A COMPARISON OF A MOVEMENT EDUCATION AND
A TRADITIONAL APPROACH TO TEACHING
SWIMMING TO THIRD GRADE CHILDREN

by

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A Comparison of a Movement Education and a Traditional Approach to Teaching Swimming to Third Grade Children

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ABSTRACT

The purpose of the study was to compare the effectiveness of two different instructional approaches currently used in teaching beginning swimming to elementary school children. The investigation compared a movement education approach with a traditional approach in terms of skill development and attitude change.

The sample (N=36) consisted of Grade Three children drawn from two geographic and socioeconomic areas of the Lower Mainland of British Columbia. Approximately one-half of the sample drawn from each area was randomly assigned to each of the two instructional approaches.

Two tests were developed by the author and each was used as a pre- and post-test. The first was a questionnaire designed to assess a child's attitude to swimming and the water. Appropriate steps were taken to ensure both face and content validity. Two checks of test-retest reliability were made and yielded coefficients of .8275 and .7850 respectively. Thus it was assumed that the questionnaire met reasonable tests of validity and reliability. The second
was a skills test designed to assess the increase in skill development as the result of instruction. Appropriate steps were again taken to ensure both face and content validity. Test-retest reliability yielded a coefficient of .8938. It was likewise assumed that this instrument met reasonable tests of validity and reliability.

The treatment consisted of ten one-half hour lessons based on either the movement education or the traditional approach. The two well-qualified instructors served as their own controls; that is, each taught one group using one approach and a second group using the other approach. The two measuring devices were administered to all subjects prior to and immediately following the instructional period.

Analysis of variance revealed that both approaches produced significant results at the .05 level in skill development and attitude change. However, there was no significant difference between the two instructional approaches in skill development or attitude change. Likewise, there was no significant difference between the two geographic and socio-economic areas comprising the sample. It was therefore concluded that both the movement education and the traditional approach are capable of producing significant results when handled by capable individuals familiar with the given approach.
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Sincere thanks are extended those individuals who served as members of the jury of experts who validated the instruments, and to the principals, staffs, and students of the schools that made up the samples. Deep appreciation is likewise extended to all instructors and examiners for their interest and assistance. The hospitality, cooperation, and enthusiasm shown by the staff of the Chimo Indoor Pool is also gratefully acknowledged.

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Chapter 1

THE PROBLEM SETTING

INTRODUCTION

The concept of child-centered education which emphasizes the development of the whole child has been accepted in educational programs for some time. While it is perhaps debatable as to whether this concept has been widely adopted in our schools, a considerable updating of content, reorganization of subject matter, and examination of teaching strategies have occurred in several subject areas. The degree and kind of change varies from school system to school system, and from school to school within a single system. As Goodlad (16:14) notes, in many subject areas the resulting change has been considerable. For example, children are bringing home assignments in mathematics that are all but incomprehensible to their parents. High school physics, chemistry, and biology are approached in ways and with assumptions that are different from what parents would have experienced in their school days. Reading, writing and spelling have been given a new direction as the Language Arts.

The changes that have taken place in elementary school physical education programs during the last few years are not of this order. They represent not so much a new kind of
physical education as they do a new approach to it; a new way of providing learning experiences with emphasis on the individual child and his unique abilities. This new approach, variously labelled as basic movement, movement exploration, or movement education is characterized by the opportunity for experimentation, exploration and self-discovery that it provides. It places considerable emphasis on creativity and problem solving: on the child as the re-inventor or re-discoverer of knowledge. It means learning by, of, and through movement. As Hanson puts it:

\[\text{[It]} \text{ does not mean that all the usual games and activities are no longer an important part of the elementary school program or that such objectives as development of social and character traits, of specialized sports and dance skills, of fitness, are forgotten, but rather it is believed that this approach to curriculum and method enhances experiences for children and provides them with a broad background for the more specialized programs at the secondary school level. (21:74)}\]

Although the general approach used in movement education has been applied almost exclusively to the teaching of gymnastics and dance, it would seem to hold great promise in other areas of physical education as well, in particular, the teaching of beginning swimming. Two basic questions prompted the writer to undertake this investigation. First, is this approach as effective as the traditional approach in terms of teaching basic swimming skills; and second, is there any difference in the effect of these approaches upon the attitude of the learner toward the water.
The main purpose of this study was to compare the effectiveness of a movement education approach to a traditional approach of teaching swimming to eight to ten year old boys and girls. This investigation was specifically concerned with the changes in skill development and attitude that occurred as the result of using two different approaches of teaching beginning swimming to similar groups.

Change in skill acquisition and attitude were chosen since it was felt that they provided direct measures of the effectiveness of the approaches. Skill development has and will continue to remain, an important objective of elementary physical education programs. Thus, by evaluating skill development, the effectiveness of each teaching approach in terms of the child's achievement can be easily measured. Since the way elementary school age children are taught is as important as what they are taught, the assessment of attitude becomes an equally important area of concern in this study. By evaluating attitudes, an indication of the effectiveness of each teaching approach in terms of helping students to enjoy an activity could be assessed.
Traditionally teaching has been a procedure in which the teacher selects what he thinks is a suitable activity and then sets out to teach it. The activity is frequently presented in a sequence of explanation, demonstration, and practice, the emphasis being on the "right" way of doing it. The class proceeds in a formal manner, often in lines or taking turns, practicing one part before proceeding to the next, with the stress on how you do it.

In such an approach, all activities have been planned and developed by the teacher. Little opportunity is given the child to explore, invent, or create; to find out for himself; to discover another way that is just as good for him. Much of what was taught in physical education can be described in this way. The approach has been successful in the sense that children have learned to do what has been set out for them. But simply because it has been successful in the past is not sufficient reason for ignoring new approaches. As Eisner states it:

There is little question that the schools now do provide successful learning experiences for some students--perhaps as high as one-third of them. But if schools are to provide successful and satisfying learning experiences for at least ninety percent of the students, major changes must take place in the attitudes of students, teachers, and administrators; changes must also take place in teaching strategies and in the role of evaluation. (14:19)
The essential purpose of these changes is, as stated, to improve the quality of education—-to provide students with stimulating experiences, and success in learning. The objective is a lesson in which achievement is possible for every member of the class, achievement which follows understanding and results from hard work. In order to affect these kind of changes, the approach of the teacher to the subject is of major importance. This means that teaching methods must be child-centered and not subject centered. Thompson explains it in this manner:

To say that the program is child-centered is to say that the activities—or call them movement experiences—are the avenues through which the child develops movement patterns and movement skills that are essential to coping with his environment. The activity is essentially the means to the end rather than an end in itself. (51:59)

In the area of physical education, movement education is a direct result of this change in emphasis. Movement education may be defined as an individualized approach or system of teaching children to become aware of their physical abilities and to use them effectively in their daily activities involving play, work, and creative expression. (27:4) As such, it differs from traditional physical education in its basic approach and philosophy.

In traditional physical education, the activity itself (volleyball, track and field, or folk dancing) provides the structural basis for developing a curriculum. Skills within each area are arranged from the simple to the complex and presented to children in accordance with their physical maturity and
general readiness.

