that one did not dare to do or could not do".

The teacher has a central role in creating the learning environment and therefore the students were asked to identify Liisa's strengths and weaknesses as a teacher. She was described by the students as "nice", "funny", "happy", "encouraging", "sympathetic" and "patient". The students continued: "one feels like she has never depressions or bad days" and: "she really gives all of herself. She somehow really thinks about what she does". In addition, many students pointed out she was skilled in teaching and one stated:

> she certainly tries everything, I think she puts a lot of effort to make us learn what she intends to teach.

Another student said: "we try together to develop my skills in physical education". In addition, students indicated Liisa did not like when they can't perform the skills. However, one student wanted her to "to explain the skills better" while another wanted her "to remember everyone's performances". While some student explained she "is not too demanding", to another student she was "sometimes strict". Similarly, a few students felt she did not understand that "everyone is not interested in physical education" and that "I don't dare to do all skills in gymnastics". The students described they misbehaved when they "don't even try to something", "don't follow her directions", or "don't participate actively".

Liisa had good relations with the students while they reported she treated them as regular students and they got well along with her. The students felt it was easy to talk to her about all things, from what happened during the lessons to as one student described talking with Liisa: "about if I could probably become a physical education teacher".

Summary of the ecology of Liisa's learning environment

In the pre-lesson interviews, Liisa typically described the content for the lesson and how she intended to sequence skill practice. She wanted her students to be successful and to learn during the physical education lessons. She pointed out that her lesson plans acted as guidelines and she was to modify her instruction based on the outcome of student practice during the lesson.

Liisa used a sequence of informing, extending, refining, and routine tasks to develop a task progression for a particular skill and she most frequently employed extending tasks in all sports. How task types were used varied between sports in the study. Additionally, Liisa's verbal task presentation was supplemented by teacher demonstrations and student demonstrations while in some gymnastics tasks she provided task cards to the students. Skill features and practice conditions were presented for each skill sequence, although not for each task. There was a difference in how she presented instructional tasks in observed sports.

The students were able to practice about half of the time when they were in physical education classes. The target student's responses were congruent with the stated tasks in most of the task while tasks either had loose boundaries or no challenge. Students tried to stay on task and the task was modified when students could not perform the task. Students' response rate was low to moderate in most tasks and their performance was technically correct in 45 % to 100 % of their responses. The instructional tasks showed to be most difficult in gymnastics.

Student active participation seemed to be central in the learning environment and Liisa used teacher monitoring, prompts, and individual

student feedback to keep students accountable for their work. She was aware of what happened in the gym and she frequently provided feedback across space. However, she had no formal accountability for student outcome of their work.

After the lessons Liisa often stated she ran out of time and could not do everything she had intended to do. She had noticed, however, that students showed effort in practice and that they enjoyed participation. In addition, she talked about the level of student performance during skill practice in post lesson interviews.

The students reported the goals for Liisa's physical education program were to learn to appreciate the importance of physical activity and to cooperate with and be responsible to other students in the class. In basketball, they described the goal was to learn particular skills and how to play the game, while they pointed out they had learned lay up and basketball rules. The relaxed atmosphere provided the students a break from academic work and they indicated it was more important to be with friends and cooperate than to compete and win. This showed the social system was essential for instruction and management during her lessons. Moreover, students preference for content varied; some liked basketball while others liked dance or gymnastics.

Similarly, practice tasks were difficult for some students while others described them as easy. Students' positive experiences from different sport were related to success in learning new things and to practicing in a relaxed learning environment. Similarly, students' negative feeling from physical education occurred when they were unsuccessful in practice. However, more students reported they enjoyed the lesson than that they had been successful

in practicing the stated tasks. Teacher praise and individual feedback was perceived by the students as helpful in practicing the instructional tasks. The students stated that they had a good relationship with Liisa and that she was a nice and fun teacher.

Liisa's Espoused Theory Related to the Class Ecology

This section presents results for research question three: to what extent is the teacher's espoused theory of action (ETA) evident in the ecology of the learning environment. The teacher's ETA was used as the starting point to find levels of congruence and discrepancies from the ecology of the learning environment. Qualitative and quantitative observation data and student experience were employed to contrast Liisa's ETA.

A primary goal in teaching physical education for Liisa was for students to develop a persisting interest in physical activities. Her program was a mix of several sports and she devoted much time to game play in basketball, because most of the students liked that sport. She taught hip-hop during dance lessons as this content at the moment was popular among the students. In gymnastics, she used a station teaching format where the instructional tasks had loose boundaries and the students were expected to actively practice previously learned skills. However, students had never practiced these stunts before, and although students were expected to try their best there was little accountability for learning the skills. Liisa seemed to believe her selection of content and teaching methods would result in student life-long interest in physical activities although there was no evidence that this was the case. However, students reported that a persisting interest was a goal for their physical education program, showing they knew the goal Liisa had for the program.

Developing student's social skills was another goal Liisa had for her physical education program. Game play and small group tasks in basketball and gymnastics provided students with experiences of working in groups. In some group tasks, students could design their own group performance, and thereby cooperate and be responsible for their own practice. Also, the students reported physical education was a situation where students could work together and learn to know each other. However, Liisa never instructed students about cooperation and social skills during the observed lessons.

To Liisa, another goal in teaching physical education was student joy. Student data revealed that most students liked her physical education classes and they enjoyed dance lessons more than gymnastics and basketball. In addition, most students perceived Liisa as a positive teacher and physical education as an enjoyable school subject. These findings are something that is not specific for Liisa because research has shown that students typically like physical education (Nupponen et al., 1991; Steinhardt, 1992).

Student behavior during skill practice was one element in Liisa's theory and she believed students should be actively participating but that a technically correct performance was less important. Liisa used about 50 % of lesson time for student practice. The rest was spent in management, warm up, transitions, and instruction. The students practiced actively in basketball, although dribbling practice was frequently technically incorrect. In gymnastics, the students had several tasks with response rates less than two per minute. Of actual practice time in dance, students had a high level of practice effort with variable technical performance. Research has shown that practice success is a central variable in learning and persistency (Metzler, 1989; Silverman, 1991). Even though she did not focus on teaching a technically

correct performance, Liisa frequently employed a task sequence including informing, refining, and extending tasks, which is suggested typical for skill teaching in physical education (Rink, 1993; Siedentop, 1991). In addition, students indicated they were expected to try hard and also learn in her classes.

According to Liisa, the teacher should be authoritative and maintain order in the gym. In monitoring student work, she wanted to have a position from which she could see all students. This would helped her to provide personal feedback to individual students. Observations showed the students were well disciplined during the lessons and they listened to her instruction. Liisa moved actively around monitoring student practice and she knew and reacted to what happened in the whole gym. In addition, she frequently provided feedback to individual students and she was concerned about helping students to learn the performance.

Her ETA included varying the instructional format and she did. In some tasks, Liisa used teacher directed instruction in which she taught a skill through a sequence of related tasks. In other tasks, particularly in gymnastics, she used station teaching and she thereby could divide the class into smaller groups. She employed scrimmage in basketball, although she provided rather few instructions during game play.

Liisa said she evaluated knowledge, skills, and activity although she employed tests to assist her while grading students. During the observed sequences, Liisa did not evaluate or grade student performance. Students indicated that practice effort was most central in receiving a good grade. This was similar to the findings by Tousignant and Siedentop (1983) and Romar (1994). Although she believed students perceived it was not too demanding to receive good grades, some students explained that it was difficult to get a top

grade.

Liisa wanted to be a model for the students. Observations revealed Liisa frequently demonstrated skills for students and she also tried to remain physically fit by regularly working out in her leisure time. She stressed the importance of good teacher-student interactions and particularly believed that the teacher should show enthusiasm. Again, the students had positive attitudes towards her and they described Liisa as an excellent teacher, because she gave of herself while teaching. She also stated she listened to student feedback about lessons and about particular tasks. The importance of student feedback was evident in the way she reacted in interviews to students comments.

Case Conclusion

Liisa's espoused theory of action (ETA) was to a great extent congruent with the instructional ecology in her classroom. Liisa's ETA was nonspecific from a substantive point of view. She sought an active, well-behaved, and happy class, and for the most part the class ecology observed was congruent with those goals. Her main substantive goal, lifelong participation, is an appropriate goal, but there is little evidence that Liisa had specific strategies for achieving this goal. The descriptive evidence of the class ecology does not support a conclusion that these students would be likely to achieve that goal based on their class experiences.

Students did enjoy the classes, although some noted a lack of challenge and success, both of which might be considered vital to developing lifelong habits of participation. She advocated a tactical approach to basketball, with the well-played game as the goal, but taught skills exclusively with no attention to tactics. Liisa did achieve active participation in all her classes, but

the nature of the participation, for example the number of response opportunities, level of challenge, and degree of success, do not indicate that the participation was likely to result in substantial learning gains.

The ecology of Liisa's classes was dominated by its social nature and active participation. There is no evidence to suggest that Liisa traded demands in the instructional system for compliance in the managerial or social systems, as has been found in other cases (Tousignant & Siedentop, 1983). Indeed, it seems clear from Liisa's ETA that the ecology observed is exactly the one she sought to produce. The problem is that this ecology may not produce the long term goals suggested in her ETA. Liisa did also seek to develop student cooperative skills, but again her approach to doing this lacked specificity and she seemed to believe that this would happen naturally with students being active and having fun. If there is a criticism to be made in this case, it is with the validity of the assumptions in Liisa's ETA and the tacit assumptions in her approach to teaching so as to achieve her goals.

Case #4: Pekka

Pekka has taught physical education for five years after graduating with a masters degree from a five-year teacher education program. He has taught three years at the present school, which was a new middle school when Pekka started there. Although he now teaches only in middle school, his previous position included both middle and high school physical education and health. Pekka explained the work changed dramatically when he came to this new school with new buildings because everyone was concerned about creating a good spirit in the school. Now he had to be in the school during some evenings, while he had activity clubs. Work days were longer, he said: "[working] days do not actually ever end before 4 p.m.". The additional work was not related to teaching physical education, since organization of everything for his classes and meetings was time consuming. However, Pekka felt he worked in an appropriate context:

> yes, my profile as a teacher has increased a lot. I have higher ambitions now when there are more opportunities. All equipment is there, now it is just depending on myself if I am a good or bad teacher. There are no more excuses. (1 In2)

Pekka explained his teacher education program was too theoretical and he had learned much in day-to-day teaching when he had to solve all practical problems, such as how to deal with unmotivated students. Pekka believed the psychology of teaching was not at the level he felt it should be in the teacher education program. Nevertheless, he indicated his own personal sport skill improved although task progression in some sports was still unclear to him.

Pekka believed that the preparation he received in basketball during his teacher education program was not as beneficial as it could have been as he had no prior experience with basketball. However, he indicated his own

personal skills had increased while he also played intramural basketball. His track and field career helped him to become a good rebounder and his friends wanted him to play. He did not learn how to analyze tasks and task sequences the way he now does, while teaching basketball in school.

Similarly in gymnastics, Pekka's own skill level improved during teacher preparation, and he could demonstrate all the skills students needed to work on. Additionally, he needed more help in how to progress from one task to the other and how to organize practice for a group. If he could have started teacher preparation again, he would have taken notes on all lessons in order be able to teach the basic skills to the students. Pekka had attended workshops in gymnastics and regular inservice education days, which were intended for all teachers.

Although Pekka said basketball was a difficult sport to teach, he enjoyed teaching it because students were motivated to practice elementary skills. He said: "I have learned those most typical drills and they do work through experience" (2In1). However, Pekka felt basketball was difficult to referee and he was insecure about the rules. Teaching gymnastics was also a weak sport to Pekka. He pointed out the students did not learn all the skills even in grade nine. Students had gymnastics three lessons a year. They practiced once on each apparatus: high bar, floor, and vaults. Pekka taught almost identical lessons to seventh, eighth, and ninth graders.

Pekka described the students in the observed class were: "enthusiastic but they don't have such systematicity and persistency [in practice]" (1In8). To Pekka, this meant he had to go rapidly from one drill to the following because the students did not like to practice the same drill for a long time. In addition, Pekka noted that some students just wanted to do their own thing during the

lessons. To Pekka, the students were a little less skilled than an average group and some students were somewhat aggressive towards each other, therefore they were more problematic than an average group.

The class had 19 students, which for Pekka was a normal class size in physical education. He was satisfied with how physical education was treated in the school. He indicated physical education was not a secondary subject in his school and all teachers in the school negotiated about how to use available resources. Pekka co-taught dancing with the female physical educator and in the future he saw that boys and girls could have physical education in mixed groups in certain sports. He believed that students should be separated in sports where the difference in performance levels are large.

Pekka started the school year by explaining his expectations and goals for physical education to the students. In addition, he pointed out grading procedures and then he planned the physical education program together with the students. In reality, Pekka decided what sports to cover while the students could decide when they had a particular sport. Behavior expectations were not not covered in eighth grade because they had been explained in grade seven.

Pekka's Espoused Theory of Action

Pekka's espoused theory of action was identified from the values questionnaire, formal interviews, and informal interviews and organized into three themes. These were educational values and beliefs, goals in physical education, and teaching strategies and principles.

Educational values and beliefs.

Pekka's educational values and beliefs were grouped in three categories; teacher as a friend, flexibility, and instructional ideals.

The first category in Pekka's educational values and beliefs was his theory about the teacher as a friend for students. Pekka wanted to be a friend to the students and also that the students should see him as their friend and trust him. Pekka felt the physical education teacher should be the person in the school to whom students first could come with their problems and he said: "they can come and talk about other things, not only about that basketball" (1In3). This was what always happened: "if my door is open, there are [students'] heads immediately coming in to ask something" (3In8).

Pekka wanted to treat each student equally without having favorites. In addition, he expressed the nature of the subject provided situations where the teacher can be close to the students and have physical contacts.

> there are obvious [physical] contacts, one can sometimes take [a student] by the neck and clap [him] on the back. One does have to dare to take part in that and one must not be such [a person] who keeps too much distance to students. (3In8)

Pekka believed he did not have similar discipline problems like other teachers in the school, because students were generally motivated in physical education. He thought the atmosphere and student behavior in physical education guided the climate in the whole school. Pekka was concerned about the climate in physical education and he wanted to understand the students when he said:

> I am most of all afraid of that one sometimes says in too nasty [a way] to someone about these small things which now after all are not so tremendously important. One says too nasty [things] when one doesn't know the reasons for his behavior. (3In10)

Flexibility was the second category in his educational values and belief and flexibility had several dimensions. First, Pekka was flexible in dealing with class procedures. For example, problem students' not dressing was not an

issue to Pekka because he believed for them to come to the lesson and do something was a good sign. Secondly, he indicated some students had experience in some sports and he tried to consider their opinions in his instructional tasks. Third, Pekka pointed out he tolerated students not always performing the stated tasks. Finally, he believed teachers should be open to changes when the plan doesn't work:

> one ought to avoid doing the thing from the beginning to the end although one can see in the beginning that this does never work but because this was planned one does it to the end. (3In8)

Finally, physical education as a school subject included some <u>instructional ideals</u> which Pekka explained had stayed the same during his teacher education and while working as a teacher. He believed the way he was brought up by his parents affected his values and beliefs more than his teacher preparation because much had to do with his attitudes and values. Pekka pointed out it was important for teachers to be themselves while teaching:

> In my opinion, it is important for the teacher that he is himself. If he has to change personality, it won't work. The students do sense it and it won't work in the long run. For a while one can play a role but not in the long run. The students don't accept that the teacher is not what he is. They do see that he is not really like that. (1In3)

In addition, Pekka believed that students should experience may sports as part of a comprehensive curriculum. In this Pekka felt he had been successful, partly because he did not have a weak sport, that he felt was difficult to teach.

<u>Goals in physical education.</u>

Pekka described the goals in his physical education program as positive student attitudes, a persisting interest in physical activities, and student responsibility. In gymnastics he wanted the students to actively try different

skills while in basketball a functioning game was the goal.

