

Pilvikki Heikinaro-Johansson

Including Students with
Special Needs in
Physical Education

UNIVERSITY OF JYVÄSKYLÄ

JYVÄSKYLÄ 1995

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Special Needs in
Physical Education

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Pilvikki Heikinaro-Johansson

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*This work is dedicated to the memory of my father, Aarne Henrik Heikinaro,
who emphasized education and hard work.*

ABSTRACT

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The initial aim was to study how regular physical education in integrated settings has been planned and implemented for students with special needs in Finnish comprehensive and upper secondary schools. As the project progressed, the need for an inclusion strategy for the Finnish educational ecosystem became evident. The study comprised three successive phases. In Phase I, the most important needs of classroom teachers (n=169) and physical education teachers (n=138) in the delivery of adapted physical education services together with their beliefs about barriers to integration or inclusion were studied. In Phase II, the perceived physical competence of students with and without physical disabilities (n=60) attending different educational settings was investigated. In Phase III, an adapted physical education consultant model was developed to assist teachers to include students with special needs in regular physical education. This model was tested through two case studies, one with intensive and one with limited consultant assistance. The results, in Phase I, indicated that both classroom teachers and physical education teachers desire and need more knowledge and skills in adapted physical education. Attitude barriers were perceived as the biggest problem among teachers. In Phase II, the results indicated that students with physical disabilities, regardless of placement, had significantly lower values of perceived fitness than nondisabled students. The overall conclusion from Phases I and II was that regular physical education does not provide a supportive enough learning environment for integrated students. In Phase III, support from the adapted physical education consultant proved to be an effective strategy for inclusion. The results indicated that classroom teachers, students, and paraprofessionals all benefited from the consultant approach.

Keywords: adapted physical education, integration, inclusion, consultation, belief, attitude, perceived physical competence, perceived physical fitness

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Pilvikki Heikinaro-Johansson

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LIST OF ORIGINAL PUBLICATIONS

This thesis is based on the following original papers, referred to as I - V in the text.

- (I) Heikinaro-Johansson, P. & Sherrill, C. 1994. Integrating children with special needs in physical education: A school district assessment model from Finland. *Adapted Physical Activity Quarterly* 11, 44-56.
- (II) Lintunen, T., Heikinaro-Johansson, P. & Sherrill, C. 1995. Use of perceived physical competence scale with adolescents with disabilities. *Perceptual and Motor Skills* 80, 571-577.
- (III) Heikinaro-Johansson, P., Lintunen, T. & Sherrill, C. 1995. Perceived physical fitness and body build of students with physical disabilities. Manuscript submitted for publication.
- (IV) Heikinaro-Johansson, P., Sherrill, C., French, R. & Huuhka, H. 1995. Adapted physical education service model to facilitate integration. *Adapted Physical Activity Quarterly* 12, 12-33.
- (V) Sherrill, C., Heikinaro-Johansson, P. & Slininger, D. 1994. Equal-status relationships in the gym: Reciprocal modeling, tutoring, and caring. *Journal of Physical Education, Recreation and Dance* 65 (1), 27-31, 56.

1 INTRODUCTION

All Finnish children of compulsory school age have the right to education (Peruskoulun Opetussuunnitelman perusteet, 1994). Physical education, specially designed instruction if necessary, must be available also to children with disabilities. Children with physical disabilities and other health impairments typically are placed in regular classes. Children with mental retardation mostly attend regular schools but are placed in separate classes. Placing students with disabilities in regular physical education is known as integration. Integration usually includes no support services, and placement is seldom based on assessment. Integration is the concept that is widely used in Europe (Council of Europe, 1987).

Nowadays inclusive schooling is a growing educational reform movement. Inclusion is a school philosophy that includes everyone - society, administrators, students, teachers, and parents - in the school community (Kelly, 1994; Sherrill, 1993; Thousand & Villa, 1990). The decisions about philosophy, principles, policies, and practices are primarily centered at the local level (i.e., the school). Consequently, collaboration and shared decision-making are the keys for successful inclusion. Making persons feel an integral part of the whole is a goal of every classroom and organization.

Full inclusion, like integration, is the practice of educating all students, including students with special needs, in regular education and regular classes. Inclusion calls for providing all students with appropriate educational programs geared to their abilities and needs with support and assistance as needed to ensure success (Block 1994; Stainback & Stainback, 1990; Stainback, Stainback & Forest, 1989). The term mainstreaming was used previously instead of inclusion, but it has been misused so much that it is no longer recommended by the Council for Exceptional Children in the USA (Block, 1994). Mainstreaming has been associated with unsuccessful dumping of students with disabilities into regular education classes without support (Block, 1994; DePaepe, 1984; Lavay & DePaepe, 1987).

Because many schools are incorporating the philosophy of inclusion into their curricula, physical education teachers, - especially those with minimal training in adapted physical education - now share the responsibility for teaching students with diverse abilities. Physical educators are expected to adapt a curriculum to meet the needs of the students in their classes and ensure successful learning experiences for all. Without curricular changes, the likelihood that inclusion will ever work is minimal (Rizzo, Davis & Toussaint, 1994). Planning is universally recognized as the first step in curriculum change, and this is a cross-cultural concern. Planning, as a component of adapted physical education service delivery, is extremely important (DePauw & Goc Karp, 1992; Sherrill, 1993; Wessel & Kelly, 1986).

The beliefs and needs of teachers are crucial in providing quality adapted physical education services to a increasing number of students with special needs in regular education. The teacher requires certain competencies in adapted physical education, including assessment, prescriptive program planning, instructional techniques, curriculum knowledge and disability awareness, that are difficult to obtain through traditional teacher training programs. Teachers can be helped by offering consultant services. Special, individualized tutoring often is needed to create teaching strategies, programs, and models that can be used in every gymnasium, regardless of the availability of resources or proper facilities. These kinds of programs require monitoring and evaluation.

The initial aim of this project was to investigate how regular physical education in integrated settings has been planned and implemented for students with special needs in Finnish comprehensive and upper secondary schools. However, as the study developed, it became evident that in the Finnish educational ecosystem the integration of students with special needs has not been effective and supportive enough; hence developing and testing an inclusion model became the primary objective. The research framework is multidimensional, and includes various aspects of process-product research (Heikinaro-Johansson, 1992b).

This dissertation focuses on three key areas essential in the implementation of adapted physical education. Firstly, to plan models we need information about those teacher beliefs and needs which have the greatest affect on the successful implementation of physical education. Secondly, this dissertation includes a study of the perceived physical competence of students with physical disabilities in different educational settings. Perceptions of physical abilities are important because they mirror how successful integration has been. Perceived physical competence also predicts involvement in physical activity and general self-esteem (Sonstroem, 1974; 1978). Thirdly, this dissertation introduces an adapted physical education consultant model which has been developed to assist teachers and other people in the school community to include students with special needs in regular physical education. The adapted physical education consultant model is explored through two case studies, one with intensive and one with limited assistance.

2 REVIEW OF THE LITERATURE

2.1 Individualized Physical Education and Inclusion

Physical education means providing opportunities for all students to improve existing skills and experience success in physical activity. Not only must opportunities be provided, but physical educators must increasingly demonstrate that students achieve the goals of instruction. In Finland the curricular guidelines (Lukion Opetussuunnitelman perusteet, 1994; Peruskoulun Opetussuunnitelman Perusteet, 1994) issued by the National Board of Education in 1994 define the content and the objectives of physical education. The actual curriculum for the school is designed by the local education authorities and schools within the national framework. Physical education teachers are responsible for planning and implementing appropriate instructional programs based on individual needs. The task of the teacher is above all to create an optimal learning environment for students.

In many cases, the curriculum needs to be adapted to meet the unique educational objectives and learning needs of students of varying abilities. Most activities can be adapted by using different teaching methods, modifying instruction and learning environment. Adapting the curriculum and instruction as well as providing support systems (e.g., support personnel, peer tutoring, and adapted equipment and materials within the regular setting), are the central concepts in the inclusion philosophy.

Today, physical educators are using the term inclusion with increasing frequency in the USA (Block, 1994; Block & Vogler, 1994; Craft, 1994; DePauw, 1986; DePauw & Goc Karp, 1990; Rizzo, et al, 1994; Sherrill, 1994). Inclusion is presented as a reform movement that seeks to displace the principle of the least restrictive environment. Least restrictive environment (LRE) philosophy permits a school system to place all students in regular classes with support services and aids or to experiment with specially designed options for matching individual

ecosystems with school resources (Block & Krebs, 1992; Decker & Jansma, 1995; Dunn & Craft, 1985; Sherrill, 1993, 1994). Students with special physical and motor needs to whom the goals and objectives of the regular class are not appropriate require an individualized educational program (IEP) for physical education, including placement information. Recommendations concerning specific accommodations should be outlined in the IEP, which reflects long term, top-down planning in prioritized curricular content and individually determined instructional methods delivered to the student in both school and community-based settings (Block, 1994). The Individuals with Disabilities Education Act of 1990 (IDEA) mandates that a student's IEP be developed by a team that includes the student (when appropriate), the student's parents, the student's teachers and therapists, and a representative from the local education agency (PL 101-476, Sec. 1401, 20).

In Germany there is no law mandating the education of students with disabilities according to the LRE philosophy. However, parents of students with disabilities have the right to choose whether they want their child to be educated in a special school or in a regular school. The integration representative at the local education agency makes the final integration decision. For students with disabilities attending regular schools so-called support committees have to be convened. In a broad sense this committee is comparable with the IEP committee used in the USA (Doll-Tepper, von Selzman & Lienert, 1992).

In Finland the national curricular guidelines for Comprehensive and Upper Secondary School (Lukion Opetussuunnitelman perusteet, 1994; Peruskoulun Opetussuunnitelman Perusteet, 1994) and the Comprehensive School Act (Opetustoimen Lainsäädäntö, 1994; Peruskouluasetus, § 40, 27.11.1992/1174) mandates that students with disabilities are entitled to receive individualized education based on their abilities and needs. The planning, implementing and assessment of the program has to be done by collaboration with the student, parents, teacher, and other experts. When students with disabilities are taught in an ordinary classroom (e.g., in regular physical education), the maximum size of the teaching group is 20 students. The regulations also mandates support systems for students with severe disabilities. If inclusion is not possible or not seen as an appropriate placement for an individual's development, then education is organized in a more restrictive environment, often in a special class.

The Comprehensive School Act does not demand assessment or written IEPs in physical education as in the USA. Most students with disabilities are placed in either full time regular physical education, full time adapted physical education, part time regular physical education or some students do not have physical education at all, because they are medically exempted (Heikinaro-Johansson, 1987).

Individual students who are successful in regular physical education are those for whom integrated settings are the most appropriate least restrictive environments. Regardless of placement - regular or special class, or somewhere in between in the continuum of alternative placements - correct decisions must be based on individuals, not conditions or categories, and not automatically and arbitrarily applied to every student with a disability (Stein, 1994).

2.2 Effective teaching in adapted physical education

Good teaching implies adapting the curriculum to individual needs so as to minimize failure and preserve ego strength. In a sense, all good physical education is adapted physical education. The success of inclusion depends in large part on the quality of the regular physical education program and the extent to which it meets individual differences in physical education.

The overall aim of physical education is to improve motor skills and fitness as well as to enhance such cognitive and affective objectives as may be included in the curriculum. For students with disabilities to develop their psychomotor, cognitive, and affective skills fully in physical education they must experience successful learning, like their non-disabled peers. Given the importance of success in developing a positive self-concept, the challenge for teachers in planning, teaching, and evaluating so that all students can experience success in physical education is critical.

Research on teaching in physical education (RT-PE) means research on what teachers and students do and how this affects and relates to learning and the social dynamics of the class (Silverman, 1991). Although research on effective teaching has been difficult given the complex factors involved in teaching and learning, the findings of process-product research "have become key elements in the construction of a stable knowledge base". The subareas of process-product research tie the teacher process variables to achievement. Dunkin and Biddle (1974) originally summarized it as a model, which emphasized the study of how three types of variables, presage, context, and process influence student achievement.

Research on classrooms using Dunkin & Biddle's model has been active (Brophy & Good, 1986; Rosenshine & Furst, 1973). Dunkin & Biddle's model has also been used as the framework for the Research Project on School Physical Education Classes, where 406 physical education classes in Finnish comprehensive schools were analyzed. Findings concerning context, presage, process, and product variables indicated the need for research that focuses specifically on school district planning directed toward better inclusion of students with special needs (Heikinaro-Johansson, Telama & Varstala, 1989; Varstala, Telama & Heikinaro-Johansson, 1987).

Little research is available identifying teaching behaviors that are effective in adapted physical education or integrated physical education settings (Aufderheide, 1983; DePaepe, 1985; Heikinaro-Johansson et al., 1989; Webster, 1987, 1993; Vogler, van der Mars, Cusimano & Darst, 1992; Vogler, van der Mars, Darst & Cusimano, 1990). This study approaches RT-PE from multiple perspectives and with multiple methods. In the remainder of this section teacher and student background information, especially teachers' beliefs and attitudes (presage variables) and students' self-perceptions (presage variables), teacher and student behavior (process variables), and inclusion strategies, especially adapted physical education consultation (context variables), will be discussed on the basis of the framework of Dunkin and Biddle's model.

2.2.1 Presage teacher variables: Beliefs, attitudes and needs

A teacher's attitude towards students with disabilities and ability to teach these students are two problems that have been identified as limiting opportunities for successful learning in physical education for students with disabilities. Many researchers have emphasized that favorable attitudes of teachers are critical to the success of integration and inclusion (Aloia, Knutson, Minner & Von Seggern, 1980; Minner & Knutson, 1982; Morisbak, 1990; Rizzo, 1984; Rizzo & Vispoel, 1991; Rizzo & Wright, 1988; Tripp & Sherrill, 1991).

Many authorities agree with Rosenberg and Hovland (1960) that beliefs are the cognitive components of attitudes and hence the first variable to be addressed in planning for behavior change (Ajzen & Fishbein, 1980; Cowden & Megginson, 1988; Sherrill, 1993; Tripp & Sherrill, 1991). Beliefs are instrumental in defining tasks and selecting the cognitive tools with which to interpret, plan, and make decisions regarding such tasks; hence, they play a critical role in defining behavior and organizing knowledge and information. Research suggests a strong relationship between teachers' educational beliefs and their planning, instructional decisions, and classroom practices, although neither the nature of educational belief acquisition nor the link to student outcomes has yet been explored carefully (Pajares, 1992; Pintrich, 1990).

Recent surveys have shown that attitudes of physical educators vary according to teacher and student related variables. For example, teachers' perceptions and attitudes vary according to type of disability (Aloia et al., 1980; Leyser & Abrams, 1982; Moberg, 1984; Rizzo, 1984; Rizzo & Wright, 1987; Tripp, 1988). Aloia et al. (1980) found that teachers held lower stereotypic perceptions of persons with mental and physical disabilities than toward nonlabeled students. Teachers' perceived abilities to work with nonlabeled students and students with mild MR were essentially the same, whereas teachers indicated their educational experiences and abilities were lower in regard to students with physical disabilities. In mainstreamed classes in the USA, physical educators preferred teaching students with learning disabilities over those with physical disabilities (Rizzo, 1984; Rizzo & Vispoel, 1991; Rizzo & Wright, 1987). Schmidt-Gotz, Doll-Tepper & Lienert (1994) reported contradictory results in Germany, where teachers preferred teaching students with physical disabilities over those with learning disabilities.