Within the organizational structure of movement education, the concept and underlying principles of "body awareness," "space" and "qualities" of movement provide a basis for understanding all movement. These concepts or elements of movement thus become the framework of a movement education curriculum. (27:14)

Basically, movement education puts the focus on the child rather than on the activity where it has traditionally been—upon his needs, his developing physique, and his physical ability. It places much emphasis on creativity and problem-solving by posing tasks rather than prescribed stunts. The teacher is no longer the dominant influence in the lesson, but instead stimulates the children to use their ideas to plan different ways to carry out the movement experiences. (12:55)

This thinking is very much in line with present theories of curriculum in other subject areas which stress discovery, meeting the children's needs, allowing them to work at their own rate and level of ability, as well as removing highly competitive and threatening situations. It means, as Cope points out, that:

Lessons must provide the opportunity for each child to extend his activity experience at his own level of ability. Set progressions must give way to experimentation. The teacher must provide an environment which allows the child to follow his own lines of progression as his needs become apparent.... The role of the teacher must be recognized as one in which he provides the child with the opportunity for learning and the traditional role of one who imparts information must be diminished. His main function is to control the inter-
action between child and environment. (10:2)

Bilbrough and Jones feel, in fact, that this is an area in which physical education has made great strides. They state:

The most revolutionary change that has taken place in recent years has been in the teaching method employed in the P.E. lesson. Although the content of the lesson has undergone a change and adult-imposed artificial exercises have been discarded in favour of natural movements and activities, it is the actual presentation of the work that has been most affected by modern trends of thought. (3:14)

Thus what is being advocated is a new approach to teaching physical education, one that attempts to guide youngsters to a greater awareness of factors associated with any activity—namely body awareness, space, and qualities of movement. The approach is such as to encourage individual creativity in mastering basic movement skills. As Singer puts it:

This rationale appears to be justifiable and the approach is refreshing. How effective the immediate and long-term results are in comparison with those of traditional teaching methods is a question unanswerable at the present time. (45:136)

If it is true that the current emphasis on creativity and problem-solving is meeting the needs of the child, then the individual should develop a more positive attitude toward that particular activity. In physical education, we are concerned with the attitudes of students towards the program as a whole as well as toward individual activities within the
program. Slusher and Lockhart state:

The factors considered to have a bearing on these attitudes include such diverse matters as appropriateness of the activity for the ability and maturation of the class, and the freedom of the individual to choose and determine his own activity and goals. It appears that this is an area in which comparatively little has been done to verify our observations and assumptions. (46:131)

The initial thrust of movement education has been in the area of gymnastics. Since then it has made inroads into the teaching of dance and games. The results obtained in all these areas have been most encouraging. In each case, the principles outlined in the preceding paragraphs have been applied. It seems reasonable to assume that swimming could be taught in a similar manner by structuring the presentation of the lessons so that exploration and experimentation are encouraged and by allowing the child the opportunity to proceed at his own rate, not only in developing movement sequences and skills, but in psychological adjustment to the new environment. However, it still remains to be proven that this is indeed the case. Smith makes an interesting analogy in a paper entitled Teaching Methods for Swimming Instructors. He states:

...in swimming we are still building Model T's. Chrysler and General Motors have not yet forced us to examine other possibilities. Of course, the Model T was a good car, it worked well. In the same way, existing methods in teaching swimming work. But to assume that they cannot be improved is foolish. (48:2)
The purpose of this study was to examine "one of the other possibilities" Smith refers to, namely, the movement education approach. Specifically, it was to determine under experimental conditions the comparative effectiveness of a movement education approach and a traditional approach in teaching beginning swimming at the Grade Three level. For the purpose of analysis, skill development and attitude change were considered. The resulting study was based on this comparison of the approaches.

**HYPOTHESES TO BE TESTED**

The study has as its main objective the testing of the following major null hypotheses:

1. There is no significant difference in skill development between children taught beginning swimming by a movement education approach and children taught beginning swimming by a traditional approach.

2. There is no significant difference in the change of attitude toward swimming and water between children taught beginning swimming by a movement education approach and children taught beginning swimming by a traditional approach.
DEFINITION OF TERMS

For the purpose of this study, the following definitions will apply:

**Approach.**

The combination of methods, content area, and organization of material characterizing a way of dealing with a subject.

**Movement education approach.**

An approach characterized by problem-solving through exploration and experimentation. As such, it is student-centered, task-oriented, and encourages individual responses to problems. Material is presented as a series of problems that have their answers in movement. Students progress according to their own abilities. Whenever possible, skills are presented by the limitation and/or indirect methods. (See Appendix A for detailed lesson plans used to implement this approach.)

**Traditional approach.**

An approach characterized by the process of explanation-demonstration-practice-correction. As such, it is activity centered, skill-oriented, and encourages all children to perform stunts of increasing difficulty. The correct way of performing each skill is stressed. Students move through the same activities at the same rate. The direct method of
presentation is used throughout. (See Appendix B for detailed lesson plans used to implement this approach.)

Direct method.

A method in which both the choice of activity and the manner in which it is to be performed are decided by the teacher. (17:13)

Indirect method.

A method in which the children are given the opportunity to choose the activity or movement idea to be practiced. They also have the freedom to use any piece of apparatus that is available in the gymnasiums. (27:23)

Limitation method.

A method in which opportunities are provided for choice, but the choice is limited by certain factors such as lesson theme, stated tasks, and choice of apparatus. (17:13)

Skill.

The learned ability to bring about predetermined results with maximum certainty, often with the minimum outlay of time or energy or both . . . The predetermined results may be in terms of speed, precision, power, quality, difficulty or any combination of these . . . This . . . implies that in the complex skills of physical education and physical recreation a person can only be more, or less skillful. Perfection is not attainable. (28:4) (See Appendix C for skill test used in this study.)
Attitudes.

Ideas or feelings that one may have about something as a result of past experiences, or as a result of imaginative likes or dislikes. Moreover, attitudes may change ... When conditions or changes in the environment occur, whether for better or worse, we can usually expect to see a change in attitudes. (24:396) (See Appendix D for attitude questionnaire used in this study.)

Beginner swimmer.

One who has not passed the Red Cross Water Safety Pre-Beginner test or equivalent; who cannot swim fifteen feet on his stomach or back; and who has not taken swimming lessons previously.

LIMITATIONS OF STUDY

The following limitations applied to this study:

1. The sample was restricted to Grade Three's, enrolled in the public schools of Vancouver and Coquitlam, British Columbia.

2. Only children in the age range of eight to ten years were included in the sample.

3. The study was limited to those students who did not possess physical or mental defects.

4. Children who could already swim (i.e. had passed
the Red Cross Pre-Beginner test or equivalent) were not included.

5. Practice outside of the prescribed lessons was not controllable and it was assumed that it was not significantly different for each group.