Positive student attitudes was a major goal for Pekka in teaching physical education and he explained he attended to how interested and motivated students started to practice in his lessons. Figure 31 shows Pekka valued a happy class where students enjoyed physical education. He indicated students' attitudes were demonstrated in warm up and cool down tasks where students led the activities. Pekka believed student attitudes were in this school positively affected by the favorable context of new facilities and equipment.
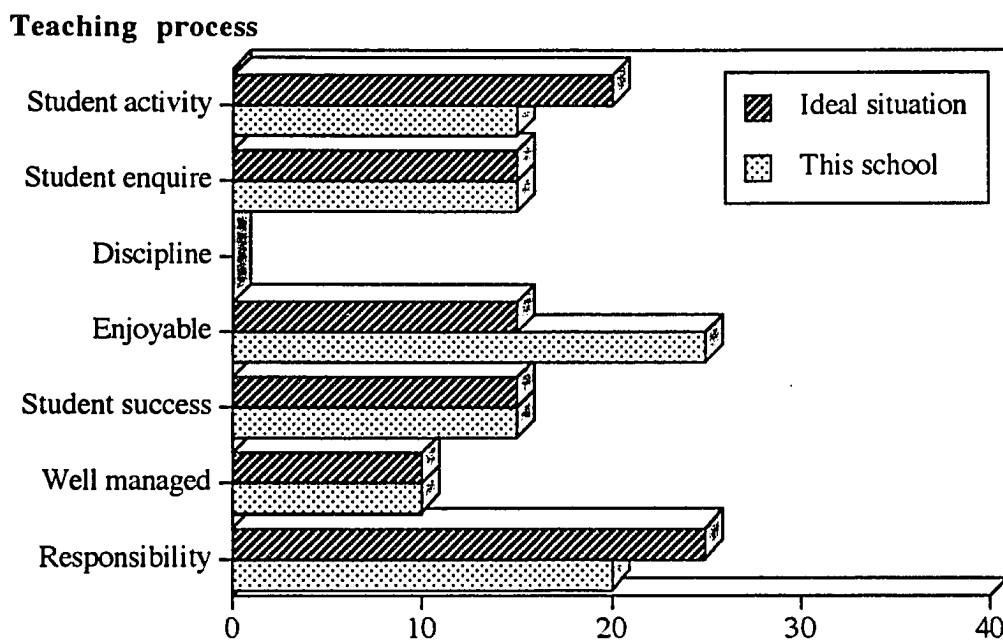
Teaching process

Figure 31. Pekka's attitudes and values about the teaching process.

Another dimension of expected student attitudes was for Pekka that "one tries everything although one is not a champion in every place" (3In6). Figure 32 shows Pekka valued student self-esteem and the affective dimension,

learning to value and want to do the activity. In addition, Pekka wanted his students to participate in and get experiences from different sports and thereby know more about the sports. He said:

> I don't try to work on a particular performance so that it would be good for everyone, rather in a way that everyone has tried it and understands how to do the thing. (1In5) .

Learning dimension
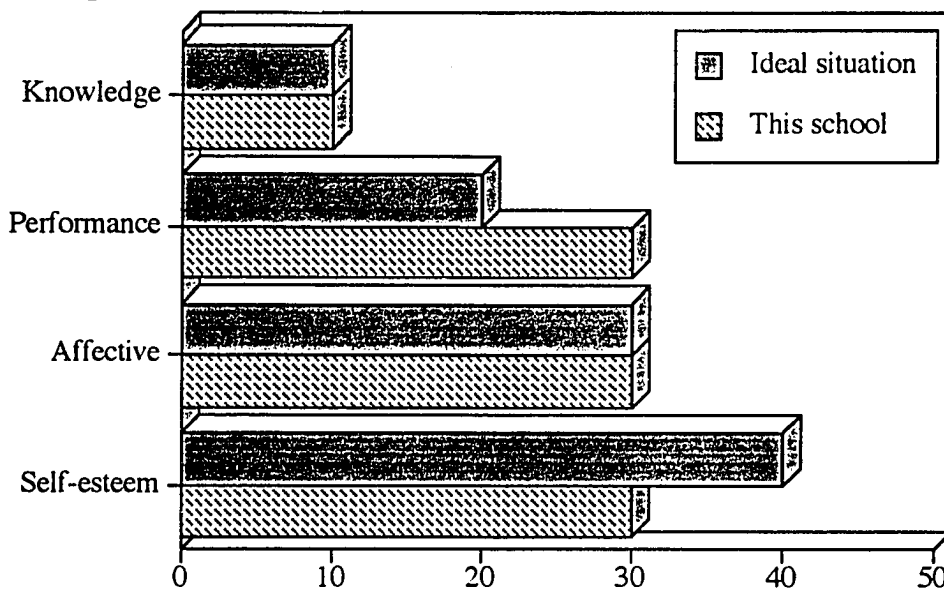
Figure 32. Pekka's attitudes and values to different learning dimensions.

This willingness to try was essential for Pekka's smorgasbord approach to curriculum. According to Pekka, the multi-activity program provided an opportunity for the students to try and thereby learn new things:

> I think physical education is a rather good subject [in which] to learn one own's limits [and] that by practicing one can achieve things. (3In9)

Pekka's second goal in physical education was for students to develop a persisting interest in physical activities: "[students] find their own sport

which they can start participating in" (1 In2). This goal was for Pekka related to sports represented in the local community and in which students can participate in later during their lives. He stated: "It is not worth teaching such sports which one can never participate in here later" (1 In4).

Pekka explained students could not improve their fitness level during physical education lessons and he expected they should be active during their leisure time. Moreover, Pekka pointed out physical activity was related to a healthy life. He said physical education: "is such a means to good health, in a way to that life" (3In9).

Student responsibility was the third goal in physical education and Pekka believed physical education was particularly well suited for this function. Figure 31 shows Pekka valued student responsibility in the teaching process. Also Figure 33 shows Pekka valued personal and group social growth as goal areas in teaching physical education. These areas included responsibility, self-concept, cooperation, and leadership. Pekka thought students should be
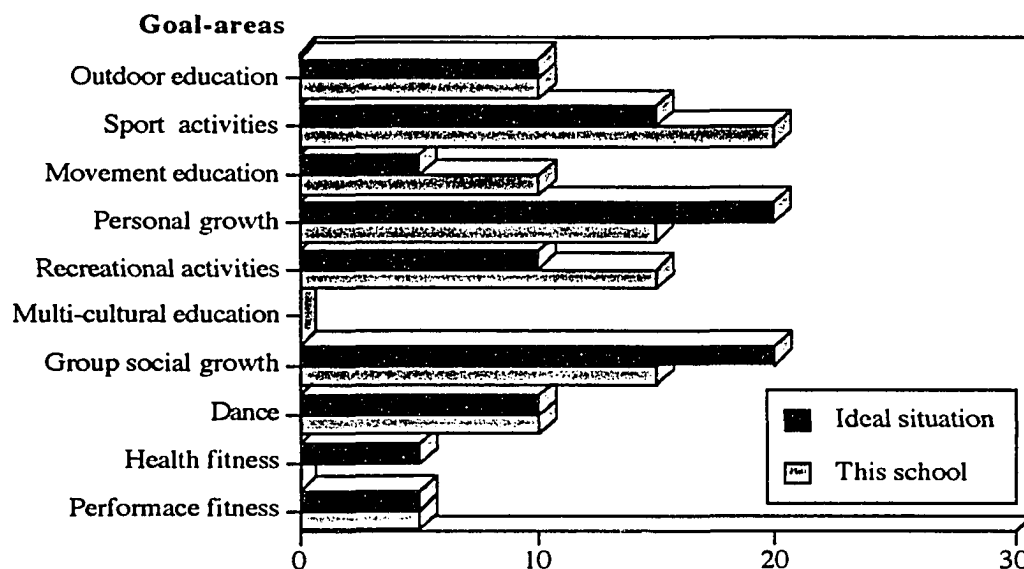
Figure 33. Pekka's attitudes and values about different goal-areas.

responsible for equipment, other students, and their own practice. He said: "they would be responsible for other students and equipment during the lessons" (1In3). In addition, Pekka stated students should spontaneously be active because students benefited from practice. Pekka said:

> I expect them to practice without the teacher's [being] there, as in station teaching. The goal would be that they can do the stuff on their own there and don't play there. Motivation and responsibility that now one practices although the teacher is not here. (1in7)

In gymnastics, Pekka pointed out practice did not focus on development of different skills, rather he emphasized: "trying different apparatuses, demonstrations and showing different skills" (2In2). Although gymnastics was not a life long activity, Pekka believed gymnastics had a central role in the curriculum:

> it [gymnastics] works up or strengthens, develops the student's, just these physical, basic skills so well that it is - I'm a former athlete so I do know - the basis for everything this gymnastics. One can use it [gymnastics] in whatever sport as a practice method. One develops much better this physical strength and flexibility than in many other sports. It is really a good sport. (2In2)

In basketball, Pekka's goal was to teach a team game, fair play, and the rules where the game becomes:

> fairly neat and tidy. Actually the tidiness is important, not how many baskets are done, neither how well lay up is done. Rather that now one plays defense, now one plays zone and that the ball moves and not starting to hit [other people's] hands. (1In4)

Teaching strategies and principles.

The third theme in Pekka's espoused theory of action was his teaching strategies and principles. This theme was divided into student practice, instructional format, dynamic instruction, instructional climate, and evaluation.

Pekka's theory of <u>student practice</u> was that students should "move as much as possible" (1In5) and shouldn't "sit down or just perform nothing" (3In9). Figure 31 shows Pekka valued student activity in the teaching process. Pekka pointed out he tried to organize practice that students could be active and avoided students waiting. The focus on active participation caused Pekka to move from one task to another at a fast pace because he did not want his students to get bored in practicing one task. He stated:

> one ought to get to do things rather fast and in a way that one rather soon moves from one thing to the next. That [students] don't get bored. I'm most afraid of students who some the task in the beginning, but get enough of it, if it goes on too long (1In5)

This focus on high student activity and a fast pace through several tasks meant that all students could not learn the actual skills during physical education lessons:

> Everyone doesn't have to learn before one moves to a new task... Generally one immediately notices that, that boy would need tremendously more practice but we can't stay with that [task] but rather move to a new. (3In7)

In basketball, he indicated students improved in practice, however,

> when they start to play they completely forget these things [skills they practiced], then they start to run. (1V3)

Although Pekka explained that students' skill level was still low in grade nine, he believed they should have knowledge about the sport:

> I'm disappointed if not every student, although [he] perhaps doesn't do, at least knows that it should start from there. (1V3)

Pekka wanted to describe and show rules and strategies in basketball while students then received knowledge they could use. In addition, he tried to make connections between different sports:

if I only remember and know how I can compare to another sport, it is always really good. In my opinion students think more about it [if] they have examples; yes in javelin it went in that way. (1V3)

The second category in Pekka's teaching strategies and principles was about

the instructional format, which included a theory about station teaching,

individualization, the structure of a lesson, and competition. He used station

teaching in track and field and in gymnastics where the teacher worked with

one group and the other group had independent practice. Pekka expressed

that station teaching:

> belongs really well to gymnastics that the teacher is assisting in one place and the guys practice [something] else in another place, that one doesn't have to keep the whole group [together]. (2In2)

Pekka indicated the practice task should be at an easy level where students

have independent practice.

> there should be so simple skills in the other group, where I'm not, that I can guide the other group, the small bunch. (3In3)

Nevertheless, he did not employ station teaching as frequently as he wanted

to because it was difficult to come up with tasks which kept students

motivated:

> It is difficult to find such skills for the station where I'm not that they would practice there all the time. (1In6)

In addition to planning problems, Pekka pointed out students' low skill level

decreased his use of station teaching in gymnastics:

> these [students] actually can't do anything at all that it is so difficult to split the group, the tasks ought to be so simple, the task they are doing on their own. If they were somehow higher skilled, then one could perhaps consider it. (3L2)

Before splitting the group in vault practice, Pekka wanted to observe all

students' performance and thereby ensure that students could be successful

during independent practice.

Similar to station teaching, Pekka expressed he seldom individualized his instruction:

> that the boy could have his own practice there, but rather little I separate that I let him participate anyway and he tries the next stuff too. (3In7)

He felt it was difficult and demanding to have students practice different tasks which also "would require better advance planning and more thorough thinking" (3In7).

Pekka believed the structure of a lesson should be concrete with a practice and an application phase:

> there should always be the practice part and the boys learn that one always practices first before one starts to do performances or to play. (3In7)

The structure of ball lessons were similar in all ball sports while one or two skills were covered during the practice part. In gymnastics, Pekka employed the same structure as in track and field and the topic for a lesson was based on what apparatus he planned to work on.

In the practice phase, Pekka wanted to move from easy to difficult tasks and from parts to the whole performance:

> I begin from parts and then [put] more and more together ... and finally I combine the whole system. In every sport if one only can. It is definitely the most effective [method] and one can emphasize important things in different skills. (1In6)

Pekka explained he employed teacher presentation and questioning format while instructing the students, although the selection of a particular method depended on his mood at that moment.

> quite according to the feeling, obviously I now wanted such a strict atmosphere. I was then talking a lot and didn't give the boys an occasion for their own thoughts. (1V2)

According to Pekka, he had a set of lessons that he used from grade seven to grade nine.

> I do have particular models. I'm not very good at changing them according to the situation although I ought to. I think that the methods are somewhat one-sided. I have the same drills to seventh and ninth grades. The students sometimes say: "we've done this one before". (1In6)

Even though Pekka had the same model for his lessons, he indicated he tried to proceed according to the skill level of the group.

> One goes with the level of the class. For someone gymnastics ends with the forward and backward roll and a little more than that. I start the floor lesson every year in the same way, from those rolls, but with some classes we go straight ahead to the next thing. The roll was [successful] and then we continue. Then with some [classes] we work more on the roll when it doesn't go. (3In6)

In addition, Pekka stated the teaching conditions affected his lesson plans and he had to adjust to the conditions at hand.

Competitions were a way for Pekka to increase student motivation and activity in practice.

> With that [competitions] one makes practice more effective ... that the boys go with full speed and get a feeling of the dribbling [that is] needed in basketball, [and] that there when they dribble fast, how does it feel. (3In2)

According to Pekka, he needed to have more competitions than he actually had and he also felt the students liked them, because everyone was really involved.

> Now everyone works really in earnest. All Kalles and Joels and others. I never had the situation in a relay that someone would remain there to play. Such a situation could come if it was not for this relay. (3In2)

The motivational aspect was more important than who actually won a game or a relay and Pekka pointed out he did not always notice the winner. Similar to competitions, Pekka described he measured student performance with stop

watch and measuring cable in order to improve student motivation. In this,

Pekka described that gymnastics was different from track and field and other

sports while the method of measuring could not be used in gymnastics.

> Gymnastics is more difficult, because one doesn't in any way measure it
> and if I'm not there to say if the performance was successful or not, then
> they do not necessarily know it themselves. (3In6)

Although Pekka measured student performance in some sports, he stated he

did not use these results later.

To Pekka, dynamic instruction was monitoring, guiding student practice,

and organization of instruction. Pekka wanted to see the performance of each

student and he typically started from one side of the gym and then gradually

moved to the other side. He felt the students wanted to be in contact and

receive feedback from him.

> The students do also require [it]. If I'm somewhere in another corner
> moving around and chatting to them, they do notice it and start to wonder
> at the other side whether one doesn't care about them at all. (1V2)

Pekka believed he ought to monitor students from a position close to the

walls, even though he was far away from the students. When students played

games on two different courts, he stated he mainly monitored the basketball

game while he just occasionally looked to see what happened in the other

game, the floor hockey game, etc..

In monitoring and interacting with individual students, Pekka indicated

he spent some time and stayed to ensure the student performed a successful

response. Although he acknowledged the principle of providing feedback to

each student, he believed he did not always reach every student. According to

Pekka, students needed to receive positive feedback.

> If I give feedback [so then] I try to find something good. One doesn't really
> realize it. I have tried to keep in mind that I give something encouraging

but still of course one must correct wrong movements. (1In6)

Even though Pekka held his students accountable through observing their practice, it was not important to him and he did not control how many responses students performed compared to the stated task. He felt that a number specification of task requirements provided students with guidelines for practice though he did not follow through in his teaching.