Students with disabilities generally are perceived more favorably in the lower grades than in the higher grades (Minner & Knutson, 1982; Rizzo, 1984). As grade level of students increases, attitudes of teachers become less favorable. Aloia et al. (1980) found that women had more favorable attitudes than men when teaching students with disabilities, but the results of subsequent studies (Heikinaro-Johansson & Telama, 1990; Patrick, 1987; Rizzo, 1985; Rizzo & Wright, 1988) have not concurred. Age has been found to be negatively correlated with attitudes: the older the teacher, the less favorable the attitude (Moberg, 1984; Rizzo, 1985; Rizzo & Vispoel, 1991; Rizzo & Wright, 1988, Schmidt-Gotz et al., 1994). Others have found that previous exposure to students with disabilities and educational preparation relate to favorable attitudes (Marston & Leslie, 1983; Patrick, 1987; Rizzo, 1985; Rizzo & Vispoel, 1991, 1992; Rowe & Stutts, 1987; Schmidt-Gotz et al., 1994; Stewart, 1988, 1990). Researchers also have shown that perceived ability to teach students with special needs is

related to attitudes (Hegarty, Pocklington, & Lucas, 1981; Rizzo & Vispoel, 1991; Rizzo & Wright, 1988; Schmidt-Gotz et al., 1994).

In Finland the problem is that regular physical educators do not always know that students with disabilities are going to be in their classes until the students enter the gymnasium. This can easily increase the teacher's level of anxiety and frustration, which may negatively affect their attitude towards such students and toward providing an appropriate program for them.

In summary, teachers' gender, age, education, and experience in teaching students with disabilities appear to be important considerations in developing a school-district assessment model and an adapted physical education consultant service model to guide planning for greater inclusion.

2.2.2 Presage student variables: perceived physical competence

The assumption that physical education is an area where it is easy to include students with disabilities is erroneous. It is possible that children with disabilities experience decreasing self-confidence and poorer self-concepts after a period of time in integrated settings (Dunn & Watkinson, 1994; Sherrill, 1993; Watkinson, 1991). There are no other school subjects where student performances are so overt, so open to the scrutiny of their peers. Based on the competence motivation theory (Harter, 1978; 1981) the amount of success or failure an individual achieves in a particular domain will influence perceptions of competence. Research with able-bodied individuals supports this theory (Harter, 1983; Rosenberg, 1979).

Self-esteem is often viewed as a primary indicator of a person's emotional adjustment and mental health, and therefore often appears as a curriculum objective in school programs (Lukion opetussuunnitelman perusteet, 1994; Pangrazi & Dauer, 1995; Peruskoulun opetussuunnitelman perusteet, 1994). Self-perceptions of physical competence are important to all students because they are believed to mediate a person's motivation to choose and persist in exercise participation behaviors (Biddle, 1993; Fox, 1992a, 1992b; Harter, 1978). Perceptions of physical abilities may be more predictive of physical activity involvement and general self-esteem than actual abilities (Sonstroem, 1974, 1978).

Self-perceptions in the physical domain are important also to students with physical disabilities. Students with disabilities may experience failure and incompetence when performing physical activities (Dunn & Watkinson 1994; Sherrill 1993). Little systematic research has, however, been conducted related to self-perceptions in physical competence of students with physical disabilities. In most of these studies perceived physical competence has been significantly lower for individuals with physical disabilities (King, Shulz, Steel, Gilpin & Cathers, 1993) than for the able-bodied, especially among girls (Campbell, Hayden & Davenport, 1977; Magill & Hurlbut, 1986). Sherrill, Hinson, Gench, Kennedy and Low (1990), however, reported that scores of adolescent athletes with physical disabilities on Harter's Perceived Physical Competence Scale did not differ from the scores of able-bodied peers.

No studies could be found comparing physical self-perceptions of students with physical disabilities who were assigned to different educational environments (i.e., exempted vs. regular physical education integration).

However, some researchers have compared children with learning disabilities (LD) in different kinds of educational environments (Battle & Blowers, 1982; Bear, Clever, & Proctor, 1991; Coleman, 1983; Forman, 1988; Kistner, Haskett, White & Robbins, 1987; Renick & Harter, 1989). Results have indicated that students with LD in special education classes have more positive self-esteem than students with LD in regular classes (Battle & Blowers, 1982; Kistner et al., 1987; Renick & Harter, 1989). However, both Coleman (1983) and Forman (1988) reported no differences in self-perceptions in various domains between children with LD in self-contained classes and those in regular classrooms. Findings thus are contradictory about the relationship between placement and perceived self-esteem.

Using social comparison theory (Festinger, 1954) to explain why mainstreamed children with LD have negative self-concepts, both Coleman (1983) and Renick and Harter (1989) found that the majority of such children compare themselves to their normally achieving peers. It seems likely that social comparison theory applies also to the development of perceived physical fitness and body build in a physical education setting. Damon and Hart (1988) provided a developmental perspective when they noted that, in early adolescence, self-judgments depend heavily on social comparison and normative standards. In late adolescence there is a normative shift toward self-attributes defined in terms of personal beliefs and internalized standards.

Social competence, as well as physical competence, is important in physical education (Sherrill & Montelione, 1990). A student will probably choose to participate in activities in which he or she feels competent, avoiding those that are perceived to be beyond his or her ability. Research findings on integration suggest that successful social integration depends less on the disability itself and more on the individual's level of self-esteem, general confidence, and social skills (Gurney, 1988, p. 22).

2.2.3 Process variables: Teacher and student behavior

Systematic observation of teacher and student behavior has a long history in RT-PE (e.g., Anderson, 1971; Anderson & Barrette, 1978; Cheffers, 1977; Heinilä, 1979) and in research on teaching in other fields (Evertson & Green, 1986; Koskenniemi et al., 1977; Medley & Mitzel, 1963; Rosenshine & Furst, 1973; Shavelson, Webb & Burstein, 1986). It involves the use of an observation system to categorize teacher and/or student behavior and requires direct observation of classes, either in person or by videotape. Effective teachers maximize time-on-task (ALT-PE) behavior, establish high, yet realistic expectations for performance, and develop a warm and positive class climate in which student attitudes toward a subject matter and toward oneself can be positive (Nowacek, McKinney & Hallahan, 1990; Pieron, 1994; Siedentop, 1991; Vogler, DePaepe & Martinek, 1990; Vogler et al., 1992).

The amount of time students spend practicing at an appropriate or successful level is positively related to student achievement and inappropriate or unsuccessful practice is negatively related to achievement (Silverman, 1988). Researchers indicated that students with disabilities in physical education have had similar or slightly less functional time (or ALT-PE) rates than their

nondisabled peers in integrated settings (Aufderheide, 1983; Aufderheide, McKenzie & Knowles, 1982; Heikinaro-Johansson & Telama, 1989; Knowles, Aufderheide & McKenzie, 1982; Shute, Dodds, Placek, Rife & Silverman, 1982; Silverman, Dodds, Placek, Shute & Rife, 1984; Vogler et al., 1990), and greater ALT-PE rates with peer tutoring, self-contained classes, and individualized instruction (Aufderheide et al., 1982; DePaepe, 1985; Webster, 1987). Although the results are not clear, it appears students generally receive equal treatment. It can be concluded, that if differences exist, the higher skilled, more able student receives the more desirable behaviors or participation patterns.

Vogler et al. (1990) examined teacher and student process variables in mainstreamed physical education classes and found that mainstreaming did not cause differential learning involvement among students, and that the ALT-PE motor-appropriate rates of students with disabilities was low. In another study Vogler et al. (1992) studied teaching effectiveness with elementary level mainstreamed and nondisabled students which were analyzed from the perspective of teacher experience and expertise. Teacher behavior differed little as a function of either experience or expertise. Students with disabilities were significantly less motor-appropriate and more off-task than nondisabled students, and neither experience nor expertise significantly altered those differences. The results indicated that for more successful inclusion into the regular setting teachers may need specific expertise or experience in order to become competent in dealing with the unique problems associated with children with disabilities.

In a Finnish study time-on task did not differ between students with mild disabilities and nondisabled students (Heikinaro-Johansson et al., 1989). However, the intensity rates indicated that girls with mild disabilities were engaged in physical activities less intensively than nondisabled girls. Boys with mild disabilities and nondisabled boys were engaged at the same intensity level.

2.2.4 Context variables: Adapted physical education consultation

The purpose of inclusion is to allow the student to experience as normal and regular an educational program as possible. When there is one teacher and 30 to 40 students in an integrated class, it is difficult for the teacher to work individually with each student. Therefore strategies are needed to facilitate individual attention, enhance the ability to attend of an entire class of students, and minimize disruptive behaviors. The context variables are related to the conditions and characteristics of the environment to which the teacher has to adjust (Dunkin & Biddle, 1974; Varstala & al., 1987).

The teacher is responsible for lesson plans that include clear statements of objectives, learning activities, motivational techniques, and evaluation procedures. Teachers need new skills and competencies such as assessment, prescriptive program planning, instructional techniques, curriculum knowledge and disability awareness. The use of regular students as peer tutors (i.e., reciprocal teaching) is considered a cost effective means of providing additional support to teachers who have to deal with students of varying ability levels (Byrd, 1990; Goldberger, 1992; Kahila, 1993; Mosston & Ashworth, 1994; Webster, 1987, 1993). Teachers also need support systems that provide them adapted

physical education consultants when needed to show how inclusion works (Butterfield & Chase, 1990; Loovis & Melograno, 1993; Melograno & Loovis, 1991; Vogler, et al., 1992; Wessel & Kelly, 1986).

The use of adapted physical educators to serve school districts in a variety of roles, including consulting, has long been advocated (Dunn & Harris, 1979; Sherrill, 1982; Wessel, 1977). Adapted physical education consultants typically provide indirect services to students with special needs by forming a cooperative, problem-solving relationship with their teachers and paraprofessionals who, in turn, work directly with the students and the total ecosystem. The early literature in adapted physical education seldom used the term consultant but clearly identified services now called "consultant" in the description of inservice teacher education (ISTE), which included on-site visitations, individualized on-site assistance, and on-site monitoring (Dunn & Harris, 1979; Hurley, 1979; Tymeson, 1981).

At present, few research studies exist involving adapted physical education consultant services. Hurley (1979) compared two methods of inservice training (intensive and limited) in changing the assessment, prescription, teaching, evaluation, and planning behaviors of 40 teachers in nine states. Intensive ISTE was defined as a 1-day workshop of 6-hr duration plus three consultant on-site visitations, whereas limited ISTE was defined as a 2-hr workshop. Both groups were expected to follow the I CAN curriculum (Wessel, 1977). Significant differences were reported, favoring the intensive training group, on teaching, evaluation, and planning practices, but not on assessment and prescription practices. Tymeson (1981) tested a six-component inservice training model that included at least four monitoring visits by a consultant-trainer to classes taught by each trainee and reported statistically significant improvement, over a 4-month period, of adapted physical education direct service delivery to students with disabilities.

The literature clearly emphasizes consulting as a responsibility of the adapted physical educator (Auxter, Pyfer & Huettig, 1993; Eichstaedt & Kalakian, 1993; Jansma & French, 1994; Sherrill, 1993; Wessel & Kelly, 1986); however, little has been published on the specific job functions and competencies of adapted physical educators in the role of a consultant. Wessel and Kelly (1986) defined a consulting teacher as "a specially trained teacher who provides support services to teachers" (p. 324). Sherrill (1988) described adapted physical education administration as a broad role encompassing "all forms of management, supervision, and consulting" (p. 18), recommended that every school system employ at least one adapted physical educator in this role, and emphasized that university-based personnel preparation include coursework for developing needed administrative competencies. Eichstaedt and Lavay (1992) stressed that the specialist's job role is becoming "... more complex, incorporating multiple functions such as consulting, team teaching, and providing inservice workshops" (p. 162). To clarify role functions and competencies, a model is needed to provide a conceptual framework of services that should be delivered by an adapted physical education consultant.

This model is particularly timely as consultants are needed across several disciplines to assist regular educators to effectively integrate students who are placed in their classrooms (Elliott & Sheridan, 1992; Gresham & Kendell, 1987; Huefner, 1988; Sheridan & Kratochwill, 1992). Idol and West

(1987) identified 10 models of consultation. The underlying premise of these models is the indirect service delivery concept which rests on the assumption that teachers and parents generally are the "best" people to work with children; however, the knowledge and skills of consultants are often needed to develop effective change strategies and interventions.

3 FRAMEWORK OF THE STUDY

The framework for this study that comprises three successive phases has been adapted from Dunkin and Biddle's (1974) model of teaching, and from the framework created for the Finnish Research Project on School Physical Education Classes (Varstala et al., 1987). In both models the central focus is the classroom. The framework appears in Figure 1.

The pedagogical variables are context, presage, process and product. These pedagogy variables are influenced by socio-cultural and socio-historical factors (DePauw & Goc Karp, 1992). The socio-cultural and socio-historical factors, such as politics, economics, social mores, cultural values, legal mandates, and traditions affect on what occurs in education. They affect on how the whole society and schools view integration or inclusion and the concept of disability.

The context variables are related to the conditions and characteristics of the environment to which the teacher has to adjust. The context variables in this study include decisions about administration, curriculum, and environment. Administrative decisions made by a school district and school include e.g., judgments of courses arranged in physical education, class format, structure and organization of the class schedule, and budget. Curriculum design includes preinstructional decisions about goals, teaching styles, use of time, space formations, etc. Environmental factors refers to the kind of physical settings available both inside and outside school, class size and format, facilities and equipment.

The presage variables are related to the characteristics of teacher and student. The presage teacher variables of special interest were gender, age, education, knowledge, beliefs and attitudes. Phase I examines the teacher's awareness of students with special needs, and teacher's needs in adapted physical education service delivery. This study also examines whether teacher's age, gender, education, knowledge, and experience of teaching students with special needs are associated with beliefs about barriers to integration.

The presage student variables of special interest were gender, disability, and perceived physical competence. Phase II examines perceived physical competence among three groups: (a) students with physical disabilities who are medically exempted from physical education; (b) students with physical

disabilities, in regular physical education; and (c) nondisabled students in regular physical education. Students' perceived physical competence can be seen both as a presage variable and as a product variable of the teaching-learning situation.

The process variables include all the factors that influence the physical education instruction. Process variables include teacher behavior, student behavior, interaction in the teaching-learning situation and decisions which influence the implementation of the physical education lesson, e.g., goals and objectives, content, teaching styles and curricular modifications. The class-climate which prevails during physical education instruction is also among the process variables. Both the context and presage variables affect physical education instruction.

Phase III examines teacher and student behaviors in physical education classes where students with disabilities are included by an adapted physical education consultant. Special attention was given to the program implementation.

Product variables concern the outcomes of teaching, both teacher and student experiences. Product variables include changes that come about in students as a result of their involvement in physical education with the teacher and other students. In Phase III, teacher and student experiences are investigated by means of case studies, where inclusion was supported by adapted physical education consultation. Teachers' and students' beliefs, attitudes, and experiences were examined during and after the intervention program.