6. Experience in teaching both swimming and elementary physical education was required of all instructors.

7. The study measured results as limited by the instruments designed for this study.

OVERVIEW OF STUDY

Having already outlined the problem and the need for the study, together with pertinent background information, Chapter 2 will proceed to an analysis of related research and theory. Chapter 3 will deal with the experimental design and procedures. Chapter 4 analyzes and discusses the results of the study, and Chapter 5 presents a summary of the findings with conclusions and implications.
Chapter 2
RELATED RESEARCH AND THEORY

INTRODUCTION

Much of the research in physical education follows the common design of comparing the results obtained through use of a particular method to results obtained through use of a control method, the object being to demonstrate the superiority of the experimental method. The instruction used in the experimental method takes several forms but the traditional method (involving the pattern of explanation-demonstration-execution) is invariably used as the control. As this study makes such a comparison between a traditional and movement education approach to teaching beginning swimming, particular attention will be given to this area. In addition, an attempt will be made to draw some conclusions in the areas of attitude and skill development.

In many studies, the areas of methodology, skill development, and attitude change are closely inter-related. This point is amply illustrated by Oxendine in his discussion of the need for efficiency in teaching and learning:

The need for efficiency in teaching skills is apparent for a number of reasons. First, efficiency will save time and allow the teaching of more activities in the school program. Then, too, efficient methods will enable each individual to attain a
higher degree of skill. In addition, with the best teaching techniques being employed, it is likely that the individual will develop a more positive attitude toward the particular activity. (38:5)

While this presents a problem in analysis, this inter-relation is not surprising. As a result, some studies may appear more than one time in this chapter, being cited under each of the headings to which they apply.

Methodology

In discussion of methodology, one recurring theme stated by several researchers is that there is no one "best" method of teaching. Wingo stated it as succinctly as any when he wrote:

The safest generalization probably is that extant evidence is insufficient to establish the superiority of any single general methodology. It follows that any effort to prescribe a single general methodology for exclusive use in a school system on the supposition that its relative merit over all other methodologies has been established is fraught with error. (57:850-1)

In fact, he goes on to state that in many cases much of the evidence produced by research, taken as a whole, is internally contradictory.

Nonetheless, there is evidence of a growing disenchantment with teacher-dominated methods. There is a persistent conviction that methods that provide for individual differences, that encourage student initiative, and that stimulate individual and group participation are superior to those that
do not. However, it is interesting to note that very
traditional approaches are still used and work still pub-
lished advocating it, as for example, McPee (35), Armbruster
et al (1), and Kramp and Sullivan (29).

A careful study dealing with adapting instruction to
individual needs (57:854) sought to find out whether children
would make greater progress in learning the common elementary
school skills (Grade Four) when they were taught at their own
level of achievement rather than when they were taught under
the usual mass education procedures. By providing material
for the experimental group which ranged in difficulty from
Grade Two to Six and restricting the control group to Grade
Four materials only, consistent advantages were observed for
the experimental group. These advantages were greater for
the slow and average ability students than for the superior
students. This evidence is contradictory to the common belief
that only very superior or very slow children are in need of
individual attention in instruction.

**Skill**

One of the major objectives of physical education is
the development of neuromuscular skills (24:340). Without a
doubt, much of the total physical education program is devoted
to skill development. As stated by Smith (47:3,4) skill de-
velopment may be viewed as a process involving the following:
1. The learner begins with an action he can perform now that is as much like the desired skill as is possible for him.

2. The initial performance has some of the desired characteristics but is crude and incomplete.

3. Practice is a process of successive modification, gradual metamorphosis, and shaping or chaining.

4. Practice aims to smooth out desirable elements, add missing elements, and eliminate unnecessary elements.

5. Practice is not on either the whole skill or on precise parts lifted from the whole but on whole actions that make sense to the learner (qualitative wholes).

6. The learner is effectively involved in decisions regarding nature of practice, pace, and sequence. This assists greatly in keeping both anxiety and difficulty tolerable and realistic.

7. Correction from the instructor is positive, concrete and specific.

8. Feedback to the learner is structured to indicate both the quantity and quality of progress compared to the individual's own past ability.

Various methods have been used to facilitate this acquisition and many tests designed to measure the extent to which the objective is being met. O'Neal (37) concluded that in general, there was no difference in a program of games only and a program of games combined with developmental skills or motor ability performances of elementary school children. Graham (18), in research undertaken to attempt to define the role of augmented feedback in the learning of physical skills, stated that it would appear that information feedback is a critical factor in facilitating skill acquisition.

The concern in this study is the extent to which skill development can be used to help evaluate the instructional
program in terms of the effectiveness of the teaching methods.

**Attitude**

One of the most effective means of motivation available to the teacher lies in arranging learning situations so that every student experiences a reasonable degree of success. Students who are successful, and who therefore derive satisfaction from a learning activity, are motivated toward additional learning. (57:856)

Vincent (52), makes this exact point in her study of college women when she concludes that there is a significant relationship between expressed attitudes and success in physical education and that formation of these favourable attitudes and willingness to participate in vigorous activities could have been based on past success in physical education. Carr (8) also noted that attitudes held by entering freshman girls influenced their success in physical education and that there was a significant difference in the attitudes related to physical education of the successful group as compared with those of the unsuccessful group.

Attempts to determine attitudes have been plagued by two closely related problems: definition and measurement. Shaw and Wright (44:3) alone cite six different definitions and Kenyon (25) summarizes an additional seven. Even with the differences in connotation, attitudes are said to pos-
sess the following general characteristics: (44:6-9)

1. They are based on evaluative concepts regarding characteristics of the referent object and give rise to motivated behavior.
2. They are construed as varying in quality and intensity (a strength) on a continuum from positive through neutral to negative.
3. They are learned, rather than innate as a result of constitutional development and maturation.
4. They have specific social referents, or specific classes thereof.
5. They possess varying degrees of inter- relatedness to one another.
6. They are relatively stable and enduring.

As far as measurement is concerned, attitude scales measure only one dimension of the affective reactions: Positivity - negativity. The most frequently used methods of measuring attitude (Thurstone Scale, Likert Scale, semantic differential) require subjects to indicate their agreement or disagreement with a set of statements about the attitude object. The extent to which the statements chosen accurately reflect the attitude in question has a great deal to do with its acceptability. As Selltiz et al remark:

Although some users of scales have investigated the reliability and validity of their measures, it is probably still true . . . that there has been more measurement than validation.

However, there are understandable reasons for the lack of attention to validity—notably the difficulty of determining what would be appropriate criteria for validity for measures of complex attributes . . . (43:383-4)

Notwithstanding the difficulties noted above, the study of attitudes in physical education and other subjects has been fairly extensive and has probed several different areas.
In comparing the problem-solving method to the traditional method, Ziegler (58), in a study of teaching gymnastics to Grade Eleven girls, found that quality of movement was not more highly developed in the problem-solving approach. Schlott (40), in comparing the two methods in teaching field hockey, concluded there was no significant differences in learning or performing between them. Russell (39) used the two methods in teaching the windmill serve in volleyball and likewise found that the differences between groups on the final test were not significant. However, the improvement in the problem-solving groups was greater than that of the traditional group. Garland's (15) study of teaching three different swim strokes to university women, while showing the problem-solving method to be superior to the traditional method is only one stroke, found it to be more successful in stimulating motivation and self-direction in rate of progression.