> it does however give such clarity to the performance so that the boys themselves know. If I don't give any number so then ten guys in the group ask that "do we still practice". That some kind of normative [meaning to the students]. (3In5)

Sometimes students commented that other students did not perform the task, but, Pekka explained he did not attend to these situations although the social pressure could have a central role in student practice.

In guiding student practice Pekka first wanted to describe the task and then demonstrate it. The demonstration of the skill was central to Pekka and if possible, the teacher should show it.

> yes, I prefer to demonstrate. I think it is really important that the teacher demonstrates the skill or then someone else who can perform it better. (1V3)

Pekka explained he could demonstrate all sports fairly well and his students appreciated when the teacher showed the skills. Altogether, Pekka wanted to keep task presentation and teacher talk as short as possible.

In addition to teacher demonstration, Pekka described the teacher should actively take part in practice because this will affect student involvement.

> the more restless the class [and] the more difficult class is to handle, the more important it is that the teacher there participates. If the teacher begin to stand and doesn't do anything, passively, only talks and merely gives directions, so then when one has a difficult class, it [the class] quits. They can't handle it for a long time, they also begin to stand. (3In2)

Furthermore, Pekka's participation was a way to try out if the tasks worked because he had not practiced everything in advance.

In organizing students into teams, Pekka wanted to have equal teams. He explained he knew the students well in grade eighth and therefore he grouped them into teams. Through this he could manipulate problem students and at the same form equal teams.

> Generally there [I want] to have equal [teams], I in a way put guys of the same skill level [on the same team] and then again three similar [students] and so on. And with Joel I decided that I put him in such a team that I thought would not lose. I knew that if Joel plays with the losers so then they will lose even more, that's the plain fact. (2L2)

Pekka noted that when students selected the teams, they never were equally strong. In organizing the students to practice, Pekka preferred to use a line on the floor to make the practice conditions as clear as possible for the students.

In Pekka's teaching strategies and principles, the fourth category was his theory about the instructional climate. Pekka stated the atmosphere was relaxed while he and the students perceived the lessons as nice. He explained the teacher needed to have some structure and that the students could not do what ever they wanted to.

> You can't go to the lesson joking, such as one would otherwise do with friends, some firmness ought however to be maintained that the stuff is under control. The students notice if the teacher begins to just crack jokes and the situation gets out of hand, [and] one can't regain control any more. That one somehow consider what one says, that one doesn't always say what first comes to one's mind. (1In3)

If a student was skilled in a particular sport, Pekka used the student as a resource person which he felt did not influence his position as teacher.

> I'm not afraid that someone knows more than I. I accept it and [it] can occur there during the lesson. My authority doesn't decrease with that, it only improves it. (1In7)

Even though Pekka indicated teaching without discipline was strenuous, he also explained he was tolerant and students could sometimes be unruly.

> I'm not a disciplinarian type. Sometimes there can be restless lessons. Of course it is demanding to the teacher to say the same thing several times but I'm not such a tremendous exact [person] that I would say that now I talk and everyone else is quiet. (1 In3)

Similarly, Figure 31 shows that discipline and management issues were not important to Pekka in the teaching process. Pekka explained he could handle one or two students talking and generally his limit varied according to how tired and in what mood he was each day. When the situation got worse and nothing worked, he used time out for the whole class, where the students stood quiet without doing anything.

Pekka pointed out the importance of <u>evaluation</u> in physical education decreased all the time, although he felt the grade was important for students, particularly for students with a top grade in physical education. Instead of a number grade, Pekka would prefer to give a written report of students' success. Pekka employed tests in some sports, however, currently he emphasized student attitude in practice.

> they are so few those tests that I could never give a grade based on them so it is really the image which remain from the student and his attitude and willingness to try during the lesson. (2In3)

Rather than giving a grade for each sport, Pekka described he gave one grade for the whole semester. In his private book, he kept results from tests and marks about missing a class or not dressing. To Pekka, an appropriate student attitude included taking care of equipment, working on stretching, and showering after the class. In the actual grading procedure, Pekka compared students in the same class with each other.

In evaluation I use comparison between students. Although one has tremendously improved one own's performance, I do however put him within the frame of the class where he is in reality. I don't give the same grade to guys from different skill levels. (2In4)

Summary of Pekka's espoused theory of action.

Pekka's ETA was developed from teacher interviews and the values questionnaire. Pekka wanted to create a causal atmosphere where he could be friends with his students and could be flexible in his instruction. His main goal was to maintain student cooperation and keep them motivated. Student motivation had a short term aspect, while Pekka expected the students to actively try out different activities and similarly enjoy the lesson at hand. The long term motivational aspect was for Pekka that students develop a persisting interest in physical activities. In addition, Pekka believed students should learn social skills and become responsible for their own actions. Pekka seemed to believe he could achieve these affective goals through teacher centered instruction with definite task progression and a focus on skill demonstrations and practice. In his causal instructional climate, Pekka believed students should be held accountable by monitoring and providing individual feedback. However, Pekka viewed competition and applied tasks as means to maintain the intensity of student practice.

The Ecology of Pekka's Learning Environment

This section presents data about the ecology of the teacher's learning environment in three parts. Data are presented as they pertain to the subresearch questions. The initial part presents results from an analysis of individual lessons. Part two presents results from the task system analysis of two short units. The final part describes student experiences of the physical education program.

<u>Defining individual lessons</u>

Classroom work in two lessons is described in detail and complemented with teacher goals for the lesson, teacher post lesson reactions, and student comments after the lesson. One basketball and one gymnastics lesson are described as an example of what went on during the units.

The basketball unit included three lessons and during <u>the first basketball lesson</u> Pekka had one part of the gym where all 18 students had their own basketballs. Pekka explained his goal for the lesson was to work on passing, shooting, and some important rules in game play.

The lesson lasted 71:57 minutes, of which 2:50 minutes (3.9 %) was spent in management, 12:05 minutes (16.8 %) in instruction, 17:30 minutes (24.3 %) in transitions, and 39:32 minutes (55.0 %) in student practice. Of student practice time, the target student spent 5:47 minutes in playing unsupervised floor hockey in another part of the gym. Pekka allocated 20:42 minutes to game play in basketball, which was 28.8 % of the whole lesson. Of time spent in game play, Pekka used 0:59 minutes (4.8 %) for instruction, 5:09 minutes (24.8 %) for transitions, and 14:18 minutes (69.1 %) for students actually playing basketball.

Figure 34 shows the instructional tasks for the lesson and the time spent in each task. Pekka started the lesson by taking attendance and describing the content. Practice began with a sequence of ballhandling tasks where Pekka first showed and then also practiced the tasks with the students. He continued with passing practice in pairs, where students performed chest pass, "push pass, and javelin pass" in informing, refining and extending tasks. While Pekka sent one student, who injured his finger

#	Task	Focus	Type	How	What	Situation	Task time
1 - 11	Ballhandling	Around the world	Inform Extend	Verbally Teacher	General Skill	General Routine	4:47
12	Passing	Chest pass	Inform	Verbally Teacher	General Skill Organisation	Specified	0:33
13	Passing	Keep it horizontal	Refine	Verbally Teacher	General Skill	Routine	1:34
14	Passing	Bounce pass	Extend	Verbally Teacher	General Skill	Routine	1:30
15	Passing	Fake pass	Extend	Verbally Teacher	General	Routine	1:44
16	Passing	Push pass	Inform	Verbally Teacher	General Skill	Routine	1:05
17	Passing	Fot position	Extend	Verbally	General	Routine	0:44
18	Passing	Javelin pass	Inform	Verbally Teacher	General Skill Organisation	Specified	0:52
19	Shooting	Sitting position	Inform	Verbally Teacher	General Skill Organisation	Specified	0:32
20	Shooting	Distance change	Extend	Verbally Teacher	General Organisation	Specified	3:38
21	Shooting	Normal shooting	Extend	Verbally Teacher	General Skill Organisation	Specified	2:07
22	Shooting	Jump shot	Extend	Verbally Teacher	General Skill	Specified	0:45
23	Shooting	Dribble and shoot	Extend	Verbally Teacher	General	Routine	1:23
24	Shooting	In groups of three	Extend	Verbally	General Outcome	General	4:00
25	Alternative game	Floor-hockey	Apply	Verbally	General	General	5:47
26	Game play	5 v 5	Apply	Verbally	General	General	8:48

Figure 34. Teacher task presentation in the basketball unit

to the school nurse, there were odd numbers of students. Therefore, Pekka practiced a while with one student before he started to move around and provide skill related feedback to individual students.

Shooting practice followed. Pekka gradually increased the difficulty of the tasks from shooting in a sitting position to jump shot. Students

practiced in pairs without shooting at a basket while Pekka moved around and emphasized a technically correct performance. In the final shooting task, students were in pairs and practiced shooting at three baskets. Pekka organized students into three teams for game play, where two teams played basketball with Pekka as referee and one team played unsupervised floor hockey. Prior to game play, he reviewed rules in basketball and particularly fouls, double dribbling, and step rules.

Pekka described all tasks verbally and demonstrated all tasks in ballhandling, and all but one both in passing and shooting tasks. He did not employ student demonstration or further help from any kind of material or media in task presentation. In addition to general description of the task, Pekka presented skill features in at least half of the tasks in passing and shooting, but for two of the ballhandling tasks. Organization was presented in two passing tasks and in three shooting tasks, while outcome criteria were stated only in one task, the final shooting task. Pekka specified the practice conditions by using lines on the floor both in passing and shooting tasks. However, in several tasks he did not attend to practice conditions, because the situation was similar to previous task. The field notes revealed that students often bounced the ball when Pekka presented the instructional task. Additionally, some students started to practice before Pekka finished his task presentation.

Figure 35 shows student responses for individual tasks in this lesson. Grouping by lesson segments, student response rate decreased gradually from ballhandling, passing, shooting to game play. The target student had 95 OTRs with a rate of 19.9 responses per minute during the sequence of ballhandling tasks and the performance was 98.9 % congruent and 94.7 %

technically correct. In 8:02 minutes of passing practice, the target student had 102 OTRs (12.7/minute) while 94.1 % of the responses were appropriate and congruent with stated task. The target student had 55 OTRs (4.4/minute) in shooting practice while 70.9 % of the responses were congruent with stated task and 50.9 % technically correct. During game play in basketball, the target student had 13 OTRs with a frequency of 1.5 per minute.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1 - 11	Ballhandling	4:47	95	94	90	Monitor
12	Passing	0:33	6	2	2	Monitor
13	Passing	1:34	10	10	10	Monitor Interaction
14	Passing	1:30	24	24	24	Monitor Interaction
15	Passing	1:44	36	34	34	Monitor Interaction
16	Passing	1:05	13	13	13	Monitor Interaction
17	Passing	0:44	6	6	6	Monitor Interaction
18	Passing	0:52	7	7	7	Monitor Interaction
19	Shooting	0:32	3	0	0	Monitor
20	Shooting	3:38	20	15	15	Monitor Interaction
21	Shooting	2:07	14	14	3	Monitor Interaction
22	Shooting	0:45	4	0	0	Monitor Interaction
23	Shooting	1:23	4	4	4	Monitor
24	Shooting	4:00	10	6	6	Monitor Interaction
25	Alternative game	5:47				No
26	Game play	8:48	13			Monitor Interaction

Figure 35. Student response and teacher accountability in the basketball lesson.

Pekka was satisfied with the practice part of the lesson as "there was quite a lot of passing and shooting practice" (1L1). He was not satisfied with the students' performance in game play because:

> One could not see it [their skill] in game play, but of course in practice skills do improve, but [the skills] don't yet transfer to the game (1L2)

In addition, Pekka explained they did not have enough time for game play, that he had problems to referee, and that he did not have a solution on how to deal with problem students.

When the students explained the goal for the lesson was to try hard and learn, most described basketball in general terms, while one student pointed out "shooting styles in basketball" and another "ballhandling and rules in basketball". One student said he did not remember he learned anything new when other students described they learned to pass and shoot. Another student said about learning:

> [I have learned] all the new shooting styles. There was not much I could do before. Now it is surely easier to get a basket.

Students were pleased and did not prefer to change anything Pekka taught. One student said:

> [I'd do] about the some way. That was a well taught lesson. We were satisfied. Not too much nor too little.

Similarly, the lesson was enjoyable to 83.3 % of the students and 77.8 % of the students reported they had been successful in practicing the stated tasks. In addition, the students talked about the relationship between practice and game play and they acknowledged skill practice was one part of a physical education lesson.

> One ought to teach [skills] in the beginning of the lesson otherwise the game play is just a fumble.

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In the second gymnastics lesson, Pekka had 17 boys and one part of the gym. After the previous lesson, which Pekka felt was unsuccessful, he now stated his goal was for the students to be active and participate all the time. He said: "to move on apparatuses". In addition, he indicated they would work on vaults from the trampoline. This was a typical pre-lesson comment, including skill to be practiced and a focus on student activity.

Pekka used 1:18 minutes (1.9 %) in management, 7:43 minutes (11.3 %) in instruction, 23:08 minutes (33.8 %) in transitions, and 36:14 minutes (53.0 %) in skill practice, with a total of 68:23 minutes.

Figure 36 shows the instructional tasks and time allocation for the gymnastics lesson. Initially, Pekka and the students organized the practice conditions by setting up an apparatus circuit. He then introduced practice tasks by first demonstrating one station while all students could try the task before he went to the following station. With the bars at chest height, Pekka showed forward roll and then students practiced this task for a while. Before practice on the apparatus circuit, Pekka divided the class into groups of three and the triad could start to practice the circuit from whichever station they wanted. While one student performed one lap on the circuit the other two rested and each student had to do at least three laps. The apparatus circuit included forward roll on bars, normal forward roll, vaults over a horse, and jumping. Prior to start Pekka stated that if the task was too difficult at a station, the student could come up with their own skill.

After the apparatus circuit task, the students helped Pekka to organize two practice stations for vault practice form the trampoline. Students formed two groups and they lined up for the first task. Pekka gradually

developed vaults from straight vaults to somersaults in ten extending

tasks while he had introduced trampoline practice in the previous lesson,

while he had introduced trampoline practice in the previous lesson. In the

last task, he organized the class into two groups based on students' skill

level and the higher skill group could practice somersaults alone while

Pekka instructed the low skilled group.

#	Task	Focus	Type	How	What	Situation	Task time
1	Apparatus circuit	Initial presentation	Inform	Verbally	General	General	1:03
2	High bar	Forward roll	Inform	Verbally Teacher	General Skill	General	1:20
3	Apparatus circuit	All together	Routine	Verbally	General Outcome Organisation	Routine	16:46
4	Vaults	Straight position	Extend	Verbally Student	General	General	0:48
5	Vaults	Grouped position	Extend	Verbally Student	General	Routine	0:43
6	Vaults	Same over mattress	Extend	Verbally Student	General	Routine	0:39
7	Vaults	Higher	Extend	Verbally	General	Routine	0:48
8	Vaults	Even higher	Extend	Verbally	General	Routine	1:19
9	Vaults	Leg split	Extend	Verbally Teacher Student	Skill	Routine	0:40
10	Vaults	Hands to ankles	Extend	Verbally Student	General	Routine	0:47
11	Vaults	Forward roll	Extend	Verbally Student	General Skill	Routine	0:55
12	Vaults	Flying forward roll	Extend	Verbally	General	Routine	0:54
13	Vaults	Somersault	Extend	Verbally Student	Skill	Routine	0:36
14	Vaults	High somersault	Extend	Verbally	General Skill	General	8:56

Figure 36. Teacher task presentation in the gymnastics lesson.

Pekka presented all tasks verbally, while he demonstrated the skill in two tasks and employed student demonstrations in half of the tasks. In addition to a general description of the task, Pekka focused on skill features in forward roll on bars and in extending vault tasks. Outcome criteria and organization were emphasized in the long apparatus circuit task. Pekka did not attend to the practice conditions as the students already knew them. Otherwise practice conditions were presented in general terms. In most tasks, Pekka monitored and interacted with the students in order to provide individual skill based feedback.