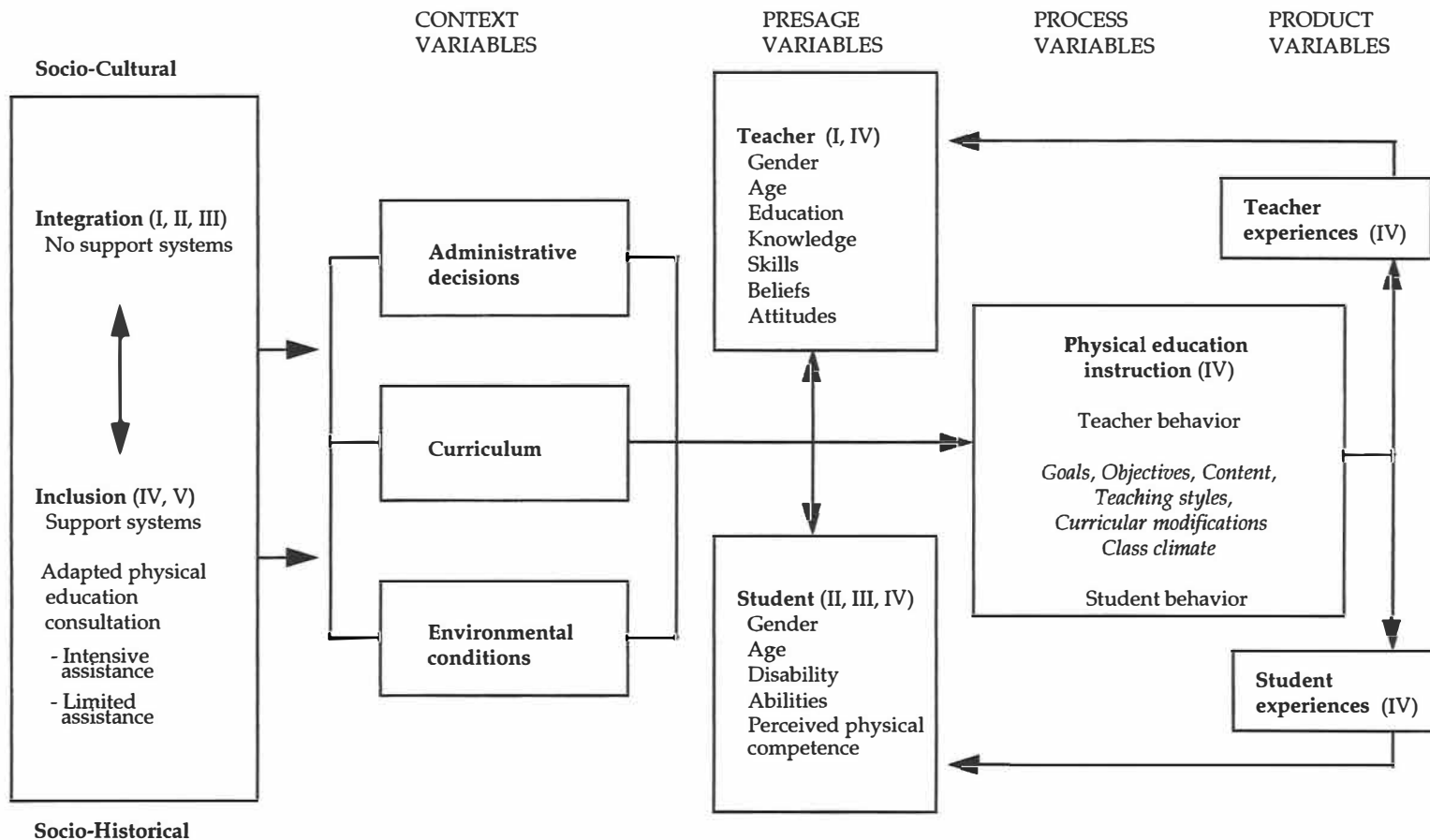


FIGURE 1 The framework of the study

4 AIMS OF THE STUDY

The initial aim of this project was to investigate how regular physical education in integrated settings has been planned and implemented for students with special needs in Finnish lower stage comprehensive (age 7-12), upper stage comprehensive (age 13-15), and upper secondary (age 16-18) schools. However, as the study developed, it became evident that in the Finnish educational ecosystem the integration of students with special needs has not been effective and supportive enough; hence developing and testing an inclusion model became the primary objective.

The questions addressed were:

- 1) What are the most important school district needs of physical education teachers and classroom teachers? (I)
- 2) Are teachers' gender, age, education, and experience of teaching children with special needs associated with beliefs about barriers to inclusion? (I)
- 3) What is the applicability of Perceived Physical Competence Scale for students with disabilities? (II)
- 4) Does perceived physical competence differ among three groups:
(a) students with physical disabilities who are medically exempted from physical education, (b) students with physical disabilities, in regular physical education, and (c) students without disabilities in the same classes as peers with disabilities? (III)
- 5) How can students with disabilities be successfully included in regular physical education when provided with intensive assistance by an adapted physical education consultant? (IV, V)
- 6) How can students with disabilities be successfully included in regular physical education when provided with limited assistance by an adapted physical education consultant? (IV, V)

5 METHODS

Methodological issues concerning the instruments used in the present work are dealt with in detail in each of the studies and hence are not reiterated here. However, the general design of the research project as a whole has only briefly been presented in the original publications. This section, therefore gives a short overview of the total study design.

The planning of this research project started in 1984, when the first pilot studies were carried out in the province of Central Finland. The actual data collection started in 1985, in the province of Häme. The physical education instruction for students with special needs in Finnish comprehensive and upper secondary schools was approached from multiple perspectives and by means of multiple methods. Initially, a two-phase study was designed.

In Phase I, a model was developed and tested to guide assessment for physical education planning for integration or inclusion at the school district level. In Finland classroom teachers teach all subjects, including physical education, in lower stage comprehensive schools. In upper stage comprehensive and upper secondary schools specialist physical education teachers are responsible for physical education instruction. All the upper comprehensive and secondary school physical education teachers ($n=138$) and a sample of the lower comprehensive school classroom teachers ($n=169$) in the province of Häme responded to a questionnaire in Phase I.

Phase II consisted of an analysis of integrated physical education lessons. A total of 47 regular physical education lessons with an integrated student were observed. These lessons were kept by physical education teachers ($n=22$) who answered to the teacher questionnaire in phase I.

In every lesson one student with a disability ($n=47$) and one student without a disability ($n=47$) were observed. Teacher and student behavior in integrated physical education lessons has been examined and reported earlier (Heikinaro-Johansson, 1992a, 1992b; Heikinaro-Johansson & Telama, 1990).

At the end of the lesson the students were interviewed individually and filled in the Perceived Physical Competence Scale. Students with physical disabilities ($n=35$) who were medically exempted from regular physical education responded to the perceived physical competence questionnaire by

mail. Phase II investigated how students with physical disabilities, who were integrated into or exempted from regular physical education perceive their physical competence.

On the basis of the results from Phases I and II, it was concluded that there was a great need to continue this project. The aim of Phase III was to create solutions to problems which had been identified through studying teacher and students needs, beliefs and attitudes, observing what teachers and students do in the gymnasium, and examining the types of student self-perceptions. Phase III included the development and testing of an adapted physical education consultation model, aiming to assist classroom teachers to include students with special needs in physical education. The model was tested in two communities in Finland by the use of a case study approach that involved limited assistance and intensive assistance. Phase III also focused on program planning and implementation and student engagement in the inclusion setting as they relate to student achievement. The study examined the relationship between teachers' own backgrounds, their beliefs and attitudes, and how they do their work. The three-phase design is schematically described in Figure 2.

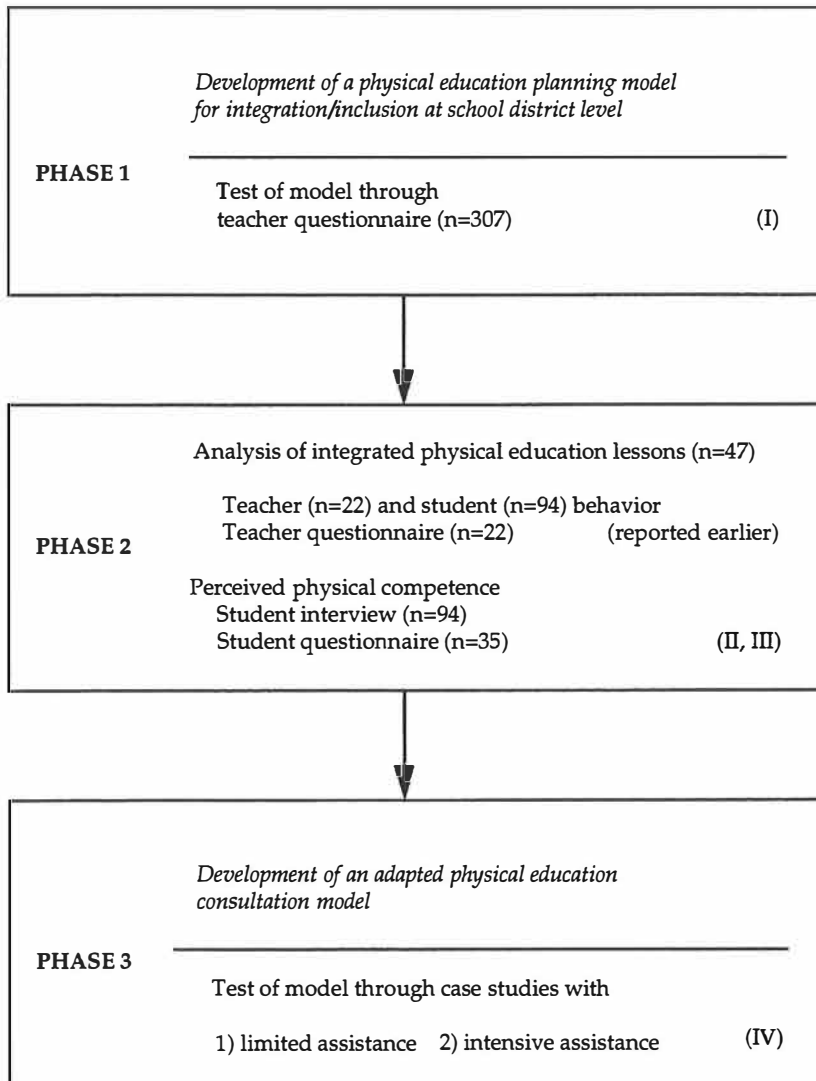


FIGURE 2 Schematic overview of the total study design

6 PHASE I: A Survey of teachers' beliefs and needs

6.1 Problem setting

The placement of students with special needs in regular physical education settings requires new skills and competencies on the part of teachers. The purpose of Phase I was (a) to develop a model which teachers can use in physical education planning for integration or inclusion; (b) to determine the most important school district needs of physical education teachers and classroom teachers; and (c) to examine whether teachers' gender, age, education, and experience of teaching children with special needs are associated with beliefs about barriers to inclusion.

6.2 Method

6.2.1 Subjects

For administrative purposes Finland is divided into 12 provinces. One province was selected for testing the model on the basis of the following criteria: (a) balance between urban and rural areas, (b) representation of disabilities similar to the country in general, and (c) permission of the government agency to participate in the study. The selected province was Häme, which comprises 49 municipalities, each of which is a separate school district. Within these school districts, there were 74 upper comprehensive schools, 57 upper secondary schools and 384 lower comprehensive schools. All 131 upper comprehensive and secondary schools in the study and a sample of 131 of the 384 lower comprehensive schools were randomly selected for study. All upper comprehensive and secondary schools and 128 lower comprehensive schools agreed to participate in the study.

The names of the teachers, so that initial contacts could be personalized, were obtained in two ways. The names of the physical education teachers (in upper comprehensive and upper secondary schools) came from a directory published by the National Computer Center of Finland. The names of teachers in the lower comprehensive schools who provide physical education instruction as part of their overall job responsibility (hereinafter referred to as classroom teachers) were identified by telephoning principals of lower comprehensive schools, who recommended one female and one male classroom teacher for participation in the study. This strategy was used to ensure optimal response from lower comprehensive school physical education personnel. Questionnaires were mailed to 375 teachers; 307 (82 %) of the teachers responded.

The subjects were 138 physical education teachers and 169 classroom teachers whose age range was 22 to 63 years (Mean = 39.2). The gender distribution was 161 females (52%) and 146 males (48%). The average amount of teaching experience in physical education was 14.5 years for females and 15.6 years for males. Only 7% of classroom teachers reported completion of a course or some courses concerning adapted physical education, and only 27% of the physical education teachers reported one or more such courses.

6.2.2 Instrumentation

Data were collected by the use of three instruments. The first instrument administered was the Awareness of Individual Differences Survey. Teachers were given a list of 15 disability conditions written in lay person's language: leg impairment, back problems, cerebral palsy, muscular dystrophy, asthma, allergy, hearing impairment, visual impairment, epilepsy, cardiovascular diseases/disorders, diabetes, rheumatism, obesity, minimal brain dysfunction, and mental retardation. This list of conditions was derived by a panel of experts that included both university and public school authorities. The selection of conditions was based on a survey of Finnish statistics for disabilities. Teachers were asked to write down the number of students in their regular physical education classes who had each condition. Next, teachers were requested to describe the individual specified in terms of gender, grade, degree of severity of the disability (mild, moderate, severe), and physical education participation status (full time, part time, or totally exempt). This protocol was based on several pilot studies and supported by the panel of experts who assisted with the development of the model.

The second instrument administered was the Survey of Adapted Physical Education Needs (SAPEN), which is a 50-item survey for assessing school district needs in regard to adapted physical education service delivery (Sherrill & Megginson, 1984). Persons respond to the survey by rating items on two 6-point Likert-type scales to indicate services that now exist and services that should exist. Need priorities for each target group (e.g., physical education teachers and classroom teachers) are determined for every item by comparing item means and grand means in accordance with the following criteria:

1. First-Priority Need (+++) *Should exist* item mean is above its grand mean, and *now exists* item mean is below its grand mean.
2. Second-Priority Need (++) *Should exist* item mean is above both its grand mean and *now exists* item mean.
3. Third-Priority Need (+) *Should exist* item mean is below its grand mean but above *now exists* mean.
4. Nonpriority Status (-) *Should exist* item mean is below *now exist* item mean.

This system of prioritizing criteria was based on the work of Schipper and Wilson (1975). The basic assumption underlying Schipper and Wilson's prioritization criteria is that primary attention in school district planning should be focused on all first-priority needs to reduce the perceived discrepancy between current and desired status. The process also helps to identify differences that must be resolved among various types of teachers.

Brislin (1970) suggested that it is desirable to use multiple translation methods. In this study, the original SAPEN was translated into Finnish by the senior investigator. After this, two other physical educators checked that the grammar was good and that the words used were ones that most native speakers would understand. The Finnish version of SAPEN was designated SAPEN-F.

The validity of SAPEN reported by Sherrill and Megginson (1984) was based on the extensive work of five national experts who developed, evaluated, and revised each item several times until agreement on wording was reached by a 4-to-1 or 5-to-0 vote. Test-retest reliability coefficients ranged from .46 to .97 for the now exists scale and .62 to .96 for the should exists scale. Alpha coefficients for the subscales were all above .73.

The third instrument, the Teacher Beliefs About Physical Education Integration Scale, was modified for physical education from a scale that had been used in Finland with upper comprehensive and secondary school teachers to examine attitudes toward integration in academic settings (Moberg, 1984). The Teacher Beliefs About Physical Education Integration Scale consists of 14 statements about integration barriers. A 4-point scale is used to indicate beliefs about each barrier (i.e., 1 = does not hinder integration, 2 = hinders integration a little bit, 3 = hinders integration a lot, 4 = makes integration impossible).

The content validity of the Teacher Beliefs About Physical Education Integration Scale was supported by the same nationally prominent researchers as used with SAPEN-F. The construct validity was supported by factor analysis (Heikinaro-Johansson, 1992b). The SPSS program with principal axis factoring for varimax rotated factors was used. This analysis yielded three factors, each with four or five items. Factor 1, named Attitude, perceived competence, and cooperation, had factor loadings ranging from .37 to .79. Factor 2, named Support services, had factor loadings ranging from .50 to .58. Factor 3, named Teaching-learning constraints, had factor loadings from .38 to .57. All the factor loadings except two were above .50.

The reliability of the Teacher Beliefs About Physical Education Integration Scale was determined by Cronbach's alpha. Alpha coefficients for the three factors comprising the scale were .74, .72, and .59.

6.3 Results

6.3.1 Awareness of individual differences

Results indicated that 93% of the physical education teachers and 76% of the classroom teachers believed that they had children with special needs in physical education classes. The discrepancy in these percentages probably relates to the number of students each type of teacher served. The typical physical education teacher in Finland is responsible for six or seven classes, each with a different set of students, while the classroom teacher instructs only one set of students for the entire day in a variety of subjects.

Teachers estimated the seriousness of the conditions as follows: 67% of the children (n=1210) had mild disabilities, 29% had moderate disabilities, and 4% had severe disabilities. Of these, 65% took part in regular physical education, 30% participated part time, and 5% were exempted full time. Those exempted full time from physical education had severe orthopedic conditions (e.g., cerebral palsy, muscular dystrophy, Osgood-Schlatter condition) or cardiovascular diseases. The conditions reported most often were asthma and allergies (38%), metabolic diseases, especially obesity (26%), and orthopedic conditions, mostly leg injuries and back problems (18%).