Several studies have used the problem-solving method as it applies to movement education. Tanner (50), in a study undertaken to assess the outcomes of a basic movement program in relation to another program of elementary education (activities-oriented program), found a significant difference in the children's feelings towards their own movement in favor of the basic movement approach. She concluded that
this indicated a more positive attitude toward their own movement and would therefore tend to justify the inclusion of this particular approach at the primary school level. In a similar vein, Scott (42) found that the informal (movement education) approach was more effective in the development of creative ability in Grade One pupils than the formal (i.e. traditional approach). Leslie (31) showed that a movement exploration approach contributed more positively to both physical fitness and motor ability than the traditional physical education program in Grades K - 3. On the other hand, Lackey (30), was unable to show any significant differences in physical fitness, motor skills, or attitude in groups taught by the movement exploration method and the traditional method at the Grade Two Level. He did, however, note that disciplinary problems were more prevalent in the traditional classes than in the movement exploration classes. In her study, Masche (32), concluded that a structured program of volleyball and basketball skills instruction challenged and interested Second Grade students more than a program of low organization play and movement exploration.

Lackey (30), in a study previously noted, found no difference in attitude between Second Grade children who had experienced a program of movement exploration and those in a traditional program. He noted instead that students in both groups developed a positive attitude toward physical education.
Campbell (5), likewise found no significant difference among college men as a result of the program of physical education experienced. Brumbach (4:213) observed that a physical conditioning course for male college students lacking in physical fitness can be conducted in such a manner that not only their physical fitness but also their attitudes toward physical education can be substantially improved. He attributes this in part to improvement in student-teacher rapport. Bell (2:385) also noted a positive and significant relationship in university women between the extent to which the instructors are interested in them as individuals and the extent to which they enjoy their physical education classes.

Four recent studies comparing movement exploration (experiences) to a control method taught in the traditional manner have produced contradictory results. Lackey (30) found that no differences which were significant existed between the two groups on the physical fitness and motor skill tests. Vitalone (53), however, found quite the opposite. He stated:

In every aspect of the measurement of the performance of physical skills, the study groups exceeded the control group. It appears that this is a reflection of the kind of physical education program experienced by the children. It implies that movement experiences may facilitate the learning of skills and the improvement in the performance of these skills. Since the program of movement experiences considered readiness, progression, variety and practice as important principles, it is inferred that these principles should be considered in all programs of physical education. (53:110-1)
Gravlee (19), using the Johnson Motor Achievement test to determine skill development, found the movement exploration method to be more effective for improving ability on the agility run and standing broad jump but neither method to be more effective for throwing and catching or batting. Scott, in a study cited earlier, found that the formal and informal methods of teaching physical education do not vary in their effect on perceptual motor development.

SWIMMING

In comparing various instructional methods in the area of swimming, much the same sort of results appear. McCatty (33), found no significant difference between groups taught with the aid of a special floatation device and those taught in a traditional manner, although pupils taught by the traditional method actually achieved higher mean scores than the pupils taught by the floatation device. Clayton (9), similarly found that a method employing use of land drills and one employing water practice entirely were equally effective in teaching the breast stroke and crawl stroke to college men. In a study comparing a special method of instruction to a traditional method, Holt (22), found the Hand-Foot Concept Method to be significantly superior to the Red Cross (traditional) method on four out of the five vari-
ables tested. In a study dealing with persistent non-swimmers (individuals who have received previous instruction but are still unable to swim), Whiting (55) suggests that swimming methods in general use are not the most suitable. He proposes a method aimed at overcoming the possible conditioned fears and inhibitions encountered by such swimmers.

Smith (47), in discussing the whole vs. part methods of teaching, says that learning is not on either the whole skill or precise parts lifted from the whole but rather on whole actions (qualitative wholes) that make sense to the learner—in other words, "the largest manageable chunk."

Knapp also concurs but finds a place for part learning as well:

It is probably best in the learning of skills in physical education and physical recreation to start with the whole method while feeling free to concentrate at any time in the case of a particular individual on any part where there is some difficulty or weakness impeding the production and perfection of the whole skill. (28:69)

Moncrieff, Morford, and Howell (36) investigated the effect of three factors on the acquisition of elementary swimming skills. They found the frequency of lessons (two classes a week for three weeks vs. three times a week for two weeks) to have no significant difference in the percentage of success; no significant difference between groups on the achievement of the six elementary water skills tested; and that the order of teaching the elementary water skills as
recommended by certain manuals should be changed.

Two other studies further substantiate the above finding of frequency of practice. Scott (42) noted that four twenty-minute periods per week and two thirty-minute periods per week did not appreciably effect perceptual-motor development. Scott (41) found no conclusive differences in the number of days required to pass the test between four, three, or two days-per-week schedules. She further noted that progress in small groups and classes was similar; that the accomplishments of the first lesson are indicative of probable learning rate; and that swimmers can be introduced successfully to deep-water skills in the second and third lesson.

In regard to the role of fear in learning to swim, Smith (47) states that an optimal level of fear (uncertainty) is generally considered to be the essence of motivation of behavior but that extreme fear (arousal) interferes with both performance and learning and may even make responses impossible. Whiting (55:23) likewise feels that the problem in teaching the persistent non-swimmer is removing or alleviating the fear, and not the difficulty of acquiring the skill technique.

In a study that compared the effectiveness of a programmed instructional method with a traditional instructional method on the achievement of selected elementary golf skills, Holt (23) concluded that the methods were equally effective
in producing desired performance. She also concluded that teacher differences alone are apparently responsible for very little variability in the achievement of elementary golf skills. This is in deference to McCatty (33) whose findings focused attention on the importance of the instructor on the acquisition of beginning swimming skills.

CONCLUDING COMMENTS

Certainly the evidence cited here does not support the belief that successful teaching is possible only through the use of some specific methodology. What it does point out is that approaches such as movement education can produce results equal to or better than the traditional approaches to which they are invariably compared when the usual tests that schools use to measure the progress of their students and the success of their programs are employed. Without attaching a positive value to findings of "no significant difference," it would still appear that the movement education approach is a viable one. However, generalizations beyond this point will be avoided for the important reason that researchers are careful to point out--namely, patterns of instruction or general methodology are difficult to categorize, and even when they are given a name, the patterns as they actually work out in various types of situations may differ greatly.
On the other hand, patterns which have been given different names often may be quite similar in character (57:850). Such is the problem here.

It seems fair to say that the skill aspect of swimming can be acquired by all except perhaps the most severely handicapped. Again, there is evidence to favour different methods with no one method having been shown to be the best for every skill. In fact, even with one particular skill, the best method is often dependent to a certain extent on the individual learner. Skill is acquired through imitation, experimentation, selection and repetition. Attempts to force all children to conform to a common pattern would appear to be educationally unsound.

Although causes of attitude in many cases cannot be determined, it has been found that certain attitudes can be detected, relationships ascertained and change over a period of time can be measured. The possibility exists that people have positive attitudes toward physical education in spite of rather than because of the school programs. Then again, the development of attitudes has not always been specifically planned for in all teaching of physical education activities, even if a feeling that favourable attitudes are being developed is frequently hoped for and expressed. If our school programs are to be successful, then we must know that they contribute to the development of positive attitudes toward
continued active participation. (26:243-4)
Chapter 3
RESEARCH METHODOLOGY

STUDY DESIGN

The study adhered to the form of the Pretest - Post-test Control Group Design as outlined by Campbell and Stanley (6:13-24). The control group consisted of those students who received instruction by a traditional approach and the experimental group those who received instruction by a movement education approach.