Figure 37 shows student responses for individual tasks in this lesson. Grouping by lesson segments, the target student had 95 OTRs (5.0/minute) in apparatus circuit tasks and all responses were technically correct and congruent with stated task. The field notes revealed that even the problem students practiced actively although the task boundaries were loose with low skill requirements. In vault practice, the target student had 18 OTRs (1.1/minute) with 83.3 % of the responses were congruent and appropriate.

Pekka thought the apparatus circuit went well and the students were active because he had decreased his expectations for technically correct responses. However, Pekka indicated this was the only method to maintain practice effort for this group and he felt that some students were so active that he could have something to slow down the pace. In addition, he pointed out the work effort of some particular students. Pekka was pleased when a problem student was so interested that he performed extra laps and when a low skilled student finally dared to do a forward roll from the trampoline. He was concerned about Samuli, a high skilled student who was not dressed and sat most of the time.

#	Task	Task time	Total OTR	Congruence	Appropriate	Account
1	Apparatus circuit	1:03	12	12	12	Monitor
2	High bar	1:20	3	3	3	Monitor Interaction
3	Apparatus circuit	16:46	80	80	80	Monitor Interaction
4	Vaults	0:48	1	1	1	Monitor Interaction
5	Vaults	0:43	1	1	1	Monitor Interaction
6	Vaults	0:39	1	1	1	Monitor Interaction
7	Vaults	0:48	1	1	1	Monitor
8	Vaults	1:19	1	1	1	Monitor
9	Vaults	0:40	1	1	1	Monitor Interaction
10	Vaults	0:47	1	0	0	Monitor
11	Vaults	0:55	1	1	1	Monitor
12	Vaults	0:54	1	1	1	Monitor Interaction
13	Vaults	0:36	1	1	1	Monitor
14	Vaults	8:56	8	6	6	Monitor Interaction

Figure 37. Student response and teacher accountability in the gymnastics lesson.

Students described the goal for the lesson was to do their best and to "learn to perform the somersault". One student said "that everyone does something" while another explained: "to sit like Samuli". Some students reported they had learned the somersault while other had learned nothing. Students had diverse feelings from the lesson and their own motivation affected the outcome of the lesson while one student said:

for some [the lesson] went well and for others not. It is just depending on how one wants to participate here

Somersault practice was a task that divided the students into successful and unsuccessful groups. One students said: "some succeeded when they tried and others did not although they tried". Another student stated this affected their preference for vault practice:

> Yes, the vault practice is fun for those who like to vault. Most [of the students] do not however like vaults so then they don't enjoy it.

Most of the students liked the apparatus circuit although some indicated it was too easy and they preferred more difficult stations. In the post-lesson survey, 76.5 % of the students reported they enjoyed the lesson, while 64.7 % of the students indicated they had been successful in stated tasks.

The task system at a macro level

This section presents results from the task system analysis of instructional tasks from the basketball and gymnastics unit. Findings are presented for task type and sequence, performance requirements, student responses, and accountability.

Task type and sequence for Pekka's learning environment is presented separately for each sport. Table 22 shows how Pekka developed instructional tasks. Pekka employed extending tasks in more than half of all instructional tasks in both basketball and gymnastics, through which he gradually increased the level of difficulty in practice. Refining task, with a focus on technical aspects in practice, seldom occurred in these units. The average length of a single informing, refining, or extending task was about one and a half minutes. In basketball, applying tasks, which were relays or game play, were also used frequently and the students spent most of their practice time in these tasks. While Pekka had no routine tasks in basketball, he used three routine tasks in gymnastics and these were of long duration.

Table 22

Frequency and Duration for Different Tasks in Each Sport

Type of task	Numbers of tasks	%	Total time	%	Average length
Basketball					
Inform	7	17.0	10:49	8.9	1:33
Refine	2	4.9	3:25	2.8	1:43
Extend	23	56.1	30:27	25.2	1:19
Routine	0	0	0	0	0
Apply	9	22.0	76:22	63.1	8:29
Total	41	100	121:03	100	
Gymnastics					
Inform	7	25.0	10:26	19.3	1:29
Refine	2	7.1	2:04	3.8	1:02
Extend	16	57.2	23:03	42.8	1:26
Routine	3	10.7	18:23	34.1	6:08
Apply	0	0	0	0	0
Total	28	100	53:56	100	

Figure 39 reveals the task sequence for different skills during the basketball unit. Pekka used between seven and twenty-six instructional tasks during a lesson and only dribbling was practiced during two lessons while other skills were practiced on one lesson. A typical skill sequence included an informing

Lesson one			Lesson two	
Forward roll	Inform		Apparatus circuit	Inform
Forward roll	Routine		High bar	Inform
Forward roll	Refine		Apparatus circuit	Routine
Forward roll	Extend		Vaults	Extend
Forward roll	Routine		Vaults	Extend
Backward roll	Inform		Vaults	Extend
Backward roll	Extend		Vaults	Extend
Head stand	Inform		Vaults	Extend
Hand stand	Inform		Vaults	Extend
Hand stand	Refine		Vaults	Extend
Forward roll	Extend		Vaults	Extend
Forward roll	Extend		Vaults	Extend
Vaults	Inform		Vaults	Extend
Vaults	Extend		Vaults	Extend

Figure 38. Skill development and task progression in gymnastics

task followed by several extending tasks. In passing practice, however, students practiced three informing tasks while Pekka taught three different passing skills, which everyone had a different technical performance from the others.

The sequence of instructional tasks in gymnastics is presented in Figure 38. Similarly to basketball, Pekka employed informing and extending tasks in gymnastics, with some routine or refining tasks. In the first lesson Pekka presented several skills to the students and he used a few tasks to develop each skill while he seemed to expect that students already could perform the skill. On the other hand, in vault practice, Pekka gradually moved from easy and simple tasks to advanced performances. Most of the instructional tasks were single skill task performed in teacher directed practice.

Lesson one			Lesson two			Lesson three	
Ballhandling	Inform		Dribbling	Inform		Knockout	Apply
Ballhandling	Extend		Dribbling	Extend		Dribbling	Extend
Ballhandling	Extend		Dribbling	Extend		Dribbling	Extend
Ballhandling	Extend		Dribbling	Apply		Dribbling	Apply
Ballhandling	Extend		Dribbling	Refine		Lay up	Inform
Ballhandling	Extend		Game play	Apply		Lay up	Extend
Ballhandling	Extend		Alternative game	Apply		Game play	Apply
Ballhandling	Extend		Game play	Apply			
Ballhandling	Extend						
Ballhandling	Extend						
Ballhandling	Extend						
Passing	Inform						
Passing	Refine						
Passing	Extend						
Passing	Extend						
Passing	Inform						
Passing	Extend						
Passing	Inform						
Shooting	Inform						
Shooting	Extend						
Shooting	Extend						
Shooting	Extend						
Shooting	Extend						
Shooting	Extend						
Alternative game	Apply						
Game play	Apply						

Figure 39. Skill development and task progression in basketball

Performance requirements in Pekka's task presentation is shown in Table 23. Pekka described all tasks verbally and he used teacher demonstrations three times as frequently in basketball as compared to gymnastics. On the other hand, in gymnastics Pekka employed student demonstration in 28.6 % of the instructional tasks, while he had no student demonstrations during basketball lessons. He did not use other materials or media to facilitate task presentation. Field notes revealed several students were restless during task presentations, while they bounced the ball and talked to their friends. In

Table 23.

Performance Requirements for Tasks in Different Units

| Sport | Task communication | | | |
	Verbally	Teacher demonstration	Student demonstration	Materials
Basketball (n=41)	100 %	65.9 %	0 %	0 %
Gymnastics (n=28)	100 %	21.4 %	28.6 %	0 %

| | What is described or demonstrated? | | | |
	General	Skill features	Outcome	Organization
Basketball (n=41)	100 %	43.9 %	9.8 %	36.6 %
Gymnastics (n=28)	100 %	50.0 %	7.1 %	7.1 %

| | Specification of practice situation | | |
	Only generally	Clearly specified	Routine task
Basketball (n=41)	22.0 %	22.0 %	56.0 %
Gymnastics (n=28)	32.1 %	0 %	67.9 %

addition, a few students started to practice the task before Pekka had finished the task presentation.

Every task was described in general term to initiate student practice and Pekka presented skill features in about half of all instructional tasks. Pekka specified outcome with number criteria in about one tenth of the tasks and student organization was described or demonstrated five times more often in

basketball as compared to gymnastics.

Practice conditions were similar to previous tasks in about 60 % of the tasks and Pekka did not attend to practice conditions in these tasks. The situation for practice was specified by using cones or lines in 22 % of the instructional tasks in basketball, while in other tasks he presented practice conditions in general terms.

An analysis of performance requirements based on the skill sequence provided further information about task presentation during a physical education lesson. In addition to Pekka describing each task and skill, he or a student demonstrated the performance in at least one task during a skill sequence. Similarly, skill features and practice conditions in general terms were also presented at least once during a skill sequence. Pekka described or demonstrated organization of practice in tasks where conditions changed and when students moved around in the gym.

The way teachers' distribute time for students work will affect student total activity. Table 24 shows Pekka's time distribution during basketball and gymnastics lessons. Teacher's time distribution was divided into management, warm up, instruction, transition, and practice. Pekka employed a separate warm up episode in only one gymnastics lesson. Each lesson included some time spent in management. On average, he used a fifth of total lesson time for instruction, one fourth for transitions and about 50 % for student practice. In the first gymnastics lesson, instruction time was high and practice time low, because Pekka employed time out for the whole group. When students were in time out, it was coded as instruction, while they were just standing and Pekka justified his decision. No other differences in teacher time allocation was observed between the two sports.

Table 24.

Pekka's Time Distribution during Lessons

Lesson Content	Management		Instruction		Transition		Warm up		Practice		Total
	Time	%	Time	%	Time	%	Time	%	Time	%	
1 Basketball	2:50	3.9	12:05	16.8	17:30	24.3	0	0	39:32	55.0	71:57
2 Basketball	0:20	0.5	12:29	17.2	23:58	32.9	0	0	35:57	49.4	72:44
3 Gymnastics	1:53	2.6	29:38	40.9	16:49	23.2	6:24	8.8	17:42	24.5	72:26
4 Gymnastics	1:18	1.9	7:43	11.3	23:08	33.8	0	0	36:14	53.0	68:23
5 Basketball	6:13	8.9	9:18	13.3	11:25	16.3	0	0	43:07	61.5	70:03
Mean	2:31	3.5	14:15	19.9	18:34	26.1	1:17	1:8	34:30	48.7	71:07

Student response is presented separately for each sport. Table 25 shows student responses during basketball lessons. Students spent most practice time in game play, either in regular games or in other alternative games (e.g. floor hockey). These alternative games showed Pekka was concerned about student activity, while during two of three days of game play, he had no players waiting on the bench because he similarly organized an alternative game. During normal game play, students' dribbling, shooting,and passing performances were coded while student movement was not measured and no student data was collected from the alternative game tasks. The target student had low OTR rates during game play. Of regular game time with five against five, Pekka spent on average 2.2 % in instruction when he explained and guided student practice, 16.5 % in transition while substituting students, and during 81 % of the game time the students actually played basketball.

Table 25.

Student Engaged Time/Response for Different Skills in Basketball

Skill	Tasks #	Practice time	%	Activity time	%	Total OTR #	OTR rate #/min	Congruence %	Appropriate %
Dribbling	8	14:22	11.9	4:56	34.3			56.8	56.8
Lay up	2	8:06	6.7			18	2.2	55.6	50.0
Passing	7	8:02	6.6			102	12.7	94.1	94.1
Shooting	6	12:25	10.3			55	4.4	71.0	51.0
Ballhandling	11	4:47	4.0			95	19.9	99.0	94.7
Knockout game	1	10:18	8.5	7:26	72.2			100	100
Alt. games	2	14:06	11.06						
Game play	4	48:57	40.4			45	0.9		
Total	41	121:03	100	12:22		315			
Mean					50.1		3.3	79.4	74.4

Pekka allocated most time to dribbling and shooting tasks and least time to ballhandling skills. During dribbling practice, the target student practiced only about one third of the time Pekka provided for practice because he employed relay tasks where students mostly waited for their turn. In other practice tasks, the target student had the highest response rate in ballhandling and passing tasks, while the target student had only two responses per minute in lay up practice.

This study defined task congruence as the extent to which target student performance was congruent with stated task requirements. Task congruence differs from appropriate student response, because student appropriate responses were coded based on the technical correctness of the performance. A variation in task congruence and appropriateness between different skills was noted in Table 25. The target students response was most congruent in ballhandling and passing skills, while his responses were congruent in about half of the practice in lay up and dribbling. The same pattern was identified for the topography of student responses, although the target student's shooting practice was technically less correct.

Table 26 shows student response during gymnastics. Students spent most time in vault practice and in apparatus circuit while Pekka allocated least practice time to high bar practice. The target student had a high response rate during apparatus circuit, with about five OTRs per minute. In other tasks the target student's OTR rate was about two response per minute, while in vaults practice, headstand, and handstand the target student had about one response per minute. The target student's performance was either both congruent and appropriate or non-congruent and inappropriate. In several tasks, student performance was congruent with stated task and technically correct, while modified tasks occurred when the target student could not perform the skill. Vaults, backward rolls, and particularly headstand were difficult to perform for the target student.

Table 26.

Student Response for Different Skills in Gymnastics

Skill	Tasks #	Practice time	%	Total OTR #	OTR rate #/min	Congruence %	Appropriate %
Forward roll	7	7:58	14.8	22	2.8	100	100
Backward roll	2	2:59	5.5	8	2.7	62.5	62.5
Headstand	1	2:27	4.5	2	0.8	0	0
Handstand	2	2:54	5.4	2	0.7	100	100
Vaults	13	18:29	34.3	23	1.2	83	83
High bar	1	1:20	2.5	3	2.3	100	100
Apparatus circuit	2	17:49	33.0	92	5.2	100	100
Total	28	53:56	100	152			
Mean					2.8	77.9	77.9

Accountability relates to strategies teachers used to maintain appropriate student work (Siedentop, 1991a). Table 27 shows Pekka's accountability procedures. The most frequent accountability form used by Pekka was teacher monitoring and interaction with individual students. Field notes showed Pekka many times was so involved with providing feedback that he was not aware of everything that happened in the gym. He had a tendency to stay in the middle and could not observe students behind his back. However, Pekka tried to provided individual feedback to each student. Monitoring without interaction was another form of accountability used by Pekka. He employed

post task feedback infrequently and never public recognition or grade

exchange.

Table 27.

Student Accountability

Sport	No monitoring	Monitor	Monitor Interaction	Post task feedback	Public recognition
Basketball (n=41)	2.4 %	36.6 %	61.0 %	2.4 %	0 %
Gymnastics (n=28)	0 %	25.0 %	75.0 %	3.6 %	0 %

Student views of the physical education classes

This section presents findings for students' experience of the physical

education program, particularly of basketball and gymnastic. Data about

students perceptions and experiences were collected through sentence

completion and small group interviews.

Figure 40 shows student experience of joy and success during the observed

lessons. Pekka employed whole class time out during the first gymnastics

lesson, which the students reacted to by only a few students indicating joy and

success during this lesson. While Pekka decreased his expectation and

changed content and teaching methods, student rating increased to the same

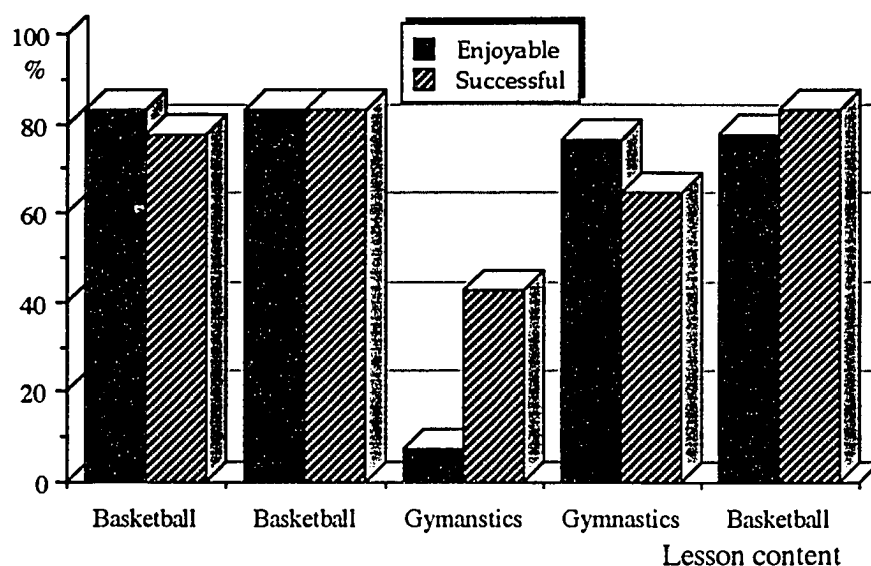level as in basketball for the following gymnastics lesson.