Teachers reported that they obtained information concerning students' conditions in several different ways. Physical education teachers received most information from school nurses. Classroom teachers obtained most information from parents. There were no gender differences in method of obtaining information. Students were exempted from physical education mainly (69%) by physicians. Teachers reported very little involvement in decision making about exemptions. The principal or the parents were perceived as more directly involved in decision-making (17%).

6.3.2 Adapted physical education needs

Table 1 presents the most important school district needs (+++) in adapted physical education service delivery calculated according to the Schipper and Wilson protocol (1975). First-priority status was assigned to 6 items for physical education teachers and 9 items for classroom teachers. Four first-priority items were the same for both teacher groups: (a) authorities should consider students with special needs when drawing up plans for physical education, (b) program resources should be available for effective physical education instruction for students with special needs, (c) students exempted for medical reasons from regular physical education should be provided with adapted physical education instruction/services, and (d) facilities used in physical education should be architecturally accessible.

Physical educators also stressed following needs: Student-staff ratios should be smaller, and teachers should be able to use support instruction if needed. Classroom teachers hoped for more teacher's aides (paraprofessionals), individualized education programs, and cooperation with special educators, parents, and nurses in the promotion of physical education. Classroom teachers

felt they also should have a greater understanding of adapted physical education materials.

TABLE 1 SAPEN-F items considered first priorities by physical education teachers (n=134) and classroom teachers (n=166)

Items	Group	Now exist	Should exist	Priority status
Authorities consider students with special needs when drawing up plans for physical education (PE).	PE	2.26	5.10	+++
	CL	2.59	5.26	+++
Program resources are available for effective PE instruction for students with special needs.	PE	2.48	5.08	+++
	CL	2.35	5.22	+++
Students medically exempted from regular PE are provided with adapted physical education instruction/services.	PE	2.67	5.01	+++
	CL	2.33	5.40	+++
Facilities used in physical education are architecturally accessible.	PE	2.61	4.94	+++
	CL	2.38	5.14	+++
Regular physical education classes with disabled students in them have a student-staff ratio of 30 to 1 or less.	PE	2.38	5.14	+++
	CL	3.31	5.43	++
Students with special needs receive support instruction in PE (i.e., supplementary assistance).	PE	2.60	5.17	+++
	CL	1.99	4.42	+
A curriculum manual describing PE instruction/services for students with special needs is available.	PE	3.13	5.17	++
	CL	2.81	5.30	+++
Teachers have familiarized themselves with material concerning PE for students with special needs.	PE	3.39	5.34	++
	CL	2.41	5.07	+++
Teacher's aides and volunteers are used to supplement the service delivery to students with special needs.	PE	1.78	4.57	+
	CL	2.49	5.13	+++
Physical education programming is based on individualized education programs.	PE	1.90	4.82	+
	CL	2.23	5.09	+++
Physical educators work together with parents, special educators, and nurses in the promotion of PE for students with special needs.	PE	2.36	4.89	+
	CL	2.65	4.96	+++
Grand mean	PE	3.05	4.92	
	CL	2.95	4.96	

Note. PE = physical education teacher; CL = classroom teacher.

6.3.3 Teacher beliefs about physical education integration

Table 2 presents beliefs about the barriers that hinder physical education integration analyzed by teacher type, gender, age, and experience. Teacher types compared were physical education teachers (n=116) and classroom teachers (n=169). Gender distribution was 144 males and 159 females. The age groups compared were 22 to 31 years (n=85) and 46 to 63 years (n=92). The middle age

group was not used because the intention was to examine extremes. Experience groups were teachers who checked no (n=49) and yes (n= 248) in response to the question, "Do you have students with special needs in your class/classes?"

The barriers identified as most important were teachers' negative attitude, too large class size, parents' negative attitude, perceived lack of competence, other pupils' negative attitude, and insufficient multidisciplinary cooperation. These barriers received ratings above 2.5 by all subgroups. All but one of these barriers (too large class size) were in the same factor cluster, indicating that these teacher beliefs are interrelated.

The Student's t-test was used to determine if any significant differences existed. The alpha level was set at .001 to reduce Type I error associated with multiple comparisons. The findings revealed no significant difference between gender and experience groups on beliefs about barriers. One significant difference (insufficient time for instruction) was found between the teacher types, with the physical education teachers expressing more concern than the classroom teachers. Two significant differences (risk of accidents; too large class size) was found between age groups, with older teachers expressing more concern than younger teachers.

Table 2 Beliefs about barriers that hinder physical education integration according to Finnish teachers (n=305)

Integration barriers	Teacher type			Gender			Age (years)			Experience (years)		
	PE Mean	CL Mean	<i>t</i>	F Mean	M Mean	<i>t</i>	22-31 Mean	46-63 Mean	<i>t</i>	No Mean	Yes Mean	<i>t</i>
<i>1. Attitude, Perceived Competence, and Cooperation</i>												
Teacher's negative attitudes	3.1	3.2	-.91	3.2	3.0	1.98	3.1	3.2	-.86	3.2	3.1	.69
Parents' negative attitudes	2.9	2.7	1.31	2.8	2.8	-.16	2.7	2.9	-1.56	2.7	2.8	-.76
Other pupils' negative attitudes	2.7	2.6	1.88	2.6	2.6	.31	2.6	2.8	-1.70	2.5	2.6	-1.11
Perceived lack of competence	2.7	2.7	-.18	2.7	2.6	.97	2.7	2.7	-.49	2.7	2.7	-.10
Insufficient multidisciplinary cooperation	2.6	2.5	1.61	2.6	2.5	1.34	2.5	2.6	-.72	2.5	2.5	-.74
<i>2. Support Services</i>												
Risk of accidents	2.5	2.4	.73	2.5	2.4	.89	2.2	2.6	-3.17***	2.5	2.4	.60
Lack of transportation service	2.4	2.3	.84	2.4	2.2	1.63	2.2	2.4	-1.72	2.4	2.3	.61
Lack of paraprofessionals	2.2	2.3	-1.12	2.3	2.2	1.42	2.2	2.3	-.65	2.4	2.2	1.13
Lack of health care services	2.1	1.9	2.56	2.0	1.9	.83	1.8	2.2	-3.03	2.0	2.0	.42
<i>3. Teaching-Learning Constraints</i>												
Too large class size	3.3	3.1	2.67	3.1	3.2	-.84	2.9	3.3	-3.27***	2.9	3.2	-2.69
Insufficient time for instruction	2.8	2.1	7.13***	2.4	2.4	-.16	2.3	2.4	-.82	2.1	2.4	-2.59
Equipment/ facilities problems	2.6	2.6	-.05	2.6	2.7	-2.10	2.5	2.7	-1.99	2.7	2.6	.66
Extra work for teachers	2.1	2.0	1.07	2.0	2.1	-1.29	2.1	2.0	.72	2.1	2.0	-1.29

Note. PE = physical education specialist; CL = classroom teacher. Scores may vary from 1 (*does not hinder integration*) to 4 (*makes integration impossible*).

*** $p < .001$.

7 PHASE II: A Survey of students' perceived physical competence

7.1 Problem setting

The purpose of Phase II was to examine students' self-perceptions in the physical domain. Because students with disabilities may experience much failure and incompetence in physical activities, it is especially important that self-perceptions in perceived physical competence are studied. No self-perception instruments, however, have been developed specifically for use with students who have physical disabilities. The purpose was (a) to study the applicability of the Perceived Physical Competence Scale by Lintunen (1987) to students with disabilities, (b) to compare perceived physical competence among three groups: students with physical disabilities who are medically exempted from physical education, students with physical disabilities who participate in regular physical education, and students without disabilities in the same classes as peers with disabilities.

7.2 Method

7.2.1 Subjects

The subjects were 228 students with physical disabilities who were identified by teachers responding to the Awareness of Individual Differences Survey (Phase I). Of these students, 35 were exempted from physical education, 106 were served part time in regular physical education classes and 87 were served full time in regular physical education classes. Two groups (in each 10 males and 10 females) were formed by matching, as closely as possible, pairs of students from the exempted group and the full time participating group, on gender, grade, disability, degree of severity of condition, and age. To form the third

group, nondisabled students of the same gender and age were randomly drawn from the same physical education classes attended by the students with physical disabilities.

Disabilities included severe orthopedic conditions (e.g., cerebral palsy, Osgood-Schlatter condition, Marfan's syndrome, meningomyelocele, paraplegia, leg or back problems). The exempted group (mean age 16.0 years) attended study hall during physical education. Exemptions came from medical doctors. The duration of medical excuse ranged from 1 to 9 years, M 3.5 years. The regular physical education disability group (mean age 14.5 years) participated in regular physical education with the nondisabled student group (mean age 14.4 years).

7.2.2 Instrumentation

Physical competence was measured by Lintunen's (1987, 1990) Perceived Physical Competence Scale (PPCS), which yields scores on two subscales: perceived fitness and perceived body build. The PPCS is comprised of 9 items, 7 on perceived fitness and 2 on perceived body build. Subjects were asked to rate themselves on specific components compared with those of other students of the same age and sex. Responses to items were scored on a 5-point semantic differential type scale (Osgood, Suci & Tannenbaum, 1957), where 1 indicated a low level and 5 a high level.

The specific components of perceived physical fitness were movement skills, agility, flexibility, endurance, speed, strength, and courage. The subscale score was derived by summing the responses to these seven items. The minimum score was 7 and the maximum score was 35.

The two items of perceived body build were weight and height. Weight and height items were scored 1-2-5-2-1. The subscale score was derived by summing the responses to the two items. The minimum score was 2 and the maximum score was 10.

Several types of validity for Perceived Physical Competence Scale have been reported for nondisabled students (Holopainen, Lintunen & Lumiaho-Häkkinen, 1987; Lintunen, 1987, 1990; Lintunen, Leskinen, Oinonen, Salinto & Rahkila, 1995). Factor analysis yielded two factors for nondisabled children (Lintunen, 1987). Concurrent validity was supported by correlations of .55 and .29 for boys and girls, respectively, between the scale and the Rosenberg (1965) Self-esteem Scale. The reliability for nondisabled students was estimated by Cronbach's alpha (Lintunen, et al., in press). The alpha coefficients for perceived fitness ranged from .57 to .76.

7.3 Results

7.3.1 Validity and reliability of perceived physical competence scale for students with disabilities

The construct validity for Perceived Physical Competence Scale for students with disabilities ($n=85$) was examined by exploratory factor analysis. The Kaiser-Meyer-Olkin measure of sampling adequacy (.85) and Bartlett's test variable (377.35, $p<.001$) indicated that the sample correlation matrix was appropriate for factor analysis. Guttman's "weak" lower bound (the number of eigenvalues that exceed unity) indicated two factors for adolescents with disability. There were no crossloadings above the .30 level in either the Perceived Fitness subscale or the Perceived Body Build subscale. The internal consistency for the Perceived Fitness subscale was good ($\alpha = .89$). Item-total correlations ranged from .38 to .84, indicating that individual items contributed adequately to the functioning of the scale. The alpha for the Body Build subscale was .56, which is good for a short two-item scale.

7.3.2 Comparison of perceived physical competence of students with and without physical disabilities

Table 3 provides means and standard deviations for comparing students with physical disabilities who are medically exempted from physical education, students with physical disabilities who participate in regular physical education, and students without disabilities in the same classes as peers with disabilities. Group and gender differences in self-perception were analyzed using two-way analysis of variance. Group mean differences were studied using one-way analysis of variance and least-significant difference tests.

Out of a possible perfect score of 35 on perceived fitness, total groups scored 25.8 (regular physical education, nondisabled), 21.7 (exempted from physical education, disabled), and 18.6 (regular physical education, disabled). Scores between 17.5 and 24.5 were judged to be neutral feelings, whereas scores below 17.5 were considered negative and scores above 24.5 were considered positive. Significant differences existed in perceived fitness among the three groups compared, $F(2, 54) = 8.09$, $p = .001$. The LSD test indicated that there was no significant difference between the two groups of students with disabilities. Both students with disabilities in regular education and exempted students scored significantly lower ($p<.001$ and $p<.05$, respectively) than the nondisabled group. The perceived fitness of boys and girls did not differ, $F(1, 54) = 3.03$, $p = .08$, and there were no significant interactions, $F(2, 54) = 0.07$, $p = .94$.

Out of a possible perfect score of 10 on perceived body build, total group scores were 8.4 (exempted from physical education, disabled), 7.2 (regular physical education, disabled), and 6.7 (regular physical education, nondisabled).

These scores all reflected positive perceptions of body build. There were no significant differences among the three groups on body build, $F(2, 54) = 1.77$, $p = .18$. The perceived body build of boys and girls did not differ, $F(1, 54) = 0.0$, $p = .96$, and there were no significant interactions, $F(2, 54) = 0.25$, $p = .78$ (Table 3).

TABLE 3 Means and standard deviations for Perceived Physical Fitness and Body Build of girls and boys with and without physical disabilities

Groups	Girls		Boys		Total	
	Mean	SD	Mean	SD	Mean	SD
Regular education; Disabled						
Perceived Fitness	17.0	4.9	20.2	6.3	18.6 _b	5.7
Body Build	7.4	3.2	7.0	3.4	7.2	3.2
Exempted; Disabled						
Perceived Fitness	20.7	5.7	22.6	6.3	21.7 _a	6.6
Body Build	8.0	2.9	8.7	1.7	8.4	2.4
Regular education; Nondisabled						
Perceived Fitness	24.5	3.5	27.0	4.9	25.8 _{a,b}	4.3
Body Build	6.9	2.6	6.5	2.9	6.7	2.7

Note. All groups included 10 subjects.

Means having the same subscript differ significantly at ^a $p < .05$ or ^b $p < .001$ by the Fisher least significant difference test.

8 PHASE III: Development of a consultant model for adapted physical education

8.1 Problem setting

Studies I and II and previous analysis of teacher and student behaviors in integrated physical education settings has shown that to provide appropriate, effective, and supportive physical education programs to all students physical educators need support services in the form of consultation (Heikinaro-Johansson, 1992a, 1992b; Heikinaro-Johansson & Telama, 1990). The purpose of this study was to develop and test an adapted physical education consultant model to assist classroom teachers to include children with special needs in regular physical education.

8.1.1 Development and description of the model

Because no model for adapted physical education consulting has been presented in the published literature, a three-phase model was developed. The specific intent of this model was to specify the tasks a consultant must perform to facilitate regular physical education class integration (see Figure 3). The basic assumption underlying the model is the employment of an adapted physical education specialist in the role of a consultant, whose job description requires him/her to identify needs in a designated geographical area, initiate services, and follow up.