DATA REQUIRED

In order to determine the effectiveness of the two approaches in teaching beginning swimming, and in line with the design of the study, pre-test and post-test performances on a 20-item test designed to measure skill development were obtained as well as pre-test and post-test scores on a 20-item questionnaire designed to indicate attitudes toward swimming and water. In both cases, the amount of change that occurred between the first and second administration of the instruments was the main consideration.
INSTRUMENTATION

Instruments to determine both skill development and attitude toward swimming and water were constructed by the writer for this study since a search of the literature and interviews with people actively involved in swimming instruction failed to uncover suitable instruments already in existence.

A Questionnaire to Determine Attitudes Toward Swimming and Water of Grade Three Children

In developing the attitude scale, it was first decided that it should encompass several areas of attitude. As a result of personal experience and discussions with individuals active in both swimming instruction and program administration, the four areas chosen were: (1) General Feelings About Water; (2) Apprehension of the Water; (3) Instructional Aspects; and (4) Evaluation. Using Wang's (54:116) criteria for writing attitude statements as a guide, a total of 67 statements covering the four areas were drawn up. These statements dealt with activities the student would be likely to experience in a series of swimming lessons (e.g. "How would you feel about putting your face in the water?") as well as statements dealing with water activities they probably had not yet experienced but were within the realm
of possibility (e.g. "How would you feel about taking a ride in a motor-boat?") The form of these statements themselves--"How would you feel about ..."--was adapted from Tanner (50) who used a similar form to determine movement satisfaction-dissatisfaction with Grade One and Two children in a study of like design.

These statements were then submitted to a group of fifteen experts to determine the worth of each statement as a determiner of attitude. These judges included university faculty members, aquatic supervisors, physical education supervisors and physical education teachers. They indicated whether each statement was (1) satisfactory as stated; (2) satisfactory but requiring minor changes (which they indicated); (3) unsatisfactory and should be omitted; or (4) listed under the wrong heading or area. Fourteen replies were received, one of which was disregarded as the instructions as outlined had not been followed. From the thirteen replies, 35 statements were deemed to be completely satisfactory as stated or satisfactory with minor changes as indicated by the judges. These minor changes usually were in the form of word usage. An additional four statements were felt by only a single judge to be completely unsatisfactory or included in the wrong area. Two other statements, while satisfactory, were felt by several judges to be included in the wrong area.

These 41 statements, with changes incorporated as in-
dicated by the judges, were then submitted to a group of ten elementary school specialists (classroom teachers and university faculty associates) with instructions to indicate if, in their opinion, the statements as printed would be easily understood by Grade Three boys and girls. Suggested minor changes were again asked for if this was all that was needed to make a statement more meaningful. On the basis of the replies received from all ten of these judges, further changes in wording and sentence construction were made.

From this group of 41 statements, five were randomly chosen from each of the four areas originally decided upon, giving a final attitude scale of 20 items. The order in which the 20 items appeared was also determined by randomization. On the basis of the procedure here outlined, it was deemed that this instrument contained both face and content validity. Any further checks on validity were considered beyond the scope of this study.

In order to score the questionnaire and thereby determine the favorableness or unfavorableness of the child's attitude toward swimming and water (and also any change therein), a Likert five-point scale was used. In this regard, a mechanical device was devised (see Appendix E) using the currently popular "Happy Face" motif to represent the five points—a very happy face representing a score of five and indicating a very favorable attitude; a very unhappy face rep-
resenting a score of one and indicating a very unfavorable attitude; a slightly happy face representing a score of four and indicating a favorable attitude; a slightly unhappy face representing a score of two and indicating an unfavorable attitude; and an expressionless face representing a score of three and indicating uncertainty of attitude. Thus the highest possible score would be 100 and would indicate a very positive feeling toward all the statements in the questionnaire. Likewise, the lowest possible score would be 20 and would indicate a very negative feeling toward all the statements in the questionnaire. The total score obtained would thus measure the student's favorableness or unfavorableness to swimming and water.

Previous to this instrument being used on the first study sample, it was administered to a group of 29 Grade Three children in an elementary school in Port Coquitlam with one week elapsing between its first and second administration and with no swimming instruction received by any of the children in the intervening time. On this basis, the test-retest reliability was calculated to be .8275. It was also found that the children in the pilot project identified very readily with the "Happy Faces" and experienced no problem using the mechanical device to indicate their answers. Therefore, this particular procedure was retained with no changes.
As a further check on the instrument's reliability, a group of 26 students from the second school involved in the study but who did not receive any swimming instruction whatsoever, were also given the questionnaire but with one month elapsing between the first and second administration. The test-retest reliability in this instance was .7850, indicating a high or marked reliability.

**Skill Test for Grade Three**

**Beginning Swimmers**

In developing the skill test, heavy reliance was placed upon current and past Red Cross and YMCA Water Safety Tests and the Province of Alberta Elementary Physical Education Curriculum Guide. While the tests in existence are certainly adequate for community programs, they were not comprehensive enough to serve as both a pre-test to determine what the child could already do in the water and a post-test to determine the increase in skill development as the result of instruction received. A wide range of skills was called for, ranging from the simplest non-swimmer skills to those more-advanced skills obtained through water experience.

With this in mind, the skills to be tested were first of all separated into four areas—each one felt to have a unique purpose in the process of learning to swim. These four categories were: (1) Adjustment to Water; (2) Buoyancy
and Stability; (3) Propulsion; and (4) Deep Water Work. Within each area, those skills that pertained to it were itemized. An effort was made to list these in order of increasing difficulty. Twenty such skills were chosen. As with swimming tests already in existence, each test item was indicated by a short "catch phrase" (e.g. Float on back) and by a "detailed description" which served as the standard of performance the child was to attain (e.g. May assume any shape on the back; remains afloat for more than three seconds and then regains feet easily). All items were scored as either pass or fail with the detailed description serving as the criteria.

These skill test items were then submitted to a group of ten experts to ascertain if they would adequately determine skill development as a result of the instruction the children would be receiving. The experts were therefore to indicate if: (1) the items could be used to determine the present skill level of the child; (2) the items could be used to determine the skill level of the child after receiving instruction; (3) each item measures a desirable elementary water skill; and (4) any item favors one approach to teaching beginning swimming over another.

On the basis of the replies returned (nine out of ten), all 20 items were retained. In each case, at least five of the nine experts felt all the criteria were satisfied. How-
ever, numerous changes were made in the wording of the "catch phrases" and in the "detailed descriptions". This was mainly because the wording as originally set out was believed to favor one of the approaches more than the other. As a result of these procedures, it was felt that the instrument had both face and content validity. Further checks on validity, although possible, were considered to be beyond the scope of this study.

In order to determine the reliability of this instrument, a group of 15 Grade Three students were given the test and one month later were retested. No swimming instruction occurred between the first and second administration of this test. The test-retest reliability as determined by computer was .8938, indicating a high to marked correlation.