Figure 40. Student experience of joy and success during the lessons

The students described that, more sports were included in the physical

education program in middle school than at elementary school level. They

pointed out the present school had large facilities and physical education was

more demanding and difficult than in elementary physical education. One

student said:

> We did not at least at the elementary [school] level have so much
> gymnastics that we had in middle school and if we played something we
> just played and did not practice like we do here in middle school, [we]
> practice all kind of passes, like in basketball, different shots and dribbling.

Students perceived that during physical education they could "learn new

things" and have an opportunity to be physically active; "if one doesn't

otherwise participate, then one is after all a little active there". Physical

education was more recreational compared to other school subjects while

they could "play" and "freely talk with friends".

> One doesn't every day have to just sit and listen when someone
> harangues in the classroom. One can at least once a week let off one's

energy during physical education lessons.

Students' concerns about physical education were related to the demands of being physically active so "you sweat" and because their physical education lesson was the first lesson in the morning and not in the afternoon.

The students believed Pekka's goal for physical education was to learn "the basic rules for all sports", to improve their physical fitness, and to develop skills in the sports. In addition, they included some affective goals; "to encourage each other" and to make the students interested in physical activity to the extent that they participate in after school sports.

When the students were to describe what they generally had learned in physical education they pointed out they had learned "these basic rules in all different sports". In addition, one student said; "nothing specific but one always learns something".

The students indicated Pekka helped them when they did not understand or when they could not perform the task. Additionally, they stated everyone could receive help by asking; "if one asks about something one does generally get an answer". The students explained teacher demonstrations were helpful for them in practice;

> if one has not really understood how it works, the teacher comes close to you and shows really well, then it does start working.

The students described that Pekka praised them after successful performance and if they were unsuccessful he encouraged them to do additional practice. One student said:

> Generally if one succeeds he says "good" but if one blunders then he says "well, next time you'll do better".

The students pointed out teacher praise was important because "it [praise] encourages us to always try again and do better".

The students reported that Pekka did not like when "I didn't bother to try in class", "I don't do what one has to", and "I blather". In addition, the students stated that during some lessons they did not like the content and some of the students did not concentrate in practice. Therefore, the lesson was noisy and one student believed "that then especially one doesn't learn anything". In addition, students explained that students dribbling the ball during teacher presentation could disturb the learning situation for other students. In dealing with discipline issues, the students said that Pekka first told problem students to stay on task and then Pekka had the class to stand quiet in time out for a while. Students suggested punishment, like push ups and running laps, would be another way to maintaining student control.

Pekka employed time out for the whole class during the first gymnastics lesson, and one student believed this happened "because some [students] did not do the tasks although he warned [them] several times".

Another student explained:

> the reason was that no one wanted to try it [trampoline], because they surely believed that everybody laughs at them when they could not perform.

Some students did not like whole class time out because "if someone can't do [it] so what can one do to that" and that Pekka should "focus discipline particularly on shirkers". Other students felt it was appropriate because "everyone should, however, try". One student indicated the practice conditions, with all students waiting in a long line, were part of the problem:

> it doesn't matter if one knows that one somehow succeeds, but if one is a little unsure so then it is really embarrassing if one makes a boner, flies towards the wall when one vaults on trampoline.

The students believed they had to try hard and participate, to "encourage other students", and "what we learn one ought to know" in order to receive a good grade. Some students indicated that after school sports somehow affected their grades. They expressed it was not really difficult to get a good grade, although students who not were motivated and did not try, received a low grade.

In basketball, the students believed Pekka's goals were to "learn all these basic rules and basic things, dribbling, passing, and such". In addition, they pointed out team work as another goal, "team work, passing, that one doesn't run alone along the court". On the other hand, they indicated they had learned to shoot, to dribble, some rules, and to play basketball. Although most of the students liked basketball lessons when they played games and they disliked lessons when they practiced skills. One student liked basketball lesson because he "learned something". However, another student stated:

> after all one has to practice; otherwise there are no results and the game is such a mess.

Another student pointed out a reason for students' dislikes of skill practice:

> all these shooting tasks and such, they are not always really funny because it could be that someone can [already] do them.

Nevertheless, students believed skill practice should be about one third of the lesson, while the rest of the lesson should be game play.

The students described a good game in basketball was when "one passes to everyone and no one stands and watches the game". Team work was also important. The students described a good team player as one who passes to and encourages other students. One student stated:

> [he] doesn't play alone rather he passes and then if someone else makes a mistake so one doesn't there tell someone off when he is from the same

team, [and] always tries again.

Other students also pointed out the importance of peer support in game play. Similarly, winning was not the most central factor in game play:

> of course it is funny to win, but I don't care if I'm in one team and the other team wins, it doesn't matter.

Finally, one student saw game play during physical education classes as a situation where the teacher can instruct and help the students learn.

> when we are playing and if someone makes mistakes then the teacher can tell about them and one can learn from that.

In gymnastics, the students' voices could be grouped into two categories. Some students had positive attitudes and wanted to try hard and learn while others did not like to have gymnastics at all. Similarly, some students indicated that practice tasks were very easy and they had not learned anything new because "I could already do everything myself" and "one did not have to do anything". One student stated "the teacher doesn't demand so much". Other students expressed that tasks were at an average difficulty level and pointed out some difficult tasks:

> those trampoline vaults, they were not so easy, except for those, who could already perform [them].

Although some students stated they did not learn anything, others said they learned "a little bit of everything", and one student said about vault practice: "yes, at least I perform those trampoline vaults better than before".

Students' opinion was also divided when they detailed things they liked during the gymnastics unit. While several students liked vault practice on the trampoline and wanted to learn how to vault, some other students disliked trampoline practice. In addition, apparatus circuit was a task that

most student liked since it included many skills.

The teacher has a central role in developing the learning environment and therefore the students were asked to identify Pekka's strengths and weaknesses as a teacher. Pekka was generally described as "smart", "good", "nice", and "competent" by his students. One student pointed out Pekka was flexible and humane:

> He is not such [a teacher] that he would yell all the time, that if one does something, [he] doesn't immediately use detention or time out etc. First he reminds that you must be quiet during the lesson and that you don't have to shout.

In addition, one student appreciated Pekka's teaching style to actively participate with the group:

> he participates rather well during the lessons. He doesn't say that do this and then [he] sits there and drinks coffee in the hallway.

However, a few students seemed to dislike Pekka, and they described him as "dull", "bad", "somewhat tight" and that "sometimes even he gets irritated". In addition, some students perceived they had no input on the program and that he should listen to their views; "such as a lesson that we prefer to have and not always according to his will". Although most of the students indicated they were friends with Pekka and got well along, one student stated: "we don't get along together in physical education lessons"

Summary of the ecology of Pekka's learning environment

In the pre-lesson interviews, Pekka talked about the skills to be practiced and how to maintain appropriate student participation. Prior to one lesson, he explained he was not sure about how much content to cover, because he wanted to see the outcome of student practice before he made the final decision.

The instructional ecology in Pekka's class was characterized by loose boundaries both for the instructional and managerial system. Pekka's high transition time was a sign of ineffectiveness in the managerial system. Although he had short instructions, students often were unsettled during them. Skill practice was organized mainly by one skill being practiced during one lesson and then other skills in the next lesson. Pekka developed a particular skill mainly through informing and extending tasks, though he used several applying tasks in basketball. Task presentation in basketball included teacher demonstrations, organizational features, and clearly specified practice conditions. In gymnastics, however, he also employed student demonstrations. Each task was not presented in detail; rather the task sequence included all conditions for the particular skill.

Pekka provided moderate practice time for the students and their opportunities to practice varied from low to intermediate between different tasks. This resulted in a casual instructional climate, though students practiced with high intensity in a few tasks. Students mainly stayed on stated tasks, although on occasions behaviors of competent bystanders occurred. Students modified tasks when they could not perform the required skill. This happened especially for advanced tasks (e.g. lay up, head stand, backward roll) in each sport. Pekka monitored and interacted frequently with individual students during skill practice. Other forms of informal and formal accountability were not used. Similarly, although Pekka monitored student practice, his position was frequently inappropriate and with no possibility to know what happened in the whole gym. During game play, students were held accountable for following the rules, while Pekka did not instruct and give feedback about the game.

In the post-lesson interviews, Pekka indicated the lessons mostly proceeded as he had planed. Pekka frequently attended to that student who had actively practiced in the lessons. He also described how successful he had been in dealing with problem students. In basketball, Pekka pointed out that students learned the rules, while results from skill practice was not noticed in game play. In addition, he indicated refereeing was difficult because he had limited experience in playing basketball.

Students' views reflected the content being taught. They believed the goal in physical education was to learn rules and skills, to be active and improve fitness, to through physical education get involved in physical activity, and to work together and support each other. Students reported they had learned rules, while they hesitated about skill learning, although they felt they learned something just by participating. Lack of order obstructed student learning. On the other hand, Pekka's friendly and supportive behavior promoted their learning. Finally, most students liked Pekka and he was described as flexible, good and competent.

Pekka's Espoused Theory Related to the Class Ecology

This section presents results for research question three: to what extent is the teacher's espoused theory of action (ETA) evident in the ecology of the learning environment. The teacher's ETA was used as starting point to find levels of congruence and discrepancies from the ecology of the learning environment. Qualitative and quantitative observational data and student voice were employed to contrast Pekka's ETA.

One major goal in teaching physical education for Pekka was to have positive student attitudes. This included that students participate and enjoy physical education lessons. Student data revealed that students in general

liked physical education and most students reported they enjoyed and succeeded in particular lessons. These findings were consistent with previous research. However, the created learning situation was reflected in students responses. For example, only a few students enjoyed and reported success after a lesson where Pekka employed a whole class time out for several minutes. Furthermore, while most students enjoyed physical education, a few students reported disliking physical education and had negative comments about Pekka.

Another goal for Pekka was to develop a persisting interest in physical activity. Pekka believed students should try everything from his smorgasbord approach and thereby get some knowledge. This would help them find their own activity. His curriculum consisted of some lifetime activities, like orienteering and cross-country skiing and team sports such as basketball and soccer. Still, track and field and gymnastics were part of his curriculum, although these sports are not lifetime activities, which Pekka also recognized. However, Pekka's focus seemed to be on activities that students could participate in during adolescence and that the multi-activity program should provide students an opportunity to get to know several sports, at least to some extent. This would initiate students to a persisting interest in physical activity. His program was aligned with the Finnish national curriculum guidelines in physical education. In addition, his students reported a persisting interest as one goal for physical education program.

Pekka's ETA included student responsibility as another major goal in physical education. Pekka believed students should be responsible for equipment, other students, and themselves and that physical education provided a means for this. However, Pekka gave students few opportunities

to actively take part in arranging the learning environment, while it was not a major task for Pekka. Although students could play an alternative game without close teacher supervision, he never used tasks with a social dimension as the main goal. Similarly, he never taught cooperation or responsibility during the lesson. Pekka seemed to assume that the affective domain could be accomplished just by having physical education in the gym. In addition, Pekka used few student centered learning situations, where students could be responsible for their own practice. However, students described team cohesion, where students helped and supported each other as important in physical education. Likewise, winning was not as central as not being put down by their peers.

In basketball, Pekka wanted to teach a neat and tidy game, with fair play and students knowing and following the rules. Observations showed that his students practiced several beginning skills in a teacher directed format. While Pekka described and implemented basic rules in game play, he never talked about strategy and he hardly used any time for instruction during game play. He was mainly officiating and a person taking care of substituting students. Although students mentioned team work as one goal in basketball, they said they actually learned what they practiced; skills and rules.

In gymnastics Pekka wanted students to try different skills, without any focus on learning. Although Pekka taught skills in a task progression, there was no expectation students should learn the skill while they were held accountable only for being a member in good standing and maintaining the order in the class.

Pekka's ETA showed that he valued student activity in practice. He wanted to progress at a fast pace from one task to the others and also to keep teacher

presentation to a minimum. Data showed that Pekka allocated about 50 % of lesson time to practice. He had short teacher instructions and his organization was ineffective because he spent one fourth of lesson time in transitions. This decreased student opportunities to practice. In actual practice, Pekka's students were rather active in several tasks, though in dribbling and vault practice students were frequently passive. However, the use of alternative games during basketball, showed Pekka was concerned about student activity and not having them sit and wait on the bench. While the goal was to learn to play basketball, it would have been more logically to implement small games in basketball for those waiting.

Pekka's ETA about the instructional format showed to be congruent with his actions in the gym. He did not prefer station teaching nor individualization. Student motivation and intensity in practice was the main reason for employing competitive formats in practice.

Pekka believed in a relaxed instructional climate, where the teacher had loose boundaries and was a friend with the students. In this ecology, Pekka wanted to help each individual student. Observations showed the climate was relaxed and loose, even to the extent that Pekka had problems in maintaining order in the class. Student were allowed to dribble and start to practice as long as it did not disturb the momentum in the class. The main accountability forms were teacher monitoring and teacher monitoring plus interaction with individual students. His overall supervision of the whole class gave students opportunities to extend work boundaries. However, students reported they appreciated teacher individual feedback and praise.

According to Pekka, student attitudes were the most important factor in determining student grades. Although he used tests, he did not employ then

for the purpose of grading. Students believed they had to try hard, cooperate, and learn to get good grades.

<u>Case Conclusion</u>

Pekka believed in a causal and friendly instructional climate. Similarly he wanted to provide students with experiences from a wide variety of sports in his smorgasbord approach. His major goal was to make students interested in physical activity. In addition, his goals emphasized the social and affective dimensions, which included developing responsibility. Similar goals in physical education are reported elsewhere and recognized as legitimate for this subject.

However, his curricular and content selection supported a skill teaching and learning approach. Similarly, instruction was skill based and teacher directed with little input from students to form the learning environment. Pekka implemented his approach with loose boundaries, according to his theory. Given the social and affective goals, Pekka's actions in the gym did not match his goals. This was not perhaps a question of a discrepancy between his espoused theory and actions, rather he did not have the tools and was never prepared to teach with these goals. However, Pekka had a clearly defined theory about teaching physical education and his espoused theory was generally enacted in the learning environment. His theory was personal and reflected his background in competitive sport and the instruction during his teacher preparation.

In basketball Pekka wanted to develop a functioning game, where students followed the rules. However, he taught basic skills and did not use a scrimmage format. Rather he was the game organizer. Teaching a functioning game and promoting student affective and social goals require a different

instructional approach. For example, in the sport education model students have learned game play and they are responsible for the structure of the learning environment (Siedentop, 1994). Similarly, others have showed that goals related to social and affective dimensions are accomplished through an alternative format in teaching (Hellison & Templin, 1991; Kahila, 1993).

CHAPTER V

DISCUSSION AND CONCLUSIONS

This chapter presents a cross case analysis of the findings for the four cases.
The intention is to describe teachers' espoused theories of actions, the enacted
learning environments, and how their espoused and enacted theories
correspond. This is followed by conclusions, implications of the study for the
field, and recommendation for future research.

Teachers' Espoused Theories of Actions

The teachers' espoused theories were organized in three themes,
educational values and beliefs, goals in physical education, and teaching
strategies and principles. Similarities and differences among the four cases are
presented.