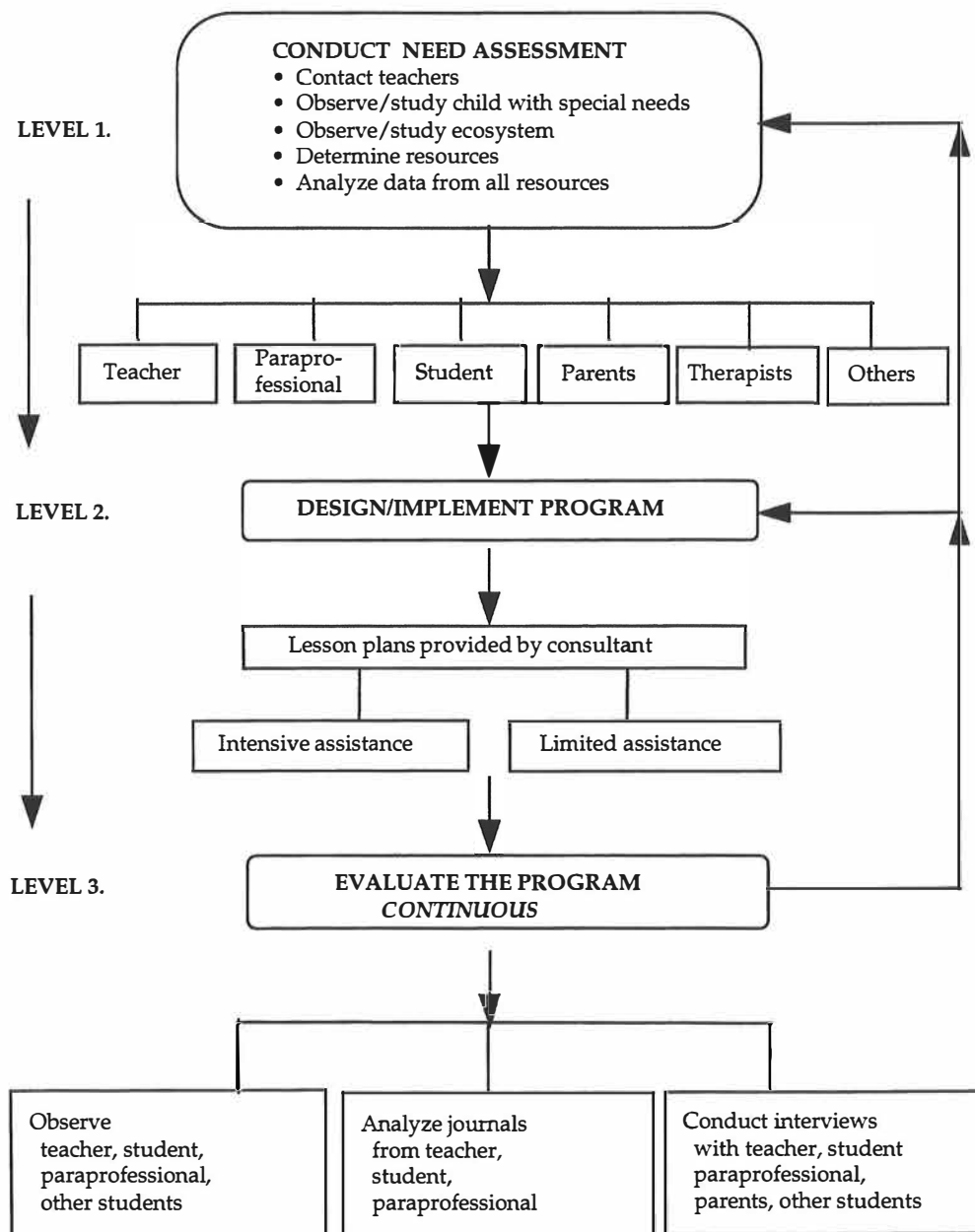


FIGURE 3 Adapted physical education consultant model

In Level 1 of the model, needs assessment begins with the consultant telephoning classroom teachers and asking them if assistance is needed with integration. Following these brief telephone interviews, the consultant determines which teachers most need assistance and re-establishes contact to determine the best protocol for planning visits and observing first hand the total ecosystem influencing service delivery. The classroom teacher assumes responsibility for obtaining written permission to initiate a cooperative needs assessment directed by the consultant. Subsequently, a period of 2 to 3 weeks is devoted to observations and interviews with as many persons as possible in order to obtain data for determining whether the consulting services are to be intensive or limited to facilitate integration of selected students with special needs into a regular physical education class. When feasible, an interdisciplinary team meeting is held to supplement individual interviews.

In Levels 2 and 3 of the model, program design/implementation and program evaluation are individualized. While most classroom teachers desire all the consultant help possible, constraints in the consultant's time, energy, and overall job description generally require negotiating the number of hours that can be spent in any one setting. Hence, two approaches (intensive and limited) were built into the model. Intensive, for purposes of this study, was defined as full implementation of the model with two or more weekly visits by the consultant. Limited was defined as best possible implementation of the model within constraints imposed by the school district structure and traveling distance between the school district and the consultant's office. The intent of this study was not to compare these two approaches but to describe them. Below is a more detailed explanation of the two approaches.

8.1.2 Intensive consultant approach

In the intensive assistance approach, the adapted physical education consultant and an interdisciplinary team work collaboratively to identify and analyze needs related to successful integration of a student with special needs. Week by week, the adapted physical education consultant develops lesson plans for the entire class, with particular attention to adaptations for the child with a disability. Meetings are held at least twice a week between the consultant, classroom teacher, and paraprofessional.

In this study, the consultant delivered, explained, and discussed the lesson plans every Monday. On Tuesdays, when the lesson plans were taught by the classroom teacher, the consultant observed her and the paraprofessional, collected videotaped data to document effectiveness of the lesson, and provided feedback for improvement. On Thursdays, the teacher and paraprofessional taught the same lesson as on Tuesday, thus gaining an opportunity to apply the consultant's feedback. Continuous program evaluation included observations, student interviews, and an interdisciplinary team meeting.

8.1.3 Limited consultant approach

This approach varies by community, depending upon such constraints as the willingness of potential interdisciplinary team members to meet and work together, facilities and equipment, and the beliefs and attitudes of everyone in the ecosystem. A major factor in the decision to use the limited approach is inability of the consultant to visit the classroom teacher twice weekly.

In this study, the needs assessment protocol was similar to that in the intensive approach except that potential interdisciplinary team members were not responsive to the idea of meeting as a group. The distance between the consultant's office and the school district was so great that only two consultant visits were planned/implemented. Based on initial needs assessment data, the lesson plans were developed and delivered as a package during the first visit by the consultant. The classroom teacher arranged to have her classes videotaped once a week and wrote a journal to describe program successes, failures, and frustrations. Through this process, the classroom teacher and paraprofessionals were engaged in continuous evaluation but without the help of the consultant. Evaluation data were then given to the consultant, who visited at the end of an instructional unit and conducted interviews. After analysis of videotape, journal, and interview data, the consultant provided input to the classroom teacher.

8.2 Method

8.2.1 Sampling design

The focus of this research was programs rather than individual subjects. Thomas and Nelson (1990) pointed out that random sampling is not typically used in case study research because the purpose is not to estimate some population value but to describe, analyze, and evaluate large amounts of diverse data so as to determine the merits of a practice or program. Purposive sampling (i.e., the use of criteria) was used therefore to select two regular physical education programs in Finland for testing the proposed consultant service model. The criteria for selecting the two cases were (a) expressed need by regular lower comprehensive classroom teachers for assistance in integrating children with special needs into physical education, (b) needs typical of those in most schools in Finland, (c) resources to meet typical needs, and (d) willingness of school personnel, children, and parents to cooperate in data collection. Purposive sampling for case study research is recommended by Chein (1981), Bogdan and Biklen (1992), and Thomas and Nelson (1990).

8.2.2 Evaluative case studies

Evaluative case studies involve description, interpretation, and evaluation but the primary purpose is to provide evidence of the efficacy of a particular approach, program, or pedagogy (Thomas & Nelson, 1990). In planning and writing the case studies in the present project, the investigators were guided by numerous sources (Bogdan & Biklen, 1992; LeCompte & Goetz, 1982; Patton 1990; Yin, 1989). Of particular concern was the use of multiple sources of evidence (Yin, 1989). Data were collected by systematic observation (both direct and videotaped), interviews (formal and informal), field notes made by the senior investigator concerning interdisciplinary team meetings and other kinds of interactions, and journals of the school personnel.

The data were collected over a period of approximately 2 months during which the classroom teachers provided physical education instruction on 2 days per week, the normal pattern in Finland. The consultant spent the first 3 weeks on needs assessment, after which 5 weeks were devoted to program design and implementation. A unique feature of this model was the provision of lesson plans by the consultant (see Figure 3). Pilot study observations and interviews revealed that classroom teachers knew little about systematic assessment of psychomotor abilities and lesson plan design for achievement of physical education goals. Their programming was mostly play-oriented, necessitating a tutorial arrangement in which the consultant essentially taught them how to plan and conduct physical education instruction. In the intensive approach, the consultant tutoring of the classroom teacher was personalized. The lesson plans were jointly planned and based on cooperative observation, evaluation, and analysis. In the limited approach, the tutoring was paper-pencil in the form of a packaged "cookbook" of lesson plans.

The evaluation process varied also for the intensive and limited approaches, but similar types of data were collected and analyzed. Evaluation was continuous.

The analysis and organization of the data into case studies were guided by the three levels of consultant tasks comprising the model. Inasmuch as the targeted outcome was successful integration, the criteria for evaluating the overall model centered around student behaviors (i.e., the integration of the student with special needs into class activities) and feelings about the process expressed by classroom teacher, paraprofessional(s), children, and parents. Classroom activities were evaluated on (a) level of on-task behavior, (b) correct difficulty level (the tasks were appropriate, and the students were engaged in subject matter activity with a high success rate), and (c) warm, positive climate.

8.2.3 Systematic observation and data analysis

Five physical education lessons (one each week) in each approach were videotaped by one camera. A cordless microphone was used to capture verbal feedback and other teaching verbalizations. The videotaping started when the teacher began the class and lasted a total of 30 min. Throughout this time, the camera was focused on the integrated student. The class was obviously aware

that they were being videotaped but students were not given reasons for the procedure.

The data in each videotaped session were analyzed for the integrated student and for a regular education control student. The control was chosen during analysis based on who could easily be followed on the video (based on clothing) and/or who was a partner to the integrated student. In every lesson a different student served as control because the integrated student's partners varied. Specific control students did not know their behaviors would receive special attention during the analysis process.

Teacher and student behaviors were analyzed using a multidimensional system, in which the observations of teacher and student behaviors were based on 6-second time units (Heikinaro-Johansson 1992a, 1992b; Varstala, et al., 1987). This system, developed in Finland, was used in a study on 812 students in 406 individual physical education lessons (Varstala et al., 1987). In the present study, the videotapes were analyzed twice by the senior investigator, who first observed teacher behavior and then observed students' behavior. Percentages of agreement for teacher and student behaviors were 90% and 85% respectively, when the data were coded by two observers.

The six categories in the teacher behavior observation system were as follows:

1. *Managing*: verbal or nonverbal teacher activities for organizing, changing activities, calling roll, giving directions about equipment or formations, and taking care of class routines.
2. *Instructing*: providing information that identifies the activity to be performed or the behaviors to be exhibited in performing the activity; this includes demonstrations, explanations, and closure episodes.
3. *Supervising*: behavior that attempts to keep students on-task.
4. *Monitoring*: passively observing students and giving no feedback.
5. *Feedback*: behavior that is in response to student actions.
6. *Teacher controlling*: disciplinary comments or actions directed at the organizational or social behavior of students.

Additionally, the feedback interactions were subdivided into three categories. Data were analyzed by event recording as follows: (a) positive feedback (feedback that either praises the individual or reinforces a correct movement), (b) neutral feedback (feedback that neither praises, encourages, or criticizes, e.g., "stay on your toes"), (c) negative feedback (feedback that points out the fact that an individual is doing something incorrectly). All feedback was categorized also as either specific (exact information about skill or behavior) or general (inexact information about skill or behavior).

The data on classroom teacher giving personal attention to the integrated student were collected by event and duration recording. Number of times that the classroom teacher called students by first name was also counted.

Student behavior was observed and categorized into the following categories:

1. *Getting organized*: organization for practice, to transitioning from place to place (e.g., students are listening for roll call, changing activities, or getting out or putting away equipment).
2. *Receiving teacher instruction*: receiving information or directions (e.g., descriptions of skills or a game).
3. *Time-on-task*: the unit of time in which students are engaged in tasks related to the class objectives. Time-on-task included two subcategories about task participation: (a) appropriate (meaning that student is performing the activity at a difficulty level that assures success) or (b) inappropriate (meaning that student is not working at the correct difficulty level).
4. *Waiting*: time prior to, between, and after instructional, managerial, and practice activities; time when students are not involved as they wait for the next event to occur.
5. *Other activity*: (e.g., student leaves the gymnasium).

In addition to the systematic analysis of videotaped data, field of direct observations and conversations were kept by the senior investigator. These notes were written in journal format immediately after return to the office after a visit or were spoken into a tape recorder. Field notes were subsequently organized under the same teacher and student behavior categories as used in the videotaped analysis. An "other" category was established for recording expression of beliefs and attitudes that did not fit under the behavioral categories.

The technique of triangulation (Thomas & Nelson, 1990) was used to examine consistency of the three types of data: videotaped behaviors, direct observation field notes, and expressed beliefs and attitudes. The purpose of triangulation was to substantiate findings by three sources of data and thus establish validity and reliability of observations (Thomas & Nelson, 1990).

8.2.4 Interviews

Both formal and informal interviews were conducted as often as possible. The statements about beliefs, attitudes, feelings, and practices were transcribed for analysis. All the interviews were based on an interview guide consisting open-ended questions. The interview questions were based on the topics recommended in the literature for teaching students with special needs in regular physical education. Data were also collected on age, years of teaching experience, formal coursework or inservice training in teaching children with special needs, total number of students in the class, and perceived barriers to integration. The interview guide was field-tested with two classroom teachers, who were not part of the final case studies. These classroom teachers provided feedback regarding the clarity and the relevance of the interview questions to their actual experiences with students with special needs.

Each interview was conducted by the principal investigator in the school. Interviews were done separately with no one within hearing range. All

interviews were audiotaped with the permission of the respondent. During interviews with the classroom teacher and paraprofessional, special attention was given to whether the written lesson plans were perceived as a help or hindrance.

8.2.5 Interdisciplinary team meetings

In the intensive assistance approach interdisciplinary team meetings were conducted twice. The first meeting occurred before program implementation, whereas the second meeting occurred after implementation. The meetings were organized after school and lasted approximately 2 hr. The discussions were audiotaped with the permission of all the team members and transcribed after the meetings for analysis.

In the first interdisciplinary meeting the interview questions included topics such as how different partners felt about the program, their expectations, and the goals and objectives of the program. The second meeting was an evaluation of the implementation. Team members discussed their feelings, how the program succeeded, how it supported integration, how the student with special needs benefited from the program, which activities worked out best or did not work, and what the other students thought about the program. The team members also discussed the future steps, and how the program should be continued.

8.2.6 Journals

In the limited assistance approach, frequent interviewing and team meetings were not possible. Therefore, the classroom teacher and paraprofessionals kept journals. The integrated students' opinions about physical education lessons were also written in journal format after each physical education lesson by their respective paraprofessionals, a procedure that took approximately 10 min.

Teachers and paraprofessionals were asked to write first about the activities implemented during physical education lessons (e.g., What activities were implemented during physical education lessons? Which activities were suitable/not suitable, and why?) Next, they were asked to comment on how students with special needs succeeded in different tasks and how other students in the class succeeded. The teacher was also asked to record her experiences and feelings after each lesson.

Both integrated and other students were asked about their opinions and feelings about physical education lessons in the program (e.g., Which activities did you like most in this lesson? Which activities felt strange, and why?). After the program 8 randomly selected students told their opinions about the program, how they felt having students with disabilities integrated in their physical education lessons, whether they thought the integrated students benefited from integration, and whether they were willing to continue in this kind of integrated physical education program.

8.3. Results

8.3.1 Intensive assistance approach: Case study 1

This case study describes the placement of a second grader, a 9-year-old boy, with spina bifida who used a wheelchair. This student was referred to regular physical education by the physical therapist who was responsible for providing services to all children with physical disabilities in a town with 70,000 inhabitants in central Finland.

The classroom teacher was female, age 40 years, and a certified teacher, with 13 years of teaching experience. The paraprofessional was also a female, age 23, and was certified as a paraprofessional working now in her first employment. Physical education was provided twice a week for 45 min. The class size was 21, including the boy with spina bifida, and the students were all the same age.

Level 1. Preliminary needs assessment

Implementation of the model began when the physical education consultant contacted the classroom teacher and learned that she needed assistance in adapting ball games and gymnastics to the needs of the child with spina bifida. Subsequently the consultant observed the student, the teacher, and the paraprofessional to determine the difficulties that they were experiencing in the physical education class. The consultant also evaluated the facilities and equipment available in the school, noting that these were good. The gymnasium was large and balls, mats, and apparatus were adequate.

Interviews with the classroom teacher, the student, the parents, the paraprofessional, and the physical therapist resulted in the following basic information.

1. The classroom teacher had taught children with disabilities, but previously these students had not needed any modifications. The teacher wanted the boy with spina bifida to be included in regular physical education, although she thought she lacked the knowledge and skills to teach in this specific area. The main concern of the teacher was the heterogeneity of the 21 students, which made lesson planning difficult.