PROCEDURES

The study was conducted on two occasions using different samples, pools, and instructors. Although both of the samples met the requirements of the study and were treated in the same manner, they were by no means equal. The Coquitlam sample was composed entirely of children of Canadian descent; the Seymour sample was largely Chinese-Canadians; the Coquitlam sample drew from a middle to high socio-economic area, the Seymour sample from a low socio-economic area; the Coquitlam
sample had an indoor pool in close proximity to their home or school; the Seymour sample had neither; the Coquitlam sample began the lessons with a reasonably high skill level (12.38); the Seymour sample began them with a low skill level (2.53); the Coquitlam sample had a very favorable attitude towards swimming and water (81.71); the Seymour sample was somewhat lower although still favorable (73.56).

These differences were important to the study for several reasons: First, to determine if the methods would be effective with children of different socio-economic backgrounds; second, to determine how important the instructor variable would be to the approaches; and third, to determine if children at different stages of readiness, as measured by the pre-test of skill development, would progress at different rates. However, each study used the same lesson plans, time allotments, and grade and age level.

Grade Three's were chosen as the most satisfactory level for the following reasons: First, "the best learning ages for swimming are six to eight years. Ages six to ten, the first four years of elementary school education, are the best years for the development of movement qualities—to learn how to move." (13:2-3) Second, the height of the students is such that they can take part in shallow water instruction safely in groups. Third, many students at this level are still non-swimmers. And four, they understand
and can respond to simple questions relating to their likes and dislikes about selected aspects of swimming and water.

The Coquitlan Study

This sample was drawn from Grade Three students enrolled in the five elementary schools in the immediate vicinity of the District of Coquitlam's Chimo Indoor Pool. Permission was obtained from the school principals and notices publicizing the program were sent home with all Grade Three non-swimmers by the schools, the notices to be returned one week later. Forty-four applications were returned, 40 of which indicated a willingness to register in the program. Thirty-six children completed all parts of the study and formed the final sample. Both boys and girls were included in all classes.

Four classes of ten students each (N=40) were formed with two classes receiving instruction by the movement education approach in the half-hour between 4:00 - 4:30 p.m. and the other two receiving instruction by the traditional approach in the half-hour between 4:30 - 5:00 p.m. Two qualified instructors (both male) were used, each one teaching one class by each approach. Both had had prior teaching experience with both approaches.

Lessons began Monday, March 5, 1973, and proceeded
each Monday, Wednesday and Friday through to Friday, March 30, 1973, a total of twelve lessons for each group. The first lesson was used for the pre-test of the skill level of the children and the twelfth lesson as the skill post-test, with the same test and procedures being used on each occasion. For each of the tests, a score out of 20 was determined, based on the items the child passed successfully. The remaining ten lessons between the pre-test and post-test were used for the actual instruction.

The traditional lessons were drawn up according to the sample lesson plan indicated in the Canadian Red Cross Instructor's Guide and Reference: (7: Chap. 2, p. 15) The skills and procedures advocated in the same text were utilized. The movement education lessons were drawn up according to the sample lesson plans and theme areas outlined by Kirchner, Cunningham, and Warrell (27) and the Province of Alberta Elementary Physical Education Curriculum Guide (17).

In order to ensure that both instructors were adequately prepared to do a credible job with each approach, three one-hour meetings were held well in advance of the commencement of the study. During these meetings discussion centered on the nature and purpose of the study, the differences between a movement education approach and a traditional approach to teaching beginning swimming, and an overview of the individual lessons to be used. In addition to this, a half-hour dis-
cussion period prior to each lesson was held in order to emphasize important points in the upcoming lesson and to review problems arising from the previous lesson.

A videotape record of each lesson was maintained throughout as a cross-check of both approaches, and possible future use as a teaching aid. One class by each approach with the same instructor was used for the taping.

In the week preceding the first lesson (February 25 - March 3, 1973), each student participating in the experiment was individually interviewed to determine his attitude toward swimming and water. Likewise, in the week following the twelfth lesson (April 1 - April 7, 1973), each student was re-interviewed using the same procedures and instrument to determine the change in attitude that had occurred. The questionnaire statements were read to each child and the score for each statement recorded on a data sheet for later computer analysis. The interview was tape-recorded in case the child might wish to verbalize his responses to a statement and also as a check that the interviewer was not changing his presentation from one child to the next. The same interviewer handled both interview sessions.

The Seymour Study

This sample was drawn from those Grade Three students
enrolled in Seymour Elementary School in Vancouver who had received parental permission to take part in the program. Fifty-six applications were received of which 36 met the requirements of the study. Of these 36, all but two completed the lessons. Both boys and girls were included.

Four classes of nine students each (N=36) were formed with two classes receiving instruction by the movement education approach in the half-hour period between 9:30 - 10:00 a.m. and the other two receiving instruction by the traditional approach in the half-hour period between 10:00 - 10:30 a.m. The indoor pool at Simon Fraser University was used for all lessons. Two qualified instructors (one male, one female) were used, each one teaching one class by each approach. Both of the instructors had had considerable teaching experience in the area of swimming and had had experience with both approaches.

The instructors met on two occasions prior to the beginning of lessons. On the first meeting, the nature and purpose of the study, as well as the procedures that would be followed, were thoroughly outlined. A discussion of what would actually be encompassed in the movement education and traditional approaches was also held. On the second meeting, the instructors viewed an edited tape produced of the first study as well as an instructional film of the movement education approach secured from the Calgary School Board. Discussion
centered around the procedures observed in these films. In addition, the half-hour preceding each lesson was reserved to discuss the upcoming lesson as well as to go over the previous one.

Lessons began Monday, April 30, 1973, and proceeded each Monday, Wednesday and Friday through to Wednesday, May 30, 1973, (excluding May 18 and 21), a total of twelve lessons for all students. As before, the first lesson was used to determine the present skill level of the children (pre-test) and the twelfth lesson as the post-test, the same test and procedures being used on each occasion. Again, a score out of 20 was determined for each child on each test based on the items passed successfully. The ten remaining lessons were used for the actual instruction. The lesson plans as constructed for the first study were used with only minor changes made.

Preceding the first lesson of this study (April 25 - 27, 1973), each child in Grade Three, whether participating in the study or not, was individually interviewed to determine his attitude toward swimming and water. Likewise, in the two days following the completion of the lessons (May 31 and June 1, 1973), each student was re-interviewed using the same instrument and procedures. As previously, the questionnaire statements were read to the children and a score for each statement as well as a total score out of 100 was re-
corded on a data sheet for computer analysis. The tape recording as before was continued. The individual conducting the pre-test was unable to also handle the post-test and a second interviewer was used.

DATA TREATMENT

The data obtained from the skill test and the attitude questionnaire in both parts of the study were transferred to computer cards for analysis. The computer program included:

1. Correlation to determine the test-retest reliability of the two instruments.

2. T-tests to determine initial equality of all groups on attitude and skill development.

3. Two-way analysis of variance of pre and post-test means for attitude and skill development to determine improvement as the result of instruction; two-way analysis of variance of post-test means for attitude and skill development to determine the more effective approach; and two-way analysis of variance of net score means to compare the two samples.
SUMMARY

This chapter has reviewed the research methodology employed in this study. The instruments constructed were found to be satisfactory for the purposes of the study. Both parts of the study were conducted in the same manner but using different samples and instructors. Finally, the statistical treatment of the data has been outlined.
Chapter 4
ANALYSIS OF DATA

INTRODUCTION

This chapter begins by considering the reliability of the two instruments used in the study and the initial equality of groups. It then proceeds to an examination of the Coquitlam and Seymour samples, and to relevant comparisons between the two samples. The chapter concludes with a summary statement regarding skill development and attitudes toward swimming derived from the samples.