Initially, findings about the four teachers' history are presented, so that
their background will guide our understanding of their present theories and
actions. The teachers had different teacher preparation. Jussi and Helena went
through a three-year program at a teacher training college. Liisa and Pekka
studied in a five-year program at the faculty of sport sciences and received a
masters degree. All four teachers indicated their personal skills in different
activities had improved during their teacher education programs. Although
Helena and Liisa stated student teaching had been helpful in learning to
teach, Jussi, Liisa, and Pekka, as beginning teachers, had to deal with practical

and day to day problems which they were not prepared to solve. The reality shock for first-year teachers is a common phenomenon reported in the literature (Dodds, 1990; Feiman Nemser, 1988).

Jussi had strong content background in basketball and gymnastics prior to teacher preparation and he also was satisfied with his teacher education program. Teaching low skilled students and beginners was still a challenge for him as a beginning teacher. Helena, Liisa, and Pekka had little experience of basketball before teacher education in which they mainly learned basic skills, though they felt they were not prepared to teach basketball. In addition, officiating was difficult. Similarly, Rovegno (1993) reported preservice teachers understood concepts of teaching motor skills, whereas their knowledge about game play and strategy was problematic. She suggested this occurred because physical education programs emphasized instruction about skills and not game play and strategy. Despite their background differences, all teachers in this study enjoyed teaching basketball. As Pekka said; "I have learned those most typical drills and they work through experience" (2In1).

Teaching physical education is an active enterprise and teachers have a lot of things going on, both related to teaching physical education and also to other duties in the school (Locke, 1975). This was particularly true for the four teachers in this study. In addition, continuing education was important to and valued by these four teachers. They participated in education ranging from graduate studies and workshops to regular in-service education. Although the teachers had different teacher training, content backgrounds, and continued professional development, their teaching was more similar than different. This warns the conclusion teachers' background was not an important variable in understanding their teaching.

In this study, all the observed classes had fewer then 20 students, although the teachers indicated they also taught larger groups, from 30 to 35 students. In their theories these teachers never attended to student background variables as important factors affecting their curriculum and instruction decisions. This was different from research on teaching physical education in the USA (Ennis, 1994b, Rauschenbach, 1992).

Teachers' Educational Values and Beliefs

Teachers' educational values and beliefs reflected theories teachers held about children and education in general. The analyses showed that these teachers had three themes in common; realism about teaching, teaching as a personal act, and a caring about students.

Although the teachers never focused on student background variables, they felt they had to be realistic and sometimes adjusted their expectations for student practice and outcomes. These teachers planned their teaching with the context in mind. They had accepted the many constraints (time, number of students, facilities) in their schools and adjusted to these constraints rather than try to overcome them. Placek (1983) suggested teachers adjust to the situation at hand. They are satisfied with students participating, enjoying themselves, and students doing as teachers direct. Similarly, the study "profiles of struggle" showed teachers accepted mediocrity (Griffin, 1986). In another study, however, Griffin (1985) pointed out that contextual factors ought to be considered in discussing and defining goals for physical educators.

All teachers believed they were the same persons in private life as when teaching in the gym. This personalized view about teaching was further supported in that all four teachers believed teaching was individual and that good teaching could take place in different ways (Carter, 1990).

Although teachers seldom attended to student background information, they believed that students had a central role in the teaching process. They were concerned about all students and that students should be able to trust teachers. This was shown in different ways. Pekka wanted to be a friend to all and not have favorites. Liisa frequently dealt with students' personal problems. Jussi saw the teacher as a person nurturing students for post school life. Helena accepted differences and she was particularly concerned about low skilled students' experiences from physical education.

Goals in Physical Education

These teachers had a blend of several goals. A persisting life long interest in physical activity was a major goal in physical education for all four teachers. They believed physical education classes should help students to find an activity they like and similarly to find a physically active life style. This goal was justified by the health aspect of being physically active. This is a goal that is increasingly foregrounded in the literature. Pate and Hohn (1994) suggested that physical education promoting a physically active lifestyle is our most important goal. These teachers did not specify a particular sport, rather they indicated it was more important just to be active. This was similar to what Siedentop et al. (1994) found for high school physical educators and that teachers' goals were to promote a physically active life style with an enjoyable skill learning experience in a respectful, positive instructional atmosphere.

All teachers believed that a multi activity program was a curriculum format in which they could achieve their goal of persisting interest. A smorgasbord approach, multi activity programs with short units, is an example of an exposure program, where time does not allow learning to occur (Rink, 1994). Siedentop (1992b) proposed that student mastery and being

responsible was not incompatible with having fun and enjoying physical education. According to the teachers, students could try an activity and thereby find their own sports through the smorgasbord curriculum. Ennis (1994b), however, concluded that exposure curriculum in a fun and entertaining manner decreases teachers' and students' expectations and trivializes the subject. She suggested we move beyond exposure curriculum and define student learning with feasible and realistic goals that can be reached in the actual context (Ennis, 1993). Similarly, Rink (1992) advocated that middle school programs should have clear and realistic goals, which are selective on a few dimensions of the traditional goals. She continued that programs ought to be sequenced so that with more time spent on fewer units "learning, assessment, and attention to integrating affective goals can occur" (p. 68).

Although all four teachers had a persisting interest as a major goal, there was a difference in how they viewed other goals. Helena and Jussi believed their students should learn sport skills in physical education. Thereby students would be able to participate in different sports later in life. Learning sport skills was not important to Liisa and Pekka. They believed an additional goal to a persisting interest was student enjoyment and personal and social development. Helena and Jussi were also concerned about student enjoyment, but, not as a goal as Liisa and Pekka indicated; rather for them student enjoyment was a means and requirement to achieving other major goals. In addition, Helena wanted students to learn social skills in physical education. Personal-social goals have been suggested as legitimate for physical education programs (Ennis, 1994c, Hellison & Templin, 1991; Kahila, 1993; Placek, 1992).

Although every teacher recognized improved student fitness as a goal, they had accepted constraints and were resigned about their possibilities to improve student fitness when they typically met their students once a week. Corbin (1987) suggested that fitness development was not as important as changing their physical activity habits. In basketball, all teachers wanted to develop a functioning game and in gymnastics the goal was to develop body control.

Altogether, these four teachers' goals were a mix of several different perspectives, which previously has been reported for other physical education teachers (Ennis & Zhu, 1991; Steinhardt, 1992; Lambdin & Steinhardt, 1991). In Finland, there was a change in 1985 from following a national curriculum, to having national guidelines for all subjects in school. In general, these four teachers' goals reflected the national guidelines in physical education, although teachers had different emphases. However, development of student physical fitness and motor skills were reported as main goal for Finnish teachers (Ravi & Tukeva, 1991; Varstala et al., 1987). In addition, Annerstedt (1991) reported Swedish teachers' overall goal for physical education was to create a persisting interest for physical activity. More specifically, the teachers' goals were to provide recreation and enjoyment, to develop physical traits, to provide information about sport and leisure activities, and to learn things that were essential and specific for the subject.

Teaching Strategies and Principles

The teachers' theories about teaching strategies and principles were personal and no two teachers had identical theories. Some common themes were found among teachers' espoused theories about teaching strategies and principles.

All four teachers believed student activity was central to teaching in physical education. Student activity is considered a central variable for student learning, although success in practice is more important than just being active (Siedentop, 1991a; Silverman, 1991). Helena pointed out students should be successful in practice. Teachers' theories about student activity were so dominant that Liisa and Jussi believed that they could decrease performance expectations if students were active. Jussi felt that when students were actively involved in practice he did not have behavioral problems. The teachers had developed different strategies to maintain student activity. Helena and Liisa had students start to practice with basketballs as soon as they entered the gym.

Order was another theme common for all teachers. Management and organization was not a central issue in the interviews for these teachers. O'Sullivan and Dyson (1994) reported high school teachers believed rules, regulations, and expectations were important factors in the curriculum. However, all four teachers believed they had a central role in directing instruction and creating order. Order was a prerequisite for being able to teach, which Doyle (1983, 1986) also suggested as the initial task in teaching. There was a difference in the degree to which the teachers talked about and viewed order, as also reported for elementary physical education specialists (Fink & Siedentop, 1989). To Jussi, discipline was to have a safe learning environment. Pekka wanted structure but could tolerate some discipline disruptions, while Helena and Liisa believed they had to be authoritarian in managing student work.

All four teachers believed student motivation was essential in the instructional climate. Motivation was referred to when students were eager to

engage in practice. Pekka believed students were motivated when they made an effort to try the tasks he presented. Student motivation was related to student enjoying physical activity. However, Jussi believed he could not only be a fun and motivating teacher, but also present challenges and have expectations for student performance.

These teachers had similar theories about task presentation. They believed teachers should demonstrate the skill, which would facilitate student practice and learning. They wanted to describe the tasks, while Jussi also preferred to point out the critical elements in the skill.

While formal accountability was not a major factor in the learning environment teachers wanted to create, they used other forms of student accountability in their work. Monitoring students was a theme identified in all four teachers' theories. Jussi and Liisa indicated that just by observing students they knew what happened and how students performed. Teachers wanted to stay at the station with the most demanding task during station teaching. In addition, Helena, Pekka and Liisa wanted to observe the performance of all students in practice, although not in each single task.

Another form of teacher informal accountability was teacher feedback. Every teacher believed students benefited from teacher feedback. While Liisa and Pekka mostly wanted to provide positive reinforcement to students, Helena and Jussi also believed in correcting students' performance through individual feedback and through refining tasks. These feedback procedures embody differences in teachers' goals. Furthermore, to Pekka, applying tasks and competitions represented a way of intensifying student work.

Finally, this study employed multiple data sourses to identify teachers' espoused theories of action. Generally, these data were congruent and

confirmed one another, although some inconsistency was identified for the teachers' theories across data sourses. Different instruments, interviews and questionnaire, seemed to provide a more complete picture of teacher value and belief constructs, which suggest that multiple data sources are valuable in future research efforts.

The Ecology of the Teachers' Learning Environment

In this section, findings are presented about how teachers and students jointly constructed the learning environment. Pre-lesson interviews revealed that teachers planned their lessons with content and tasks in mind, rather than specific learning goals. In planning, teachers concentrated on sequencing of content (Clark & Peterson, 1986) and on activities related to skill and fitness goals (Ennis, 1993). Similarly, Goc-Karp and Zakrajsek (1987) reported that teachers planned for the activity and the practice of that activity. In addition, all teachers' plans were never finalized prior to the lessons, rather they were guidelines. All teachers intended to modify their plans based on student work, which supported students' role in development of the learning environment (Doyle 1992).

Instructional Task System

This section presents a cross case analysis for the instructional task system of the four teachers. Results are presented to the subcategories of task type and sequence, performance requirements, student work, and accountability.

Task type and sequence

All four teachers most frequently used extending tasks in all activities. Extending tasks were used to increase task difficulty gradually. Refining tasks directed attention to the technical aspect of the performance. Helena and Jussi typically used refining tasks in basketball and gymnastics, as did Liisa in

basketball. They employed refining tasks about once in each skill sequence and Helena said: "I have noticed that it [refinement] somehow works" (3In1). However, previous research showed that teachers infrequently used refining tasks (Dyson, 1994; Jones, 1989; Lund, 1990; Romar & Siedentop, in press; Son, 1989), although one study shown teachers with higher rates of refining tasks (Siedentop et al., 1994). Furthermore, experimental studies have showed that refining tasks are related to skill improvement (French et al., 1991; Masser, 1993; Pellett & Harrison, in press; Rikard, 1992; Rink et al., 1991).

Typically for a skill sequence was the teachers inclusion of informing, refining, and extending tasks to develop particular skills in a progression. These teachers used applying tasks less frequently than in previous research (Dyson, 1994; Siedentop et al., 1994). Applying tasks were not incorporated with work on particular skills, but rather as game play in basketball and final tasks in gymnastics. In basketball, teachers practiced a particular skill during two different lessons, while in gymnastics one skill was covered technically during one lesson, although it could be reviewed in a multi skill task during the next lesson. Every teacher employed multi skill tasks in gymnastics, either as apparatus circuit or as station teaching, where students also could compose their own performances.

In basketball and gymnastics, informing, refining, extending, and routine tasks varied in length from 30 seconds to two minutes, while applying tasks were longer. On the other hand, dance and aerobics were characterized by short tasks. These findings support Anderson and Barrette (1978), who concluded that physical education was rapidly paced in a highly interactive educational context. Although Liisa used many refining tasks in dance, Helena employed hardly any in aerobics. This showed the different goals for

the two activities. Dance was skill teaching while in aerobics the intent was to keep the students active, which Helena also recognized. Furthermore, Helena and Liisa frequently employed routine tasks in aerobics and dance.

Performance requirements for instructional tasks.

In addition to verbal presentation of instructional tasks, all four teachers frequently demonstrated the task. Teachers demonstrated the task in about half of all tasks in basketball and gymnastics, though with a variation among teachers and content. Task presentation was mainly unidirectional, with teacher providing information to students, which has been typical for instruction in physical education (Cheffers & Mancini, 1978; Luke, 1989). Helena, however, employed task presentations in questioning format and used student input. Student demonstrations were included more in gymnastics than in basketball, but not as frequently as teacher demonstrations. Teachers used student demonstrations in tasks to specify spotting, skill features, organization, or where task completion required two or more students. Finally, Helena and Liisa employed task cards in station teaching to provide students with additional information about the tasks in gymnastics. Researchers have identified demonstrations, critical elements, and task cards as elements of task presentation (Jones, 1989; Rauschenbach, 1992). In addition, appropriate demonstrations were suggested as part of task presentations (Rink, 1993a; Siedentop, 1991a)

Teachers always described the task generally and presented skill features in about 50 % of all tasks. Skill criteria were presented by stressing technical aspects of the performance in the form of critical elements. Organization in practice was more frequently presented in basketball, while outcome criteria, a number or time specification, was more often used in gymnastics. The

practice situation was frequently considered as routine by the teachers, and seldom clearly specified with definite boundaries. When these teachers attended to the practice situation, it was in general terms.

While the performance requirements were not explicitly stated for each task, as also reported in previous research (Marks, 1988; Siedentop et al., 1994; Silverman et al., 1993), the working unit for teacher task presentation seemed to be the skill sequence. Each skill and practice sequence included either teacher or student demonstration, presentation of critical elements, and practice condition clearly specified or generally described. Outcome and organization criteria were not included in each skill sequence. These data support Doyle's (1992) notion of instruction as a chain of events that is related and where later events build on previous tasks.

Student work

Student work is described in terms of teacher time allocation, student opportunity to respond (OTR), and task congruence and appropriateness.

Teachers used in average about one-fifth of the lesson time in instruction, when they presented information about the content and instructional tasks to students. Teachers' transition time ranged from 17.1 % for Helena to 26.1 % for Pekka. During transition time in basketball, teachers organized practice, formed teams, and substituted players; while in gymnastics they organized practice groups and equipment. Teachers devoted about half of the lesson time for student practice. Warm up tasks were used in gymnastics lessons, including cooperative games and stretching. In basketball lessons, initial tasks were content specific and related to basketball practice.

Instruction, transition, and practice time varied across lessons, units, and among teachers. Typical for aerobics lessons were high practice time

respectively low transition and instruction time. On the other hand, dance lessons were characterized by high instruction time, low transition time, and moderate practice time. Compared with previous research, these teachers had low management times, higher transitions times, and average practice times (Dyson, 1994; Eldar et al., 1989; Rauschenbach, 1992; Siedentop et al., 1994). Data about Finnish teachers suggests similar transition times, while other variables were not compatible (Varstala et al., 1987). However, this study supports previous findings that in addition to differences between teachers in time utilization, there was a variation within content and lessons for each teacher (Eldar et al., 1989; Siedentop et al., 1994; Ward, 1993).

Game play had a central role in basketball and students spent almost half of their practice time in game play. Jussi's and Pekka's students had less time in game play, when instead of waiting on the bench they were involved in supplementary tasks, conditioning work or alternative games. Students played games every basketball lesson and mainly in a format of regular games, five against five. Game play was also a teaching situation, because Jussi and Helena frequently stopped the game to instruct students. Finally, student opportunity to shoot, pass, and dribble was low, on average one response per minute, as also reported previously for game play (Dyson, 1994; Siedentop et al., 1994).