2. The paraprofessional, who was certified to work with individuals with special needs, believed that it was important to be involved in planning the physical education lessons and was willing to help other students in the regular physical education class although previously her duties had focused only on the one child with special needs.

3. The child's parents wanted him educated with the regular education students as much as possible, especially in physical education, to learn new physical, motor, and social skills, and to become more independent.

4. The physical therapist, who had 16 years of experience as a rehabilitation instructor with children and youth, had worked with the student for 5 years and believed that his muscular strength, balance, and coordination were at such a level that he could benefit from participating in a regular physical education class.

5. The student stated that he enjoyed various physical activities, especially ball games. He had no previous experience with gymnastics but was eager to try this new activity. He liked his paraprofessional but preferred to work, when possible, with regular education classmates.

The first level of the model, needs assessment, was time-consuming but rewarding and gratifying. All the people involved in this case study were interested in it and willing to contribute their expertise and effort to help the child with a disability become integrated. People were very interested to learn new skills and cooperate with each other. The climate in this class was very positive. Professionals wanted to work together and offer quality physical education through positive sport experiences to everyone in the school ecosystem.

Level 2. Design/implementation of program

The physical education individualized education program (PE-IEP) was planned in an interdisciplinary meeting (i.e., the physical education consultant, classroom teacher, parent, paraprofessional, and physical therapist were all present). On the basis of the input of these persons, the long-term goals were the same as for the students in the regular physical education class: (a) motor and social skills for success in ball games and gymnastics, and (b) improved self-esteem.

The interdisciplinary team also decided that the student could easily be included into ball games and gymnastics with some skill modification. The consultant agreed to develop lesson plans to guide goal achievement in the integrated setting and to meet with the teacher and paraprofessional twice each week. Thereafter, on Mondays, the consultant brought the lesson plan for the week that incorporated the one student with spina bifida. The consultant met with the classroom teacher and paraprofessional and explained the types of activities, adaptations, and feedback.

On Tuesdays the consultant observed the classroom teacher and paraprofessional present the lesson and offered suggestions for improvement. Modifications generally involved using guided practice, cooperative learning, and peer teaching (Brown, 1987; Dunn & Wilson, 1991; Graham, 1992; Johnson & Johnson, 1986; Morris & Stiehl, 1989; Mosston, 1992; Mosston & Ashworth, 1994; Rink, 1993; Rizzo et al., 1994). On Thursdays, the classroom teacher and paraprofessional taught the same lesson but the consultant was not present.

Designing and implementing the program (Level 2) on the basis of the consultant's regular visits to the school brought obvious advantages. Because of the personal contacts with the consultant, the atmosphere in the ecosystem grew confident. The teacher, the paraprofessional, and the students got used to the consultant and were very willing to ask advice. The teacher and paraprofessional started to trust their own skills and take more initiative.

Level 3. Evaluation of program

Three types of evaluation were used to determine whether the program facilitated integration: (a) videotaped and direct observations of teacher and students, (b) an interdisciplinary team meeting, and (c) teacher, paraprofessional and student interviews.

8.3.1.1 Teacher and student behavior

The evaluation of the physical education classes, based on the analysis of videotaped teacher and student behaviors, showed that the following criteria were met for all students, including the boy with spina bifida: (a) high on-task behavior, (b) correct difficulty level, and (c) warm positive climate. Data analyzed from field notes supported videotaped observations.

Table 4 indicates how time was spent among different teacher behavior categories. The teacher gave 41% positive feedback, 57% neutral feedback, and 2% negative feedback. The feedback issued was more general (67%) than specific (33%) in nature.

The classroom teacher interacted with the integrated student an average of 1.1 min in each lesson (range 0.5 min to 1.8 min). Personal attention was given to this student an average of 5 times in each lesson (varying from 4 to 6 times). For the class in general, the teacher used the first names an average of 48 times in each lesson (range 32 to 67 times/lesson).

The rate of time-on-task for the integrated student was 53.7% (16.1 min) compared to the control students' rate of 49.7% (14.9 min) (Table 5). The integrated student spent 97% of the time-on-task at a difficulty level where he could be successful, which translates to 15.7 min of class time. The integrated student spent almost no time waiting for a turn (0.5%), whereas the control student spent 3.5% waiting.

TABLE 4 Percentage of teacher's time in different behavior categories in intensive consultant approach

Behavior category	% of class time	Minutes of class time
Managing	21.5	6.5
Instructing	21.2	6.4
Supervising	12.1	3.6
Monitoring	11.5	3.5
Feedback	28.7	8.6
Teacher controlling	4.9	1.5
Total	100	30

Note. These data are based on 300 time units for each lesson. Numbers were rounded to one decimal point.

TABLE 5 Percentage of time of integrated and control students in different behavior categories in intensive consultant approach

Behavior category	Integrated child		Control child	
	% of class time	Minutes of class time	% of class time	Minutes of class time
Getting organized	18.1	5.4	19.1	5.7
Following teaching	24.4	7.3	24.3	7.3
Time-on-task	53.7	16.1	49.7	14.9
Waiting for turn	0.5	0.2	3.5	1.0
Other activity	3.3	1.0	3.3	1.0
Total	100	30	100	30

Note. These data are based on 300 time units for each lesson. Numbers were rounded to one decimal point.

8.3.1.2 Experiences of the intervention program

After 6 weeks, the interdisciplinary team met again. The adapted physical education consultant asked about the experiences and opinions of those involved with the intervention program. The classroom teacher stated that this kind of consultation service was very valuable; she had learned new skills and acquired knowledge on how to include a student with a spina bifida in a regular setting. It was helpful to have advice from a consultant (e.g., guidance on how to teach specific activities and the central points in different activities). This information helped the classroom teacher to evaluate students' performance and also to give feedback. For example, she said, "I cannot believe that I could teach a handstand to every single student; even the clumsy boys could perform it when I got them to understand the correct position of the body."

The paraprofessional also enjoyed her new role during physical education classes. She felt she could help and support, not only the student with spina bifida, but also the other students and the classroom teacher. "My work has more meaning now when I can go and help whoever needs my help. I have also learned and practiced assessing skills, which has been interesting."

The parent was pleased that her son could take part in the regular physical education program. The integrated child especially liked the modified gymnastics lessons and being involved with the other students. For example, he said, "I told to my paraprofessional how to assist me ... handstand with a therapy ball was so much fun." In addition, the classmates said they felt it was natural for the integrated student to be in regular physical education. Everyone said they liked him and videotapes showed they spontaneously gave assistance as needed.

Because everyone wanted to continue the program, it was decided that the physical education consultant would visit the school again in a month and then gradually fade out the consulting so that he could focus his time and energy on other programs that needed assistance. The classroom teacher was encouraged, however, to initiate contact with the physical education consultant as needed.

Evaluation of the program is a highly important part of the model. All the different data collection methods contributed to the evaluation process. The

evaluation of the program showed that, with regular consultation, the whole school ecosystem benefited greatly. This evaluation, with which teacher and paraprofessional could have immediate feedback on their teaching, was extremely effective. The teacher and paraprofessional believed they performed better week by week and their motivation increased along with their perceived competence.

8.3.2 Limited assistance approach: Case study 2

This case study involved two third graders, 10-year-old girls, who were totally blind. They lived in the southern part of Finland in a town with 55,000 inhabitants that was approximately a 3.5 hr drive from the consultant's office. Both girls were enrolled in the same regular lower comprehensive class with 29 other students of the same age. In physical education, however, each girl was individually taught physical education skills by her own paraprofessional rather than being included in the regular physical education class at the onset of this study.

The classroom teacher was female, age 39, and a certified teacher, with 15 years teaching experience. Both paraprofessionals were females. One had just finished senior high school; the other, who was certified as a paraprofessional, had worked with her assigned child since preschool. Physical education instruction was provided twice a week for 45 min. One of these classes, at the onset of this study, was mobility and orientation conducted by a vision specialist.

Level 1. Preliminary needs assessment

The adapted physical education consultant contacted the classroom teacher and learned that she needed assistance in adapting physical education activities. The preliminary needs assessment was conducted in the same way as in the other approach except time constraints on the consultant did not permit the formation of an interdisciplinary team. The long distance also required that the consultant stay in the town for several days rather than driving back and forth to her office. Needs assessment findings were different in many respects from those described in Case study 1. Of particular concern was lack of accessibility of facilities, a small gymnasium, and limited equipment.

Interviews with everyone involved in the education of the two girls with blindness resulted in the following information.

1. The classroom teacher had no previous experience teaching children with disabilities. She thought that the students would benefit more by being in a special school for the blind and was not very excited about including these students in her physical education class. She expressed concerns about her lack of competence (lacking knowledge of teaching methods and points in different motor skills and activities) as well as the large class size and inadequate facilities and equipment. The classroom teacher said, "I am poor at teaching physical education and I don't have materials which could help me in planning physical education for blind students." She said further, "In a special school the blind

students would receive better teaching than here in normal school. If they were my children, I'd never put them in ordinary school."

2. The paraprofessionals knew very little about physical education. They had completed inservice training for children with visual impairments, but the sessions had focused mainly on academic skills. One paraprofessional stated: "Implementation of physical education lessons for the blind children is mainly the paraprofessionals' responsibility, everything depends on what kind of activities we happen to cook up. The teacher doesn't help us or pay much attention to us."

3. The vision expert and the mobility and orientation specialist thought physical education was very important for these students because it provided experiences that helped them to adjust to sighted society and it promoted confidence to cope with the environment by increasing their physical and motor abilities.

4. The parents wanted their children to be included in regular physical education. They felt that physical education was important in developing motor skills, physical fitness, and social contacts with other students. Before the program, one parent emphasized, "I'd like to have my daughter in regular physical education with other students. Now she seldom tells me that something exciting has happened during so-called physical education, which is in the separate setting."

5. The students wanted to be in regular physical education but expressed a lot of ambiguity about the new program. They could not conceptualize independent activities without their paraprofessionals. The students did not participate in any physical activities after school and had no social contacts with friends their own age. One student said, "I'm not sure if I'd like to try some new physical activities ... I usually just listen to music and do my homework, it takes an awful lot of time."

The needs assessment (Level 1) showed that all the participants in this case study basically had positive attitudes towards physical activity but were ambivalent about integration. All believed that physical education was very important for the students who were blind. Needs assessment, however, revealed that cooperation in this ecosystem was minimal. The paraprofessionals blamed the teacher, and the teacher blamed the paraprofessionals and complained about lack of support. The atmosphere for conducting the assessment was difficult. Everybody was pleasant to the consultant, but the consultant felt more like a therapist than a collector of data.

Level 2. Design/implementation of program

Because it was impossible to bring parents and professionals together for a cooperative planning meeting, the adapted physical education consultant assumed major responsibility for developing a physical education individualized education program for both students. The teacher and paraprofessionals insisted that the consultant write the PE-IEP and were passive when efforts were made to involve them. The long-term goals were to learn the basic motor skills involved in ball games, gymnastics, and creative movement and to improve the ability to interact with sighted peers. The teaching strategies recommended were similar to those in the first model, but more emphasis was placed on

creative thinking and movement exploration as especially appropriate for children with total blindness in an integrated setting for the first time.

The consultant was forced by the distance barrier and other employment constraints to develop the lesson plans as a 5-week package and to deliver and discuss them all on the same day. The adapted physical education consultant also determined the equipment needed to improve the quality of instruction and arranged for this equipment to be delivered. The consultant visited the school only twice during program implementation but was available by telephone. The classroom teacher and the paraprofessionals were asked to keep a daily class journal of different aspects of the program and to arrange for one lesson each week to be videotaped.

The consultant spent much time designing the program and writing out every program detail. She took into account activities suitable both for students who were blind and the 29 other students, the small gymnasium, limited equipment, and the lack of possibility to offer feedback after each lesson. Designing the program did not raise any problems for the consultant, and the teacher indicated that this service was what she most wanted from the consultant.

Level 3. Evaluation of program

Three types of evaluation were conducted to determine if the lesson plans were appropriate: (a) videotaped and direct observations of teacher and students, (b) journals, and (c) interviews. The same criteria were used in the intensive consultant model approach.

8.3.2.1 Teacher and student behavior

The evaluation of the physical education classes, based on analysis of the videotapes, indicated that the ball game and creative movement lessons were appropriate but that the teacher would have benefited by more consultant visits, had this been possible. In the gymnastics lessons, particularly, the classroom teacher had difficulties translating the written lesson plans into action.

Table 6 indicates how time was spent among the different teacher behavior categories. The teacher gave 17% positive feedback, 68% neutral feedback, and 15% negative feedback. Feedback was mainly general (95%).

The classroom teacher gave the integrated students personal attention on average 2.8 times in each lesson (varying from 0 to 6 times). Interaction with these students averaged 0.5 min in each lesson (range 0 to 1 min). This teacher used first names an average of 25 times in each lesson (range 4 to 46 times/lesson).

The rate of time-on-task for the integrated students were 34.6% and 33.5%, compared to the control student's rate of 42.3%. The integrated students spent 76% and 75% of the time-on-task at a difficulty level where they could be successful, which translates to 7.9 min and 7.6 min of class time. Further, integrated students spent 12.4% and 12.2% of time waiting a turn, whereas the control student spent 6.9% waiting (Table 7).

TABLE 6 Percentage of teacher's time in different behavior categories in limited consultant approach

Behavior category	% of class time	Minutes of class time
Managing	32.7	9.8
Instructing	16.5	5.0
Supervising	13.7	4.1
Monitoring	26.7	8.0
Feedback	8.3	2.5
Teacher controlling	2.1	0.6
Total	100	30

Note. These data are based on 300 time units for each lesson. Numbers were rounded to one decimal point.

TABLE 7 Percentage of time of integrated and control students in different behavior categories in limited consultant approach

Behavior category	Integrated child 1		Integrated child 2		Control child	
	% of class time	Min of class time	% of class time	Min of class time	% of class time	Min of class time
Getting organized	36.7	11.0	37.9	11.4	34.9	10.5
Following teaching	16.3	4.9	16.3	4.9	15.8	4.7
Time-on-task	34.6	10.4	33.5	10.1	42.3	12.7
Waiting for turn	12.4	3.7	12.2	3.7	6.9	2.1
Other activity	-	-	-	-	-	-
Total	100	30	100	30	100	30

Note. These data are based on 300 time units for each lesson. Numbers were rounded to one decimal point.

8.3.2.2 Experiences of the intervention program

The classroom teacher reported that the lesson plans included too many activities, as she was unable to implement the written lesson plans completely (e.g., the teacher had difficulties implementing the gymnastic lessons; managing especially took much time. The teacher said, "Our gym is too small, and there are too many children ... some of the tasks did not seem to be appropriate." After the program, the teacher still felt insecure about teaching students who were blind, although she stated that she had learned new skills. It was clear that this teacher needed much more help in attitude adjustment and improving pedagogy. Although ambivalent about the experience, she requested that the consultant continue providing lesson plans and expressed willingness to keep working toward better inclusion.

In contrast, the paraprofessionals felt the students who were blind were provided a good experience being with regular education peers. The paraprofessionals liked the involvement with all of the regular physical education students rather than just the students who were blind. One said, "It

was rewarding to see that the blind girls could manage in regular physical education class, and they really seemed to enjoy new activities they learned."

The parents of both girls were pleased that their daughters were able to take part in the regular physical education program. The girls had shared with their parents the kind of activities they had done during physical education lessons. Interviews indicated the girls enjoyed the program and particularly liked music activities with a student peer, trust your partner activities, and group activities in which they moved hand in hand. One said, "I really enjoyed dancing hand in hand with my buddy, we were laughing." The other students also noted that the physical education lessons included more variety than usual. They also indicated that they did not mind having the girls integrated in their class; however, the development of friendships was not yet evident from interview and observational data.

It was decided that the consultant program would continue. Consultant time could not be increased as everyone desired, but recommendations would be made to higher-level administration for more help.