RELIABILITY OF INSTRUMENTS

Reliability of both instruments was determined by means of test-retest scores obtained from samples not involved in the study. The reliability of the attitude questionnaire was determined with two different groups using different intervals between the two tests. Tables 1 and 2 summarize this data. The reliability of the skills test was determined on a single sample drawn from Seymour School with a one-month interval between the two administrations of the test. Table 3 summarizes this data. In all cases, the X variable represents the pre-test score and the Y
variable represents the retest score.

The computed correlation coefficient of .6275 for the first of the two pilot studies on the attitude questionnaire indicated a high reliability and when applied to a table of coefficients of correlation for varying degrees of freedom was significant beyond the .01 level. On the second pilot study, the computed correlation coefficient of .7850 again indicated a high to marked reliability and was significant beyond the .01 level when applied to a table of coefficients of correlation for varying degrees of freedom.

The reliability of the skill test was determined in a similar manner on a pilot study group from Seymour School. This group was not part of the sample which received swim instruction. The computed correlation coefficient of .6938 indicated a high reliability and was significant beyond the .01 level when applied to a table of coefficients of correlation for varying degrees of freedom.

In view of the high coefficient of correlation in each instance, it was concluded that the two instruments had a high reliability and were therefore suitable for assessing confidently that the observed changes between pre and post-test were the result of corresponding changes in attitude and skill development.
TABLE 1

Data for Correlation Coefficient Between Test-Retest Results* on Attitude Questionnaire for Pilot Study - Coquitlam

N = 29

<table>
<thead>
<tr>
<th></th>
<th>TEST (X)</th>
<th>RETEST (Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Scores</td>
<td>2317 (ΣX)</td>
<td>2389 (ΣY)</td>
</tr>
<tr>
<td>Mean</td>
<td>79.89 (X)</td>
<td>82.38 (Y)</td>
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<tr>
<td>Standard Deviation</td>
<td>8.94</td>
<td>7.21</td>
</tr>
<tr>
<td>Sum of Deviation of</td>
<td>2316.6909 (Σx²)</td>
<td>1510.8276 (Σy²)</td>
</tr>
<tr>
<td>Scores from Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of all the Products</td>
<td></td>
<td>1548.1378 (Σxy)</td>
</tr>
<tr>
<td>of Deviation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td></td>
<td>.8275 (r_{xy})</td>
</tr>
<tr>
<td>Between Test-Retest</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Results</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*One week between tests.
TABLE 2

Data for Correlation Coefficient Between Test-Retest Results* on Attitude Questionnaire for Pilot Study - Seymour

\[ N = 26 \]

<table>
<thead>
<tr>
<th></th>
<th>TEST (X)</th>
<th>RETEST (Y)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Scores</td>
<td>1960 (ΣX)</td>
<td>2041 (ΣY)</td>
</tr>
<tr>
<td>Mean</td>
<td>75.38 (X̄)</td>
<td>78.50 (Ȳ)</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.64</td>
<td>11.32</td>
</tr>
<tr>
<td>Sum of Deviation of Scores from Mean</td>
<td>2416.1544 (Σx²)</td>
<td>2514.5000 (Σy²)</td>
</tr>
<tr>
<td>Sum of all the Products of Deviation</td>
<td></td>
<td>1935.0000 (Σxy)</td>
</tr>
<tr>
<td>Correlation Coefficient Between Test-Retest Results</td>
<td></td>
<td>.7850 (r_{xy})</td>
</tr>
</tbody>
</table>

*One month between tests.
TABLE 3

Data for Correlation Coefficient Between Test-Retest Results* on Skill Development for Pilot Study

\[ N = 15 \]

<table>
<thead>
<tr>
<th></th>
<th>TEST ((X))</th>
<th>RETEST ((Y))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sum of Scores</td>
<td>225 ((\Sigma X))</td>
<td>227 ((\Sigma Y))</td>
</tr>
<tr>
<td>Mean</td>
<td>15.00 ((\bar{X}))</td>
<td>15.13 ((\bar{Y}))</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>4.68</td>
<td>4.80</td>
</tr>
<tr>
<td>Sum of Deviation of</td>
<td>328 ((\Sigma x^2))</td>
<td>345.7335 ((\Sigma y^2))</td>
</tr>
<tr>
<td>Scores from Mean</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sum of all the Products of Deviation</td>
<td>301 ((\Sigma xy))</td>
<td></td>
</tr>
<tr>
<td>Correlation Coefficient Between Test-Retest Results</td>
<td>.8938 ((r_{xy}))</td>
<td></td>
</tr>
</tbody>
</table>

*One month between tests.
THE COQUITLAM SAMPLE

As indicated in Chapter Three, the study was conducted on two occasions using different samples, pools, and instructors. The study conducted on the sample drawn from a group of five schools located in Coquitlam was completed first.

Initial Equality of Groups

A total of four classes were involved. An attitude questionnaire and a skills test was administered to each group. Two of the four classes were designed as the traditional group and the other two as the movement education group. Two instructors were each assigned one class from each group. In determining the initial equality of groups, skill level and attitudes toward swimming were both considered. In each of these, the total sample (i.e. the combined traditional classes and the combined movement education classes) was first compared. Second, the individual classes in the two approaches were compared. And third, the two instructor groups were compared. This procedure was followed for both the skill test and the attitude questionnaire. Table 4 shows the results of these comparisons on the skill test.
**Total sample.**

There was no significant difference between the combined traditional classes and the combined movement education classes as determined by a t-test. It was therefore assumed that the subjects had been assigned fairly to the two approaches.

**Traditional approach.**

There was no significant difference between the two traditional classes as determined by a t-test and it was therefore assumed that these classes were equal initially.

**Movement education approach.**

There was no significant difference between the two movement education classes as determined by means of a t-test and it was therefore assumed that these two classes were equal initially.

**Instructor groups.**

There were no significant differences between the two classes assigned to Instructor I nor the two classes assigned to Instructor II. It was therefore assumed that the two instructors were assigned classes which were initially equal.
### TABLE 4