Students mostly practiced dribbling, passing, shooting, and lay ups, with the highest OTR rate in passing and the lowest in lay up practice. In gymnastics, students practiced vaults most frequently. Although gymnastics lessons included common elements across teachers, the variety in content selection was greater in gymnastics than in basketball. Students had higher response rates in basketball lessons than in gymnastics and in general student

response rate was comparable with that in previous research (Alexander, 1982; Dyson, 1994; Lund, 1990; Siedentop et al., 1994). While content and tasks affected student OTR rates, further variation in student response rates occurred because of differences in teaching context, equipment, and practice format, which also has been reported previously (Graham, 1986; Lund, 1990; Silverman, 1990; Son, 1989; Ward, 1993).

Task congruence was defined as the extent to which target student performance was congruent with stated task. On the other hand, the topography of the performance was analyzed in coding as an appropriate student response. In a situation with loose task boundaries, a student response might be congruent although not appropriate. Therefore, in some skills student responses were congruent more frequently than appropriate. Task modifications occurred mainly when students were unable to perform the stated task. Another form of task modification occurred when students decreased task requirements by lowering practice intensity or acting as competent bystanders (Tousignant & Siedentop, 1983). The overall task congruence was high, as reported previously (Alexander, 1982; Dyson, 1994; Jones, 1992, Marks, 1988). Student responses were more appropriate in basketball than in gymnastics. Shooting and lay ups were the most difficult skills in basketball, while backward roll, pull-over, and beam practice were most difficult in gymnastics. Appropriateness of student response is comparable with student success in practice and this variable is essential to student learning (Siedentop, 1991a; Silverman, 1991). Appropriate OTR was higher than in a high school study (Siedentop et al., 1994), although on average not reaching the level of 90 % success in practice, as suggested for independent practice (Rosenshine & Stevens, 1986).

Accountability

Accountability was defined as strategies teachers employ to define and sustain appropriate student work (Siedentop, 1991a). All four teachers had no formal accountability for instructional tasks during the lessons, which is consistent with previous research (Lund, 1993; Siedentop et al., 1994; Veal, 1992). Teacher monitoring plus interaction was most frequently used informal accountability form. All teachers showed a concern to provide individual skill related feedback to students. Other studies have reported similar findings (Siedentop et al., 1994; Silverman et al., 1993).

Another form of informal accountability was teacher monitoring of student practice. These tasks were typically short with teacher directed whole group practice, which made it difficult for the teacher to interact with students. Moreover, teachers frequently prompted students during practice, which England (1993) reported was particularly evident in tutorial tennis settings. Post task feedback was used infrequently and public recognition was used in three tasks during the whole study. In addition, Jussi held students accountable for performing a task correctly. Students showing incorrect performances had to redo the tasks. Lund (1992) described this as a form of informal accountability for instructional tasks. Helena, Jussi, and Liisa showed good withitness of what happened in the gym and they were able to maintain the momentum in student work although minor disruptions occurred.

Student Views of the Physical Education Classes

Four different teachers were studied and similar trends can be noticed from the four groups of students. However, each individual teacher was also distinguished by the responses of their students with something that was

particular for the teacher. Cooperation was a main theme for Helena's students, who also stated she justified practice tasks. Jussi's students talked more about sport skills and learning skill. Liisa's students acknowledged a relaxed and free climate. Pekka's students described Pekka as being flexible with loose boundaries for management which inhibited learning.

Students' reports after lessons of enjoyment and success showed that more students enjoyed the lessons than those who were successful. However, one-fifth of the students indicated they did not enjoy nor were they successful. Teachers tried to produce a joyful and fun class climate and succeeded by most observational estimates. This is an important fact for teachers to recognize.

These students perceived that physical education in general was fun and enjoyable, which is a common finding (Dickenson & Sparks, 1988; King & Coles, 1992; McKenzie et al., 1994; Nupponen et al., 1991). Nevertheless, different content divided students into two groups. Some students liked a particular content, while other students disliked the same content. Previous research also suggested that specific sports were a major reason for liking and disliking aspects of physical education (Figley, 1985; Goudas & Biddle, 1993; Luke & Sinclair, 1991; Tannehill et al., 1994). Students' positive attitudes were related to learning and success in practice and to work within flexible and loose boundaries. Negative attitudes were related to students not learning or lack of success in practice, and also to performing high risk tasks with no chance for success. Easy work with no challenge was perceived as boring to some students, while others disliked physical education because work was too demanding. Likewise, previous research suggests students ought to feel comfortable and safe in practice (Goudas & Biddle, 1993; Tannehill et al., 1994).

Particularly gymnastics, with teacher directed lessons with an emphasis on learning and reviewing basic gymnastics skills, seemed to be problematic to teachers. There could be several explanations. Tousignant and Siedentop (1983) provided a model including factors of challenge and risk. Likewise Erickson and Shultz 1992 pinpointed the social aspect in student work and that trust in the teacher and in their peers as central for a stimulating learning ecology. They suggested that students will engage in work in a climate of trust, although students do not take ownership of work. In light of this, the gymnastics lesson was for many students a review of skills they practiced in elementary physical education since first grade and there was no challenge. For others, the skills were still difficult with students complaining about sore necks and being whimsy and where the publicity with whole group practice increased the risks.

The students asserted that compared to elementary school, middle school physical education was more demanding and difficult including fitness and skill instruction. In addition, students appreciated the elective lessons, where students could choose their activities from fitness centers. Previous research has shown that students' choice is related to positive student attitudes (Figley, 1985; Luke & Sinclair, 1991).

Students believed the goal in physical education was to find an interest in and learn the meaning of physical activity. The break from academic work was another important feature. Helena's, Jussi's and Pekka's students believed they were to learn skills and rules of different sports. Cooperation was perceived as a goal for Helena's, Liisa's and Pekka's students. In basketball, most students believed the goal was to learn to play basketball, while some students detailed learning specific skills. These goals were different from

findings in other studies. In New Zealand students perceived physical development was most important (Salter, 1992) while for Finnish students development of fitness and skill were important goals (Varstala et al., 1987). Other studies reported students liked physical education because of a break from normal work, staying fit, learning skills, and cooperating in a relaxed climate (Dickenson & Sparks, 1988; Goudas & Biddle, 1993; Gustafsson, 1989; Luke & Sinclair, 1991; Portman, 1993; Romar, 1994; Romar & Siedentop, in press; Tannehill et al., 1994; Tjeerdsma et al., 1993)

When students talked about learning in physical education, they indicated skill learning was a slow process though they learned something while they participated. The students believed practice effort and participation had the most impact on their grades. Helena's, Jussi's, and Pekka's students stated that learning skills being taught affected their grades. Student cooperation was cited as an additional grading factor for Liisa's and Pekka's students.

Students indicated they had good relationships with their physical education teachers and teachers were typically described with positive attributes: good, fun, nice, and happy. Mergendoller and Packer (1985) used student data to define teacher types and two types fit into this study. Good teachers were clearly communicating and helping students to understand stated tasks. Good teachers also sustained enjoyable classes, had appealing temperaments, and showed interest in their students. Another type, fun and nice teachers, were perceived by students as assigning little work. They provided individual help, were interested in their students, and developed affective relationships. Fun and nice teachers appeared easy going, had loose and flexible management, and never lost their tempers. Students believed their teachers were competent and skilled in teaching and that they had a

central role in the instructional process. Students reported that teachers

helped them to learn by providing feedback, correcting their work, and

demonstrating the skill, as also reported by others (Lee et al., 1992;

Mergendoller & Packer, 1985; Solmon, 1992). Winning was not important in

basketball, rather that they worked together as a team where everyone was

involved in game play. Similarly, Tannehill et al. (1994) reported that

competition was not important to high school students. A good team player

was one who passed to and encouraged team members.

Teachers' Espoused Theories Related to the Class Ecology

Teachers' espoused theories of action (ETA) and the enacted learning

environment were analyzed for congruence. The three themes in their ETA

were interpreted separately. Teachers' ETAs were mostly congruent with the

observed ecology, but theories about goals and evaluation were inconsistent

with the observed ecology. These data support previous findings, that

teachers' ETA were generally congruent with the enacted learning ecology

(Dyson, 1994; Marland & Osborne, 1990; Mitchell & Marland, 1989;

Tsangaridou, 1993; Veal, 1992).

The theme, educational values and beliefs, was difficult and almost

impossible to identify from the observed ecology. When assumptions from

educational values and beliefs were identified in the observed ecology, there

was a congruence. For example, Jussi's theories about nurturing and Helena's

theories about professionalism were identified from their actions. In other

instances, nothing in the observed ecology could be used to confirm or

contradict their theories.

All teachers had a mix of several goals for their physical education

programs. However, some of these goal were not implemented as would be

expected. Student life long interest in physical activity was a goal for all four teachers and it is considered an appropriate goal for physical education programs (Pate & Hohn, 1994; Siedentop et al., 1994). Teachers had no specific rationales how to achieve this goal. Placek (1992) suggested that the curriculum does not provide help for this topic. If the goal is life long interest, one might expect to find life time sports, a climate with trust, success, and challenge, student active participation in decision making, students' taking responsibility for practice, and active work on group cohesion (Placek, 1992; Rink, 1992; Siedentop, 1992b; Westcott, 1992). However, the ecology in these classes, with a multi activity curriculum, was casual, relaxed and instruction happened in a social and enjoyable climate. These ecologies might provoke a life long interest in physical activity, however, the goal requires more than what was observed. Also, all teachers considered physical education just within the scheduled class time, nothing else. For example, teachers could use non attached time for programs, link the physical education to community activities, or require students to keep activity logs. An example from an expanded view was when Helena stated that school physical education needed to meet the demands from the private fitness sector and therefore provide activities in a form students preferred. The goals students perceived as central to physical education were similar to their teachers' goals, although not identical. However, they did not indicate they had learned those goals.

The observed ecology in these classes was more or less focused on student activity through skill teaching, although only Jussi and Helena stated that skill learning was a goal in their programs. They believed skills were necessary for students to be able to participate later in their life. Helena's and Jussi's goal for students to learn skills was also congruent with the ecology of

their classes. These two teachers showed several factors suggested as determinants of effective instruction for skill teaching.

The strong focus on skill teaching in all teachers' ecologies had an implication for their goal of developing a well-played and functioning game in basketball. Their goal seemed to suggest a tactical approach, while the observed ecology was skill grounded and teachers taught basic skills. There was little evidence of tactical tasks, small games, or applied game situations. The notion of a functioning game can also be linked to the goal of persisting interest. That is, students like to play games, for example in the sport education model, a competent gamesplayer is foregrounded rather than skill development (Siedentop, 1994).

There are several advocates of learning to play and understand the game instead of practicing isolated skills (Belka, 1994; Mitchell, Griffin, & Oslin, 1994; Rönholt & Peitersen, 1989; Turner and Martinek, 1992; Werner & Almond, 1990). Belka (1994) talked about developmentally appropriate games, where strategy and game play are taught in a progression. In addition to motor skills, he also included cognitive, social, fair play, and affective factors as learning goals. Similarly, Mitchell et al. (1994) advocated a tactical approach as an attempt to avoid games teaching as series of drills and instead maintain the contextual nature of games. This could be done by modifying the game and practice conditions and encouraging students to think tactically.

Pekka and Liisa valued social and affective goals, personal and social development and student joy and positive attitudes. There was no evidence of this focus in Liisa's and Pekka's classes, which had instructional ecologies similar to Jussi and Helena, which included teacher centered instruction of different skills with no focus on teaching cooperation and responsibility.

Liisa's and Pekka's affective and social goals might also be interpreted as students compliance and cooperation in what Tousignant and Siedentop (1983) described as being a "member in good standing".

Scholars have also suggested affective and social goals as appropriate to the physical education curriculum (Ennis, 1994c, Hellison & Templin, 1991; Kahila, 1993; Placek, 1992). However, these goals would require a different instructional approach and an instructional ecology with different priorities compared to traditional physical education. Hellison and Templin (1991) identified three major models for personal-social development in physical education; the self-esteem model, the moral education model, and the responsibility model. They stated that personal-social development does not occur naturally rather that it ought to be particularly planned and taught. Typical elements of personal-social models were student choice, problem solving, and student reflection (Hellison & Templin, 1991). Ennis (1994c) reported that teachers' strategies for personal-social goals were different from strategies used in teaching skills. These teachers viewed cooperation, teamwork, and involvement as particular goals in physical education. Kahila (1993) found in an experimental study that student cooperation, responsibility, and helping behavior were significantly different in classes where students systematically worked with different peers in a cooperative learning setting.

Teachers' theories about teaching strategies and principles were mostly congruent with the observed ecology. All teachers seemed to know themselves in terms of teaching strategies and principles and what they can tolerate and who they are. For example, Helena was concerned about students but saw herself to be authoritarian. Jussi taught skills but nurtured students.

Student evaluation was a problematic issue. All teachers believed evaluation and grades were important to students. Nevertheless, every teacher depreciated the role of grading in physical education. Teachers, emphasizing student exposure to a multi activity program, did not see student assessment as relevant (Matanin & Tannehill, 1994). Jussi and Pekka believed a written report would be more appropriate than number grades in evaluating students. Student activity and interest, their skills, and fitness were assessed in assigning grades by the teachers. This differed from generally used grading procedures of attendance, effort, and attitude, as reported by Matanin and Tannehill (1994). Teachers used the Finnish national fitness test, though skill and knowledge tests were never used. This was consistent with findings for high school teachers in the USA (Matanin & Tannehill, 1994).

In addition, teachers' espoused theories were incongruent with their evaluation behavior, and they were not confident about the role of evaluation in instruction. Helena's and Jussi's goal was skill learning and Liisa's and Pekka's instruction skill based, whereas no formal accountability for the goal existed and no one stressed grading based on skills. Conversely, teachers used fitness tests, although they were skeptical of their abilities to affect student fitness level. Students believed that grading procedures included practice effort, participation, skills being taught, and cooperation as grading criteria, though teachers explained they graded on student activity and interest, skills, and fitness.

Matanin and Tannehill (1994) elaborated on the issue of assessment and evaluation in physical education. They found assessment was not important to high school teachers and they viewed the programs as recreational, because teachers had little knowledge of student learning, of teachers' performance

during instruction, and of the effectiveness of the program. Matanin and Tannehill (1994) concluded that objective assessment was needed to determine if goals were reached, which could strengthen the professional accountability.

Conclusions

Teachers were very confident in their highly personal theories about physical education. These espoused theories were affected by their personal background in sports, teacher education programs, and mostly by their professional experience.These theories were to some extent similar, sometimes even identical although they still were personal.

Teachers' espoused theories of action indicated that students ought to practice skills in a nurturing and casual climate, in which students could have positive experiences and enjoy physical education and their teacher. They believed this instructional climate and a multi activity curriculum would result in their main goal, a persisting interest in physical activity. Other major goals were related to skill improvement and personal-social development. However, they had no specific strategies for how to reach their goals of a life long persisting interest in physical activity. Teachers' espoused theories were in many aspects congruent with the observed ecology, however, in some instances were incongruent. For example, incongruence was found for teachers goals in physical education and the role of evaluation.

The observed ecology was what the teachers wanted to have, within the constraints they had accepted, which meant a friendly and relaxed climate with the teacher making all decisions. The instructional ecology had loose boundaries and focused on skill instruction with little use of applying and similarly stressful tasks. Student work effort was moderate, although highly

congruent with stated tasks. The observed ecology did not support teachers' goals for life long persisting interest and personal-social development. These goals are not accomplished by students only practicing skills in physical education classes with loose boundaries in a friendly climate. Similarly, their goal about a functioning game in basketball showed an ecology of skill teaching, directly from models in their teacher education, rather than learning to play the game.