Evaluation of the program, in this case study, was based on the initiative of the teacher and paraprofessionals. Because cooperation did not work very well between these people, they did not try to give each other much feedback. Analyzing journals, videotapes, and interviews showed that the teacher's motivation did not increase. She stated that videotaping and writing journals was simply extra work without extra pay. The paraprofessionals and students felt they benefited from this program, and they did not mind about continuous evaluations.

9 DISCUSSION

Every country has a unique educational structure with a specific teacher training system. For this reason, procedures and practices used in one country cannot simply be transferred to another. Instead it was thought more important to investigate physical education instruction for students with special needs in the Finnish school ecosystem.

The careful planning and achievement of this multidimensional research project produced valuable information from teachers and students about integration or inclusion in physical education. The teachers involved in the project felt that integration was an important area of study, as indicated by the unusually high response rate (82%) to the teacher questionnaire in Phase I. Moreover, the instruments developed and used in this phase proved to be valid.

In Phase II, the Perceived Physical Competence Scale was validated for use with students with disabilities. The validation of an instrument for specific group is very important, although only rarely done, and can be seen as a major strength in this project.

In Phase III, an adapted physical education consultant service model was developed and investigated by means of two cases studies in which several data collection methods were used to establish validity and reliability. The use of multiple methods of data collection gave a detailed picture of how the model worked in two alternative approaches to inclusion.

9.1 Teacher beliefs and needs

One important finding of Phase I was that almost every physical education teacher and classroom teacher instructs students with special needs. This means that it is important to assist school districts with planning for these students. Teachers need to be aware of students' individual needs because appropriate instruction cannot occur when there is no understanding of disabilities and the many ways to adapt. In most cases health impairments are so mild that students can take part in regular physical education. Nevertheless, teachers have

to be aware of students' backgrounds so that they can appropriately adapt instruction.

Asking teachers about needs and beliefs is one way to get them to think about responsibilities and ethics. The findings of this study showed that attitude barriers were perceived as the biggest problem. This result is consistent with results from other studies (Aloia et al., 1980; Minner & Knutson, 1982; Morisbak, 1990; Rizzo, 1984; Rizzo & Vispoel, 1991; Rizzo & Wright, 1988; Tripp & Sherrill, 1991). This means that a positive attitude on the part of the teacher has to be the starting point when implementing integration or inclusion.

Teacher beliefs and attitudes are important, because they influence all aspects of the teaching-learning situation. A teacher and his or her needs are crucial in providing quality adapted physical education services to an increasing number of students with special needs in regular classes. Teachers must have the interest, knowledge, and skills to plan, develop, and implement appropriate strategies. A class climate should be created that not only ensures learning but also encourages the acceptance of individual differences.

Physical educators need to study the concept of inclusive schooling and determine whether they are going to take advantage of this reform. Only when it becomes part of their personal and professional philosophy will it change how they view education and perform their jobs as physical educators. Next, physical educators must examine how they, as professionals, and their content area of physical education contribute to an inclusive school. This may involve issues such as revising the physical education curriculum so that it reflects the needs and interests of all students and the community at the expense of what has traditionally been taught or valued.

Clearly when communities agree to develop and implement plans to enhance physical education integration or inclusion, attitudes must be addressed. In an ecological approach to school planning, teachers, and parents need opportunities to meet together and with support staff to explore the meaning of negative attitude, to identify specific components, and to hypothesize possible causes.

9.2 Student needs and perceived physical competence

The use of Lintunen's (1987) Perceived Physical Competence Scale to measure students' perceived physical competence found to be appropriate for adolescents with disabilities. Physical education placement (medical exemption vs. regular education class) made no difference in the perceived fitness and body build of students with physical disabilities in this study. Both groups scored in the neutral range, 17.5 to 24.5, for perceived fitness and in the positive range, 6.5 to 10.0, for body build. Continued research is needed to identify variables that link physical education placement to perceived fitness and body build.

An important finding of this study was that students with physical disabilities, regardless of placement, had significantly lower values of perceived fitness than nondisabled students. Inherent in low perceived physical competence is a growing reluctance to participate (Dunn & Watkinson, 1994). It becomes increasingly easier to withdraw from an activity or even sit and watch others play or compete. Observations during physical education lessons

indicate that integrated students are engaged in physical activities less intensively than nondisabled students (Heikinaro-Johansson, 1992). Integrated students also report more difficulties during physical education lessons than nondisabled students (Heikinaro-Johansson & Telama, 1990). Among reasons given for finding the tasks disagreeable are competitiveness, tests, inability to perform the tasks, not being wanted as a partner, poor organization of work, and feelings of physical discomfort or pain during performance of the tasks. Research findings also indicate that teachers do not plan and differentiate physical education teaching on the bases of individual needs (Heikinaro-Johansson, 1992; Heikinaro-Johansson & Telama, 1990). Schools in Finland often do not provide a supportive enough learning environment for students integrated in regular physical education classes.

If students' self-perceptions are formed in part by comparing their performance with others as posited in social comparison theory (Festinger, 1954), teachers should counterbalance this tendency by providing curricular adaptations and instructional modifications that emphasize inclusion, individualization, cooperative learning experiences, peer tutoring, and collaborative team teaching (Block, 1994; Block & Vogler, 1994; Durn & Wilson, 1991; Graham, 1992; Mosston & Ashworth, 1994; Rizzo, et al., 1994). Perceived physical competence should be listed as a primary goal with motor skills and physical fitness in order to receive appropriate emphasis and consideration in the planning of gymnasium activities and pedagogy (Sherrill & Montelione, 1990).

Teachers probably exert direct impact on perceived physical competence through their style of interaction with adolescents (Karper & Martinek, 1985). Good and Brophy (1978) stated that failure among many students who are integrated into regular classes is often related to teachers' feelings or expectations. Expectations may be negative or unrealistically low. Good and Brophy (1978) further believe that the key to success for students with disabilities lies in the teachers' ability to form positive and accurate expectations that are flexible.

In the present study, students with disabilities had neutral values of perceived fitness, whereas nondisabled students perceived their fitness positively. Research evidence suggests that slightly positively distorted self-perceptions are typical in normal human thought (Taylor & Brown, 1988). Positive illusions may be especially useful and adaptive when an individual receives negative feedback or is otherwise threatened. For students with physical disabilities it may be more difficult to develop and maintain positive self-perceptions than for able-bodied peers. Therefore it is extremely important to develop curricular adaptations and instructional modifications based on individual needs.

9.3 Adapted physical education consultation

In Finland, as well as in other countries, the kinds of learning experiences that students with special needs receive depends mainly on teachers. Teachers may agree to accept students with varying disabilities in their classes, but do not

know how to appropriately accommodate these students so that they are addressing both their needs and the needs of the other students in the class.

Teachers can be helped by offering the services of consultants. The present study provided concrete evidence that classroom teachers, paraprofessionals, and students benefit from consultants. In this respect, the findings are similar to those of unpublished work by Hurley (1979), Tymeson (1981), and some of the ISTE models reported by Dunn and Harris (1979).

An extensive review of the literature revealed numerous teacher consulting models that have been designed as a natural outgrowth of the thrust of special education to broaden the continuum of services for students who can function in regular classroom environments (Fuchs & Fuchs, 1989; Graden, Casey & Christenson, 1985; Idol & West, 1987; Knutson & Shinn, 1991; Pryzwansky, 1986; Sheridan & Kratochwill, 1992; White & White, 1992). Most of these models basically contain the same framework, which can be synthesized into three levels:

1. Conduct a needs assessment - This first level includes both problem identification and problem analysis within the context of the student and his or her total ecosystem. Of particular importance are the perceptions, skills, and attitudes of the teacher, physical education environment, and instructional variables. This information enables the consultant as the need arises to help professionals, parents and students to cooperatively identify variables that can lead to the solution to the problem.

2. Design and implement a program - This level includes the development and implementation of an intervention such as the use of lesson plans. The intervention must be consistent with the teacher's and parents' philosophy and compatible with the skills of the teacher and the resources.

3. Evaluate the program - The third level of the model involves the evaluation of the intervention. Many times this involves single-subject or case-study designs using direct observations (Gresham & Kendell, 1987).

Important within the framework is the perceived communication skills of the adapted physical education consultant as judged by the teachers. The consultant often must act as a counselor in a helping role. Essential skills are genuineness, empathy, active listening, and ability to paraphrase (Gutkin & Curtis, 1982; Sherrill, 1993). Other elements in shaping a consultant services model are shared ownership of problems and problem solving, shared participation, recognition of teachers' rights, and support of mutual goals for meeting the needs of all students across the three levels of the model. The adapted physical education consultant model designed for this study was consistent with the literature, but the general area of interpersonal skills was more demanding than expected.

The success of the consultant model in the present study appears to be influenced by numerous factors. First, the attitudes and beliefs of the teacher must be determined early in the planning stage and continuously be addressed. If there are problems with the type of physical education program that is being given to students in general, or if the teacher has negative feelings toward students with special needs, the model will require more consultant time and energy. This finding is particularly supported by Case study 2, where the classroom teacher and paraprofessionals should have received more personal

support from the consultant and for longer period of time. The dilemma is how to achieve this within the employment constraints of the consultant.

Second, the implementation of an intensive or limited approach that provides lesson plans is time consuming for the adapted physical education consultant. Often, however, the provision of detailed ("cookbook") lesson plans is what the classroom teacher most wants. This was true in both Case study 1 and 2. Generally the lesson plans must be based on the interests and perceived competence of the classroom teacher, not on what the consultant knows would be the most effective activities for attaining specific educational goals and objectives. In some cases the classroom teacher wants new lesson plans for a particular sport or activity. In other cases the consultant must infuse ways to individualize or combine activities in lesson plans that the teacher is already using. The classroom teacher might need help, for example, on how to modify rules in a basketball game or how to organize game activities so that students who are blind can participate effectively and cooperate with classmates at the same time. The goal of the consultant must be to take the classroom teachers from where they are functioning to the level of a beginning physical education specialist. This promotes a warm, positive climate as indicated in Case study 1 but seems to require frequent contact and much personalized feedback. As teachers' skills improve and they start to trust and feel comfortable in their own knowledge and skills, the consultant encourages them to gradually assume more and more responsibility. This finding was supported by both case studies.

Third, paraprofessionals need special training and attention. They also should be allowed some co-ownership in the intervention that is designed and implemented. Both case studies indicate that paraprofessionals can work as an assistant teacher, helping the classroom teacher (e.g., organizing the equipment, demonstrating tasks, and even evaluating student performance). The basic idea is that paraprofessionals should be available, not just for the integrated student, but to every student who needs some type of assistance.

A fourth and often overlooked consideration is the student. It is important to observe and analyze videotapes and to ask the student's opinions about physical education. Both case studies revealed that the student is, in many cases, the most capable individual to determine what activities he or she is most interested in and how they can be modified.

Fifth are the parents who can provide valuable information related to their child's hobbies, interests, and possible limitations and contraindications. Both case studies revealed that parents are very interested in their child's education and are willing to assist with both needs assessment and the continuous evaluation process.

Sixth, physical therapists and other related services personnel can offer valuable information about a child's motor performance. For instance, in the present investigation with the student who used a wheelchair, the physical therapist wanted him removed from the wheelchair for some activities in physical education to decrease the possibility of muscular atrophy. In both cases, the related services personnel were extremely supportive of inclusion.

There is a need for many types of support services when students with special needs are included in regular classes. When needed, adapted physical educators in the consultant role can be advisers or team teach with the regular teacher (Sherrill, 1993). All those who work with students with special needs

(e.g., general physical educator, special educator, paraprofessionals, physical therapist) in a regular school setting, as well as parents, must work together to convince administrators of the need to employ adapted physical education teachers as consultants.

9.4 Teacher expertise and teacher training in Finland

The results from Phases I and III indicated that both classroom teachers and physical education teachers desire and need more knowledge and skills in adapted physical education. Practicing teachers should have the opportunity and encouragement to upgrade their skills through participation in inservice training. Inservice training can be arranged in special schools or through workshops and conferences. Time and resources must be allocated to educate existing teachers for new roles, or new staff with skills must be hired prior to implementation.

Nowadays classroom teachers in Finland are required to complete three credits, and special education teachers one credit in physical education pedagogy. Such a short education component does not provide teachers with the planning skills to determine how adapted physical education needs can be addressed in the regular classroom setting. The teacher training should include courses and competencies in counseling, communication skills, and curriculum design; especially on how to plan, implement and evaluate physical education programs, and how to plan and reach goals and objectives which emphasize individual needs. Classroom teachers and special education teachers typically have very little preparation in this curricular area. Those universities in Finland which educate classroom teachers and special education teachers have reduced study requirements in physical education despite the fact that time and resources should be allocated to expand courses in physical education and adapted physical education.

As the trend is toward progressive inclusion and acceptance, universities have the responsibility to provide training that adequately prepares teachers to provide quality physical education (DePauw & Goc Karp, 1994; DePauw & Sherrill, 1994; Doll-Tepper et al., 1992). The infusion philosophy in which the content of adapted physical education is incorporated into general physical education courses is a current goal, and should also be adopted in Finnish universities.

As a student moves along the continuum toward inclusion in the regular physical education program, the need for a trained specialist in physical education with some background knowledge in adapted physical education increases (DePauw, 1986). Since 1991, it has been possible to specialize to adapted physical education in University of Jyväskylä. The first adapted physical educators with extensive studies in adapted physical activity graduated in 1994. As long as classroom teachers and special education teachers are not required to study physical education pedagogy to an appropriate level, physical educators with a specialization in adapted physical education should be responsible for planning and also instructing physical education in lower comprehensive

schools where students with special needs have been included as well as in special schools and classes.

An adapted physical education teacher can perform a variety of roles within our schools. It is feasible for a person to act in a consulting capacity as well as provide a direct service. An adapted physical education teacher can, in part, be an instructor in adapted physical education classes, e.g., special education classes for students who are mentally retarded. This peripatetic teacher for adapted physical education can work across several schools and even school districts.

The presence of teachers in schools with training in adapted physical education is still at a very early stage in Finland. To accelerate this process administrators and parents need to be made aware of the contribution of adapted physical education. School professionals must recognize parents as partners and sensitively discuss together the placement of their children in a school environment that will promote each child's optimal cognitive, affective, and psychomotor success. In addition, commitment from principals is needed before gymnasium time, staff resources, funding and equipment resources can be allocated to adapted physical education.

The total educational system must be flexible enough to allow physical education services for special needs students to be provided in a manner which meets the individual needs of each student. Physical educators and adapted physical educators must teach together and collaborate with special educators, classroom teachers, parents, and students for inclusion to succeed. Collaborative teaching will help recognize individual needs, identify effective teaching behaviors, and reduce the anxiety that colleagues experience when teaching diverse learners.

The goals for adapted physical education can be reached, affording opportunities for inclusion behaviors in a continuum of services, in both schools and community environments. School systems need to develop their own plans consistent with the resources of the district. Jyväskylä provides an outstanding example and prototype of the continuum from fully integrated physical, recreational, and sport opportunities to special programs in segregated facilities, all of which are the fruit of cooperative organization between different agencies in the city e.g., the departments of leisure and recreation, health, social services, and education.

9.5 Future research

In the European Charter on Sport for All: Disabled Persons, the Council of Europe (1987) stated as follows:

"In the last few decades, most European countries have provided education for disabled children by integrating them into the ordinary school system ... Physical education teachers are now confronted with one or two disabled children in their classes but are not educated or experienced enough to find a solution other than to free them from the classes. Although the education of teachers has improved, this problem

must still be considered as one of the most important to solve. Disabled children must have the same right as the able-bodied to be introduced to sports and physical activities in school" (Council of Europe 1987, p. 20).

As this statement indicates, integration or inclusion of students with special needs in physical education has for several years now been a concern in a number of European countries as well as in other regions of the world. In addition, the charter of the Council of Europe (1987, p. 23-26) encourages universities to coordinate and collaborate in research projects in the area of adapted physical education. The project which forms the basis for the present dissertation is an example of such cross-cultural cooperation, and points the way for future research in this special field.