These teachers created similar learning ecologies although they had somewhat different goals, teacher training, and personal experience. This occurred perhaps while several teachers' main purpose seemed to be teaching and to successfully fulfill what they saw as good teaching practices. Good teaching was important and not student outcomes. Teachers believed these naive assumptions; good teaching and student participation, could accomplish their goals for the program. While no professional accountability existed in physical education, the enacted curriculum is perhaps all that is required of them. Similarly, students suggested teachers were skilled and competent in teaching, particularly in the same elements that teachers described in their espoused theories.

Teachers in physical education are blamed for ignoring student learning and just keeping students busy, happy, and good (Placek, 1983). However, this study showed teachers can emphasize content and students learning this content (e.g. Jussi). In addition, other teachers in this study could be described as busy, happy and good, but not in the negative sense that typically has been the situation in professional journals. Similarly, Ennis (1994c) disproved recently that busy, happy, and good, was not inadequate for physical educators. In this study, busy, happy, and good was for teachers an essential part of their

teaching. Busy meant that students actively participated. Happy meant that students enjoyed being in class. Good meant that the teacher could create and maintain a relaxed but orderly climate. This does not mean that they were not concerned about students and about what students did in their classes. Busy, happy, and good was a prerequisite for being able to work as physical education teachers, although they held naive assumptions for reaching their goals. It seemed that their conceptions of teaching physical education have changed since their teacher training, but they have never been equipped with tools to be able to reach their modified goals, nor did the local curriculum help. While students' enjoyment of the classes and the social system, cooperation and group cohesion, were strong determinants of student success, this implies perhaps that busy, happy, and good does not have to be poor and ineffective instruction, but rather that teachers need to extend their views and identify specific goals for physical education programs and determine the significance and effect for the instructional ecology.

Implications

The variety of goals in teaching physical education, both in this study and reported elsewhere, indicated that teachers need to be familiar with different models for teaching physical education. Particularly teacher education programs need to acknowledge and focus on different goals and what are the implications for instruction in order to achieve these goals. Furthermore, content in teacher preparation should also reflect different values and beliefs, specially in mixing theory and practice through preservice teachers' reflection on practice.

The study showed that teaching is more than selecting content and how to progress from one task to the next. In addition, experience from in-service

education showed that teachers valued practical content and hints that they can apply it to their teaching (Schempp, 1993). Although this is fundamental knowledge and information, there is also a need to add issues related to curriculum and teaching strategies and methods into inservice education. This could provide a context for teachers to reflect on their theories and actions in the created learning ecology. Additionally, the best form of inservice education is still to be developed, particularly in Finland where no collaboration exists between universities and teachers in schools.

Systematic observation of teaching physical education is infrequently used in Finland. This study provided normative data about teacher and student behavior. The knowledge gained from this study represents findings from four teachers and from only a small part of the content in the curriculum guidelines. However, the results suggested that their physical education ecologies are more similar than different compared to existing knowledge about teachers in other cultures. Altogether, there is now a piece of research to broaden the international knowledge base and to start to develop our understanding of teaching physical education in Finnish schools. The normative data can be used in supervision of preservice teachers and provide a standard for comparison in research on teaching.

While student perceived competence and enjoyment seem to be central elements in their experiences and learning in physical education, attention must focus on the 20 % of student not liking a lesson and not feeling successful. In addition, the wide range of positive and negative attitudes to different content in physical education is another relevant finding. Therefore, to make an impact on students' life long interest, teachers and teacher educators must recognize variables as student choice and individualization of

instruction.

Instruction in physical education is characterized by a one way communication, from the teacher to students. However, the teacher centered and initiated instruction in a relaxed ecology showed that most students enjoyed the classes. In reshaping physical education, we need to ask what are students' goals and what role should they have. Cooperative learning strategies have shown promising results in classroom context and these strategies must receive more attention in physical education, particularly if the focus is on social-personal goals.

Recommendations for Future Research

Physical education is marginalized and its position in the schools is questioned. We need further knowledge about how physical education, as a school subject, can contribute to the whole education of children. Therefore, it is essential to know how teachers reach their goals in physical education. This would also require longitudinal research efforts, if findings are to justify the existence of physical education as a school subject. Research needs to attend to teachers with different theories, values, and beliefs and different context.

Given the methods in this study, a multiple case study, similar studies ought to be replicated in Finland and in other countries. In addition, other content areas in physical education should be investigated, particularly research of typical sports in Finland, such as cross country skiing, icehockey, orienteering, and also in non traditional sports. This study described physical education in middle school, thus high school and elementary school classes should also be investigated. Finally, Finland does not have elementary specialists, therefore multiple case studies with classroom teachers and their physical education classes and students would provide valuable knowledge.

This study has provided some understanding of teachers' espoused theories of action, practical knowledge and similar constructs. Although teachers identified teaching as personal, there were similar variables in teachers theories. However, we do not have a complete understanding of what theories guide teachers' work, how do their theories relate to teaching and learning theories, and how do teachers' experiences affect their theories. Effort is needed to examine the role of teachers' theories in their work. The interpretive approach, with giving personal meaning to teachers theories, provides appropriate guidelines. This research could start from the first year in teacher education, continue with what happens during the program, and extend into first year of teaching and the reality shock. Finally, experienced teachers, as in this study, are a valuable source for broadening our knowledge base.

The task system analysis of teaching through the ecological paradigm, provides in itself valuable knowledge about teaching and learning. Although several studies have been completed within this effort, the knowledge base is still rather narrow. Additional research in describing and analyzing tasks in a variety of settings can help to identify similarities and differences in instructional ecologies. Research on task system should also expand to the coaching setting, to compare and contrast ecologies from a coaching setting with instruction in physical education.

The study included several assumptions about teaching physical education, stated by different scholars. To be able to justify these assumptions about future models in physical education, interventions studies are needed. These studies ought to challenge students, intensify instruction, teach tactics, improve social functioning in specific ways, and strengthen personal

development.

Students have a central position in the jointly constructed instructional ecology, therefore research is needed on student voices. This should include their perceptions of instruction, of teacher, and of subject matter. Research on student voices will broaden our understanding of instruction. We ought to know more about whether physical education has an impact on physical activity habits, and also how. Furthermore, is it possible for all students in a class to perceive success and enjoyment in physical education classes. If so, what is the ecology and the outcome?

APPENDIX A

TEACHER FORMAL INTERVIEW

Remember; Probes about why and what prompted you, what reason do you see..?

Initial interview

• Introduction and background

- How many years have you taught, this year included? (continuous or interrupted)

- How long have you taught in this school? in this school system?

- What grade level have you taught?

- To what extent did your undergraduate program focus on teacher education?

- Do you have any course work at the graduate level?

- Any other particular course of study or experience that should be mentioned?

- What grade level(s) are you present teaching?

• What is a typical work day (week) like for you?

• How did you start this semester? What did you do during the first lesson?

• What do you see as the overall goals of your program are? - What are the curricular goals and expectations?

- What goals do you consider when planning and teaching students in your class?

- What is the main focus of PE in your classes?

- What is something I could see that would show what you believe about PE?

-* Is your current view regarding the purpose of PE similar or different from what it was during earlier stages of your professional career? What is similar or different?

• Do you have any principle which you try to follow in your life?

- What is most important to you, thinking upon your view of life?

- How do your values come through in your teaching?

• Let 's talk about the basketball unit. What goals do you have for your basketball unit?

- How are you going to reach the goals?

- Why do you have basketball in your program?

• What demands do you have about the physical setting for teaching PE?

- How do you feel to work in this setting? Would you like to change anything in here?

- Is there any particular equipment that you consider absolute essential to your teaching? What? Why is it essential?

• Lets assume that you have a class with 15 students and no behavioral problem. You meet the class five times a week and you have all equipment you ever wanted. What would you do different?

- Lets think about the opposite. You have 50 students and some real problem ones. You meet the class once a week and you have hardly any equipment. What would you teach and how?

- Where do you fit your self on a continuum from the most ideal to the least ideal setting?

- What is the problem of being able to do less than what are your ideals?

• What are some of your principles that guide your behavior as a PE teacher? How did you arrive at these principles?

• How could you describe your instructional approach?

- What are your preferred teaching strategies?

- What is your rationale for teaching strategies?

- What pedagogical criteria will you relate to when you have to teach a special skill to the students; Why?

• What part of your personality do leave outside the "gymnasium"? What parts of your teaching personality are not carried into your everyday life?

• With children involved in different activities (station teaching), on what basis do you divide your time and attention among them? Is allocation of time and attention a problem for you? Has it ever been a problem?

• How do you want to involve students cognitively in the classes? Can you do it?

• How do you hold you students accountable for what they are learning?

•What kind of established structure do you want to have in your classes (organization)? Can you get it? How?

- What expectations do you have for student behavior? How do you establish them? Are your expectations realistic?

- How do you monitor student activity and behavior? What is important to

you?

• What are some problems you encounter before, during and after a teaching experience?

- How can you solve them? Do you need external help?

• What is the role of evaluation in middle school PE?

- How do you evaluate students in PE?

• How do students learn in PE? What are some examples of student learning?

• How could you describe the atmosphere in your class? How do you create it?

• What kind of attitudes do you want your students to have as they participate in the unit?

- Toward each other, you, subject matter?

- How do you teach your students these attitudes?

• How do you want your students treat each other during PE lessons?

- Would you like to see any changes in the way students interact and treat each other?

• What kind of responsibilities do students learn in your PE program?

• As a group, describe the students in the class I will observe. What are their strengths and weaknesses?

- What do you think about your students?

APPENDIX B

TEACHER EDUCATIONAL VALUE INVENTORY

Teacher values.

Below are randomly listed goal-areas. Assume that each area includes both knowledge of the area and skill or performance within the area. You have 100 points to distribute among the values you feel are important in PE. Give the most points (how many you wish) to the area you think is most important, second most points to the second area, etc. Assign number values to as many or as few as you want. If you could create the ideal school context, indicate what values you would prefer. Additionally, indicate separately your values which are important for you in the context where you are teaching.

Best possible context		This school
._____.	Adventure and outdoor activities.	._____.
._____.	Sport activities.	._____.
._____.	Movement awareness, basic manipulative and locomotor activities..	._____.
._____.	Personal growth (responsibility, self concept, assertiveness, etc.)	._____.
._____.	Recreational activities.	._____.
._____.	Multi-cultural and global education.	._____.
._____.	Group social growth (cooperation, leadership, etc.)	._____.
._____.	Dance and rhythmic movement.	._____.
._____.	Health related fitness.	._____.
._____.	Performance related fitness.	._____.
._____.	Other, _____;	._____.
._____.	Other, _____.	._____.
.Total = 100.		.Total = 100.

Below are different learning dimensions in random order. Distribute 100 points among the dimensions according to how important they are to you, regardless of the values you chose previously. Assign number values to as many or as few as you want.

Again, indicate separately your values for an ideal situation and for this context.

Best possible context   This school

._____.   Knowledge of the activity (knowledge)   ._____.

._____.   Skill in doing the activity (performance)   ._____.

                          Learning to value and want to
._____.   do the activity (affective)   ._____.

                          Feeling confident and positive
._____.   about yourself related to the activity (self-esteem)   ._____.

._____.   Other, _____.   ._____.

.Total = 100.   .Total = 100.

Below are randomly listed values related to the teaching process. Again, you have 100 points to distribute among the values you feel important in teaching PE. Give the most points (how many you wish) to the area you think is most important, second most points to the second area, etc. Indicate your values for an ideal situation and also for this context where you are teaching. Assign number values to as many or as few as you want.

Best possible context		This school
._____.	A class where students are active and get many opportunities to practice.	._____.
._____.	A class where students actively enquire about the subject.	._____.
._____.	A well disciplined class that is not disruptive.	._____.
._____.	A happy class that is enthused.	._____.
._____.	A class where students are successful.	._____.
._____.	A smooth managed class that uses time efficiently.	._____.
._____.	A class in which students show responsibility for their own actions.	._____.
._____.	Other, _____.	._____.
._____.	Other, _____.	._____.
.Total = 100.		.Total = 100.

APPENDIX C

TASK-STRUCTURE OBSERVATION SYSTEM

Teacher _____   Activity _____   Coded by _____

Day _____   Lesson _____

Task# _____	Task:				
Time _____	**Performace requirements**				Student response:
Episode _____	Task communication	Verbally	T demo	S demo	Mater
Tasktype _____	What is des or demo	General	Skill	Outcome	Organ
Accout _____	Practice conditions	General	Specified	Routine	
S coded _____					

Task# _____	Task:				
Time _____	**Performace requirements**				Student response:
Episode _____	Task communication	Verbally	T demo	S demo	Mater
Tasktype _____	What is des or demo	General	Skill	Outcome	Organ
Accout _____	Practice conditions	General	Specified	Routine	
S coded _____					

Task# _____	Task:				
Time _____	**Performace requirements**				Student response:
Episode _____	Task communication	Verbally	T demo	S demo	Mater
Tasktype _____	What is des or demo	General	Skill	Outcome	Organ
Accout _____	Practice conditions	General	Specified	Routine	
S coded _____					

Task# _____	Task:				
Time _____	**Performace requirements**				Student response:
Episode _____	Task communication	Verbally	T demo	S demo	Mater
Tasktype _____	What is des or demo	General	Skill	Outcome	Organ
Accout _____	Practice conditions	General	Specified	Routine	
S coded _____					

<u>Episode:</u>	<u>Tasktype:</u>	<u>Accountability:</u>	<u>Congruence:</u>
M = Management	I = Informing	O = No supervision	C = Congruent
T = Transition	R = Refine	M = Monitor	NC = Not cong.
WU = Warm up	E = Extend	MI = M + Interaction	
K = Knowledge	A = Apply	FB = Post task FB	<u>Topography:</u>
P = Practice	Ro =Routine	PR = Public recognition	A = Appropriate
		GE = Grade exchange	I = Inappropriate
		A = Aversive	

APPENDIX D

STUDENT GROUP INTERVIEW

Focus group interview; (Probes; Would you say more, Is there anything else, Please describe what you mean, Would you like to add something?)

Hey, my name is Jan-Erik, Could you tell me your names? Today were are going to talk about physical education and I'm particularly interested in your views. There are no right or wrong answers, but rather differing points of view. Please feel free to share your point of view even if it differs from what other have said. Before we begin, let me remind you of some ground rules. Please speak up with only one person speaking at a time. I'm tape recording the discussion, because I don't want to miss any of our comments. In later report there will be no names associated to comments and you may be assured of complete confidentiality. Keep in mind that I'm interested in all kind of critique.

* If you were to go and tell sixth graders what to expect in PE on grade seven, what would you say? Describe what you are doing. How you practice. How it is different to fifth grade.
- Describe the most valuable activity you have experienced in middle school PE?
* Let's talk about learning in PE. Describe what you believe your teacher want you to learn in PE. What have you learned in this class? Describe some barriers/challenge to learning in PE you have experienced as a student. Describe some barriers/challenge to learning in PE you have seen other students face.
* Describe one reason for why you have PE in middle school.
* What are the most important goals for the basketball unit?
* What were the goals (what did you do) of the previous lesson? What did you learn from the lesson?
- What did you see/do/feel/think in the lesson that showed the teacher meet her goals?
- If you were the teacher, what changes would you make in the lesson next time you taught it?
* Describe what you think your teacher wants you to do in physical education. Describe one way how the teacher encourage students to be active and practice

in PE? Why do you have to be active?

• What kind of students receive help from the teacher? Why? What do the teacher do?

• Describe what do you have to do to get a good grade in PE?

• Do you usually do what the teacher says? If someone does not, how does the teacher react? When does it usually happen, give an example?

• What kind of students receive teacher praise in PE classes? Why? What does the teacher do, give an example?

APPENDIX E

STUDENT SENTENCE COMPLETION

This page has four incomplete sentences about physical education (PE) and your physical education teacher. Your task is to complete all the sentences the way you like to. There are no right or wrong answers.

• My PE teacher does not like that I ...

• In PE classes I can ....

• I usually talk to my PE teacher about ...

• In PE I would like to learn ...

Below are three questions about this lesson.

◊ What were you supposed to accomplish today?

◊ This lesson was for you .. (cross)
    unenjoyable   enjoyable

◊ In the tasks the teacher gave you today, you were .. (cross)
    successful   unsuccessful

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