Of particular concern in adapted physical education is influencing positively teacher beliefs and attitudes. In this respect, improving physical education teacher preparation, and especially classroom and special education teacher preparation, is most important. Some work has been done in investigating the effect of inservice courses on attitudes (Jansma & Schultz, 1982; Tymeson, 1988). Such courses are a good way to influence attitudes, although their effects and duration are unknown. More research is needed into different support services and their affects on teacher and student attitudes.

The increased inclusion of children with disabilities in activities that foster perceptions of competence and the value of participation can have positive effects on future activity patterns. Further research is needed on inclusion strategies that create a warm and positive class climate with lots of interaction. Students should also perform activities at a difficulty level where they can experience success.

The rate of implementation of an inclusive schooling reform must be balanced against to the needs of the teachers and students and the resources available to address those needs. Clearly many of the problems related to creating inclusive schooling are the result of poor planning procedures. A unique aspect of the adapted physical education consultant model was the development of lesson plans by the consultant. Underlying this practice was the assumption that classroom teachers will model these lesson plans and pedagogical adaptations when the consultant service is gradually phased out. Further research is needed to determine how such modeling can best be facilitated and what kind of follow up is required for continued success with inclusion.

Apart from adapted physical education consultant services, physical educators should be advised to use and develop peer-tutor programs. Volunteers, parents, monitors, and special friends can be trained to help in physical education classes and supplement programs for students with special needs. Further research should examine ways in which related services personnel can be more effectively involved in the delivery of adapted physical education services.

10 YHTEENVETO

Jokaisella lapsella on oikeus koulutukseen. Oppilaiden, joilla on erityistarpeita, tulee voida osallistua sellaiseen opetukseen, jossa otetaan huomioon kunkin oppilaan yksilölliset edellytykset ja tarpeet. Suomessa käynnissä oleva koulu-uudistus korostetaankin yksilöllisyyden huomioimista ja valinnan mahdollisuuksien tarjoamista. Hyvässä ja laadukkaassa liikunnanopetuksessa lähtökohtana on oppilas. Opetusohjelmien tulee olla monipuolisia, sisältäen valinnanmahdollisuuksia oppilaiden edellytysten ja tarpeiden sekä kiinnostuksen kohteiden pohjalta. Hyvin toteutettu liikunnanopetus on myös soveltavaa liikunnanopetusta.

Suomessa erityisryhmiin kuuluvat oppilaat pyritään sijoittamaan ensisijaisesti normaaliluokkaan, jos siellä tarjolla olevat opetukselliset palvelut vastaavat heidän kykyjään ja tarpeitaan. Tällöin puhumme integraatiosta. Tällä hetkellä Yhdysvalloissa puhutaan ns. inclusion-periaatteesta, jossa normaaliluokkasijoittamiseen kuuluu olennaisena osana tarvittavista tukipalveluista huolehtiminen. Suomessa liikunnan- ja luokanopettajilla on vain harvoin käytettävissä tarvittavat tukipalvelut. Opettajat ovat lähes yksin vastuussa erityisryhmiin kuuluvien oppilaiden liikunnanopetuksen suunnittelusta ja toteuttamisesta. Liikunnanopetuksen tarkoituksenmukainen toteuttaminen edellyttäisi oppilaskohtaisesti etenevän yksilöllisen opetussuunnitelman niitä oppilaita varten, joilla on erityistarpeita. Yksilöllisten opetussuunnitelmien laatiminen liikunnanopetusta varten ei kuitenkaan ole käytäntönä koululaitoksessamme.

Tämän tutkimuksen lähtökohtana oli tarve selvittää tavalliseen liikunnanopetukseen osallistuvien vammaisten ja pitkäaikaissairaiden lasten liikunnanopetuksen tilanne Suomessa. Jokaisella maalla on omat ainutlaatuiset koulujärjestelmänsä ja opettajakoulutusohjelmansa, joten muualta saavat tutkimustulokset tai opetuskäytännöt eivät sellaisenaan ole yleistettävissä toiseen maahan. Kyseessä on liikuntapedagoginen tutkimus, jossa selvitettiin miten opetusta toteutetaan tavallisilla, integroiduilla liikuntatunneilla ja liikuntatunneilla, joissa opetusta pyritään tehostamaan tukipalveluiden avulla.

Tutkimuksen teoreettisena viitekehysenä oli opetuksen tutkimuksen malli, joka perustuu Dunkin ja Biddlen (1974) esittämään opetus-oppimistapah-tuman malliin sekä Koulun Liikuntatuntien Sisältötutkimuksessa (Varstala,

Telama & Heikinaro-Johansson, 1987) kehitettyyn malliin. Tämän tutkimuksen keskeisinä tutkimuskohteina olivat tausta-, ennuste-, prosessi- ja tuotosmuuttajat, jotka eriteltiin omiksi, ajallisesti eteneviksi, muuttujaryhmikseen.

Tutkimuksen ensisijaisena tarkoituksena oli selvittää, miten oppilaiden, joilla on jokin vamma tai pitkäaikaissairaus, liikunnanopetus on peruskoulussa ja lukiossa järjestetty. Tutkimuksen edistyessä kävi ilmi, että sekä opettajilla että oppilailla oli tarpeita ja toiveita koskien soveltavan liikunnanopetuksen toteuttamista. Tutkimusta jatkettiin kehittämällä ns. soveltavan liikunnanopetuksen totuttamismalli, jonka avulla voitaisiin opettajia tukea erityisryhmiin kuuluvien oppilaiden liikunnanopetuksen järjestämisessä. Tämän mallin kehittämisestä ja kokeilusta tuli tutkimusprojektin päätarkoitus.

Tutkimus koostuu kolmesta peräkkäisestä vaiheesta. Vaiheessa I selvitettiin opettajien ensisijaisia tarpeita ja toiveita koskien soveltavan liikunnanopetuksen järjestämistä. Lisäksi selvitettiin opettajien käsityksiä niistä tekijöistä, jotka ovat eniten soveltavan liikunnanopetuksen toteuttamisen esteenä. Kyselyyn vastasi 138 yläasteen ja lukion liikunnanopettajaa sekä 169 luokanopettajaa.

Opettajista 83 % ilmoitti, että heillä on opetuksessaan oppilaita, joilla on vamma tai pitkäaikaissairaus. Liikunnan- ja luokanopettajat kaipasivat erityisesti käytännön tietoja ja taitoja siitä, miten liikunnanopetusta tulisi suunnitella ja toteuttaa erityistarpeita omaaville oppilaille. Opettajat suhtautuivat varsin myönteisesti integraatioon. Integraation onnistumisen edellytyksistä tärkeimpinä pidettiin opettajien asenteellisia valmiuksia. Myös lähiympäristön, vanhempien ja toisten oppilaiden asenteet vaikuttavat integraation onnistumiseen.

Tutkimuksen seuraavassa vaiheessa käytiin observoimassa 22:n kyselyyn osallistuneen yläasteen ja lukion liikunnanopettajan liikuntatunteja (n=47). Jokaisella tunnilla tarkkailtiin yhtä oppilasta, jolla oli jokin vamma tai pitkäaikaissairaus (n=47) sekä yhtä vammattonta kontrollioppilasta (n=47). Opettajan ja oppilaiden toiminnasta liikuntatuntien aikana on raportoitu aikaisemmin (Heikinaro-Johansson & Telama, 1990; Heikinaro-Johansson, 1992a, 1992b).

Tunnin päätyttyä kumpikin tavalliseen liikunnanopetukseen osallistunut oppilas täytti Lintusen (1987) koetun fyysisen pätevyyden mittarin. Lisäksi terveydellisistä syistä liikunnanopetuksesta kokonaan vapautetut oppilaat täyttivät saman koetun fyysisen pätevyyden mittarin (n=35). Vaiheessa II pääongelmana oli verrata kolmen oppilasryhmän koettua fyysistä pätevyyttä. Vertailtavina olivat: 1) oppilaat, joilla on liikuntavamma ja jotka osallistuvat normaaliin liikunnanopetukseen (n=20), 2) oppilaat, joilla on liikuntavamma ja jotka ovat vapautettuja liikunnanopetuksesta (n=20) sekä 3) vammattomat oppilaat, jotka osallistuvat normaaliin liikunnanopetukseen (n=20). Sekä vapautetuilla että tavalliseen liikunnanopetukseen osallistuneilla liikuntavammaisilla oppilailla oli merkitsevästi alhaisempi koettu fyysinen kunto kuin vammattomilla oppilaille.

Yhteenvedon vaiheista I ja II voitiin todeta, että tavallinen liikunnanopetus siten kuin sitä toteutettiin, ei vastannut integroidulle opetukselle tai soveltavalle liikunnanopetukselle asetettuja tavoitteita. Edellä mainittujen vaiheiden tulokset osoittivat, että tutkimuksen jatkaminen oli erittäin tarpeellista.

Vaiheessa III kehitettiin kolmiportainen yhteistoimintaan perustuva konsultointimalli käytettäväksi soveltavassa liikunnanopetuksessa. Mallin soveltavuutta ala-asteen liikunnanopetukseen, tutkittiin kahden tapaustutkimuksen avulla. Toisessa osa-tutkimuksessa käytettiin säännöllistä, intensiivistä

konsultointia ja toisessa harvemmin tapahtuvaa, rajallista konsultointia. Tutkimuksen tavoitteena oli selvittää erityisryhmiin kuuluvien lasten liikunnanopetuksen toteutumista silloin, kun opetukseen suunnataan erilaisia tukipalveluita, esim. laaditaan soveltuvia opetussuunnitelmia, joita opettaja toteuttaa ja autetaan opetuksen organisointi- sekä arviointikysymyksissä. Tutkimuksen keskeisenä lähtökohtana oli lisätä yhteistyötä vammaisen oppilaan koulunkäyntiin osallistuvien ja siitä vastaavien henkilöiden kesken. Yhteistyössä on helpompi määrittellä oppilaan yksilölliset tarpeet sekä tehokkaat työskentelytavat. Lisäksi haluttiin vahvistaa yhteistoiminnan kautta eri osapuolten luottamusta omiin kykyihin ja taitoihin ja näin vaikuttaa myös asenteisiin. Eräs keskeinen lähtökohta oli pyrkimys edistää liikunnanopetuksen suunnittelua ja toteutusta, esim. jakso- ja tuntisuunnitelmat laadittiin koko luokan tarpeista lähtien ja opetussuunnitelmiin tehtiin sovellutuksia vammaista oppilasta varten vain niihin tehtäviin, joita hän ei voinut suorittaa.

Kolmiportaisen mallin ensimmäinen vaihe on lähtötilanteen arviointi. Erityisliikunnanopettaja kartoittaa luokanopettajat, liikunnanopettajat ja erityisopettajat, jotka tarvitsevat ja haluavat yhteistyötä soveltavan liikunnanopetuksen toteuttamiseen. Tämän jälkeen erityisliikunnanopettaja kerää tietoa mahdollisimman monelta eri taholta: oppilaalta, vanhemmilta, avustajalta, fysioterapeutilta ym. oppilaan kanssa toimivilta henkilöiltä, voidakseen päättää minkälaista tukea kyseisen luokan liikunnanopetuksessa tarvitaan. Oppilas on paras informaation lähde silloin, kun halutaan tietää hänen omista asenteistaan liikuntaa kohtaan, mieluisista ja epämieluisista lajeista sekä siitä kenen tai keiden kanssa hän mielellään työskentelisi. Oppilas, voi auttaa opettajaa suunnittelemaan liikuntaohjelmat siten, että ne ovat sekä sopivia että motivoivia.

Liikunnanopetuksen suunnitteluun ja toteuttamiseen voivat osallistua sekä opettaja, oppilas että avustajat (vaihe 2). Koululiikunnan tavoitteet ovat samat oppilaille, joilla on vamma tai pitkäaikaissairaus sekä vammattomille oppilaille. Liikuntakasvatuksen sosiaalis-affektiivisillä tavoitteilla on kuitenkin erityistä merkitystä erityisryhmiin kuuluville oppilaille. Näillä oppilaille saattaa olla hyvinkin vähän kokemusta sosiaalisesta vuorovaikutuksesta ja yhteistoiminnasta muiden oppilaiden kanssa. Oppilaat, joilla on liikuntaan osallistumista haittaava vamma, ovat kokeneet epäonnistumisia keskimäärin enemmän kuin muut oppilaat. Siksi koululiikunnassa koetut onnistumisen elämykset ovat tärkeitä. Onnistumisen kokemukset liikuntatunneilla edistävät psyykkistä hyvinvointia. Myös parantunut fyysinen suorituskyky ja opitut liikuntataidot ja tiedot lisäävät itseluottamusta ja tukevat fyysisestä minäkuva.

Liikuntaohjelman toteuttamisvaiheessa on tavoitteena kehittää varsinkin luokan- ja erityisopettajien opetuskäyttäytymistä siten, että he kykenisivät arvioimaan oppilaiden liikuntataitoja ja motorisia perusvalmiuksia ja osaisivat tarvittaessa eriyttää liikunnanopetusta.

Liikuntajakson jälkeen on arvioitava integroinnin onnistumista (vaihe 3). Tätä varten tarvitaan kaikkien liikunnanopetukseen osallistuneiden, opettajan, vammaisen oppilaan, avustajan ja muiden oppilaiden mielipiteet siitä, miten soveltavan liikunnanopetuksen toteuttaminen on koettu. Arviointia voidaan suorittaa erilaisin menetelmin esim. haastatteluiden, kyselyiden, päiväkirjojen ja tarkkailun avulla. Opetuksen arvioinnin tulee olla jatkuvaa, jotta tavoitteiden saavuttamista voidaan arvioida ja tarvittaessa tehdä muutoksia ohjelmaan.

Jos kyseessä on vaikeammin vammaisen oppilaan integrointi, erityisliikunnanopettajan tulee olla viikottain yhteydessä opettajaan ja luokkaan. Vähitellen erityisliikunnanopettaja voi vähentää käyntejään ja tavoitteena on tilanne, jossa opettaja kykenee toimimaan itsenäisesti luokkansa kanssa ja erityisliikunnanopettaja oli taustatukena. Joidenkin oppilaiden kohdalla riittää neuvonta-apu, esim. erityisliikunnanopettaja ja opettaja voivat käydä yhdessä läpi liikunnan lukukausisuunnitelman ja suunnitella vammaisen oppilaan liikunnanopetuksen lukukauden alkaessa. Tavoitteena kuitenkin on, että jokaisesta oppilaasta, joka tarvitsee erityisjärjestelyitä liikuntatuntien aikana tehtäisiin yksilöllinen opetussuunnitelma, johon kirjataan lukuvuoden tavoitteet.

Soveltavan liikunnanopetuksen toteuttaminen edellä kuvatun mallin mukaisesti osoittautui toimivaksi, varsinkin tutkimuksessa, jossa käytettiin säännöllistä, intensiivistä konsultointia. Liikuntatuntien toteutus sujui hyvin kummassakin tapaustutkimuksessa, mikä saatettiin todeta videoilta sekä mielipiteistä liikuntajakson jälkeisissä palavereissa. Erityisliikunnanopettajan suunnittelemat yksityiskohtaiset tuntuunitelmat osoittautuivat hyödyllisiksi. Opettajan ja koulunkäyntiavustajan mukaan ne antoivat hyviä toimintamalleja käytäntöön. Sekä opettaja että koulunkäyntiavustaja sanoivat oppineensa paljon uutta kokeilun aikana. Myös integroitu oppilas ja luokan muut oppilaat olivat tyytyväisiä liikuntatuntien sisältöihin ja olivat aktiivisia ja innostuneita tunneilla.

Tutkimus osoitti, että onnistunut integraatio vaatii sekä aikaa että halukkuutta eri osapuolilta paneutua liikunnanopetuksen kehittämiseen. Jokainen liikunnanopettaja voi toimia mallissa kuvatun erityisliikunnanopettajan roolissa ja mallia voidaan käyttää runkona erityisryhmiin kuuluvan oppilaan liikunnanopetuksen suunnittelussa.

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