Summary of Pre-Test Results on Skill Test  
Coquitlam Sample

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>MEAN</th>
<th>S.D.</th>
<th>DIFFERENCE BETWEEN</th>
<th>T-VALUE</th>
<th>SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL SAMPLE</strong></td>
<td></td>
<td></td>
<td></td>
<td>DIFFERENCE BETWEEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Cl.</td>
<td>16</td>
<td>13.19</td>
<td>4.34</td>
<td></td>
<td>1.49</td>
<td>0.09</td>
</tr>
<tr>
<td>Movement Ed. Cl.</td>
<td>19</td>
<td>11.70</td>
<td>5.50</td>
<td></td>
<td>0.60</td>
<td>0.04</td>
</tr>
<tr>
<td><strong>Traditional Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td>DIFFERENCE BETWEEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>8</td>
<td>10.50</td>
<td>3.84</td>
<td></td>
<td>0.60</td>
<td>0.04</td>
</tr>
<tr>
<td>Class B</td>
<td>8</td>
<td>15.88</td>
<td>2.47</td>
<td></td>
<td>0.90</td>
<td>0.09</td>
</tr>
<tr>
<td><strong>Movement Ed. Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td>DIFFERENCE BETWEEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>10</td>
<td>11.40</td>
<td>4.63</td>
<td></td>
<td>0.90</td>
<td>0.08</td>
</tr>
<tr>
<td>Class B</td>
<td>9</td>
<td>12.00</td>
<td>6.03</td>
<td></td>
<td>0.32</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Instructor I</strong></td>
<td></td>
<td></td>
<td></td>
<td>DIFFERENCE BETWEEN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Cl.</td>
<td>8</td>
<td>10.50</td>
<td>3.84</td>
<td></td>
<td>0.90</td>
<td>0.08</td>
</tr>
<tr>
<td>Movement Ed. Cl.</td>
<td>10</td>
<td>11.40</td>
<td>4.63</td>
<td></td>
<td>0.32</td>
<td>0.08</td>
</tr>
<tr>
<td><strong>Instructor II</strong></td>
<td></td>
<td></td>
<td></td>
<td>DIFFERENCE BETWEEN</td>
<td></td>
<td></td>
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<tr>
<td>Traditional Cl.</td>
<td>8</td>
<td>15.88</td>
<td>2.47</td>
<td></td>
<td>3.88</td>
<td>0.32</td>
</tr>
<tr>
<td>Movement Ed. Cl.</td>
<td>9</td>
<td>12.00</td>
<td>6.03</td>
<td></td>
<td>0.60</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Table 5 shows the results of the comparisons between the various classes on the attitude questionnaire.

**Total sample.**
There was no significant difference between the combined traditional classes and the combined movement education classes as determined by means of a t-test and it was therefore assumed that the two groups were initially equal.

**Traditional approach.**
There was no significant difference between the two traditional classes as determined by means of a t-test. It was therefore assumed that these two classes were initially equal.

**Movement education approach.**
There was no significant difference between the two movement education classes as determined by means of a t-test and it was therefore assumed that these two classes were initially equal.

**Instructor groups.**
There were no significant differences between the two classes assigned to Instructor I nor the two classes assigned to Instructor II. It was therefore assumed that the
### TABLE 5

Summary of Pre-Test Results on Attitude Questionnaire
Coquitlam Sample

<table>
<thead>
<tr>
<th>DIFFERENCE BETWEEN</th>
<th>N</th>
<th>MEAN</th>
<th>S.D.</th>
<th>MEANS</th>
<th>T-VALUE</th>
<th>SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>TOTAL SAMPLE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Classes</td>
<td>16</td>
<td>81.94</td>
<td>8.20</td>
<td>0.35</td>
<td>0.017</td>
<td>Nil</td>
</tr>
<tr>
<td>Movement Ed. Classes</td>
<td>19</td>
<td>81.59</td>
<td>6.79</td>
<td>0.35</td>
<td>0.017</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Traditional Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>8</td>
<td>80.50</td>
<td>6.96</td>
<td>2.88</td>
<td>0.829</td>
<td>Nil</td>
</tr>
<tr>
<td>Class B</td>
<td>8</td>
<td>83.38</td>
<td>8.55</td>
<td>2.88</td>
<td>0.829</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Movement Ed. Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>10</td>
<td>79.40</td>
<td>6.62</td>
<td>4.38</td>
<td>0.219</td>
<td>Nil</td>
</tr>
<tr>
<td>Class B</td>
<td>9</td>
<td>83.78</td>
<td>5.77</td>
<td>4.38</td>
<td>0.219</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Instructor I</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Class</td>
<td>8</td>
<td>80.50</td>
<td>6.96</td>
<td>1.10</td>
<td>0.045</td>
<td>Nil</td>
</tr>
<tr>
<td>Movement Ed. Class</td>
<td>10</td>
<td>79.40</td>
<td>6.62</td>
<td>1.10</td>
<td>0.045</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Instructor II</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Class</td>
<td>8</td>
<td>83.38</td>
<td>8.55</td>
<td>0.40</td>
<td>0.014</td>
<td>Nil</td>
</tr>
<tr>
<td>Movement Ed. Class</td>
<td>9</td>
<td>83.78</td>
<td>5.77</td>
<td>0.40</td>
<td>0.014</td>
<td>Nil</td>
</tr>
</tbody>
</table>
instructors had been assigned classes that were initially equal.

Thus on the basis of all the comparisons, it appears safe to conclude that for both attitude and skill development, all classes were initially equal. Any differences observed after instruction could therefore be attributed to the approach used.

**Results of Coquitlam Sample.**

In analyzing the results of the Coquitlam sample, the success of each teaching approach in terms of skill development and attitude change was first determined. This was done by analyzing the net change that had occurred from pre-test to post-test. Tables 6 and 7 show these results. Secondly, the two approaches were compared in an effort to determine if either of the approaches had been more successful in terms of skill development and attitude change. This was done by comparing the post-test results. Table 8 shows this comparison.

**Traditional approach.**

The improvement that occurred between pre-test and post-test in skill development was highly significant ($p = .0016$) and was attributed to the teaching approach. However, there was not a corresponding change in attitude.
### TABLE 6

Analysis of Variance to Determine Difference Between Pre- and Post-Test Means - Traditional Approach Coquitlam Sample

#### SKILL

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F.Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>171.125</td>
<td>12.9064</td>
<td>0.0016</td>
</tr>
<tr>
<td>Instructors</td>
<td>1</td>
<td>112.500</td>
<td>8.4848</td>
<td>0.0069</td>
</tr>
<tr>
<td>Pre-Post Test Results X Instructor</td>
<td>1</td>
<td>21.125</td>
<td>1.5933</td>
<td>0.2151</td>
</tr>
<tr>
<td>Error</td>
<td>28</td>
<td>13.259</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### ATTITUDE

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F.Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>91.125</td>
<td>1.6280</td>
<td>0.2102</td>
</tr>
<tr>
<td>Instructors</td>
<td>1</td>
<td>45.125</td>
<td>0.8062</td>
<td>0.6196</td>
</tr>
<tr>
<td>Pre-Post Test Results X Instructor</td>
<td>1</td>
<td>2.000</td>
<td>0.0357</td>
<td>0.8455</td>
</tr>
<tr>
<td>Error</td>
<td>28</td>
<td>55.973</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 7

Analysis of Variance to Determine Difference Between Pre- and Post-Test Means - Movement Education Approach Coquitlam Sample

<table>
<thead>
<tr>
<th>SKILL</th>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>260.566</td>
<td>11.7920</td>
<td>0.0019</td>
</tr>
<tr>
<td></td>
<td>Instructors</td>
<td>1</td>
<td>0.564</td>
<td>0.0255</td>
<td>0.8684</td>
</tr>
<tr>
<td></td>
<td>Pre-post Test Results X Instructor</td>
<td>1</td>
<td>1.200</td>
<td>0.0543</td>
<td>0.8119</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>34</td>
<td>22.097</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ATTITUDE</th>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>213.602</td>
<td>6.7248</td>
<td>0.0133</td>
</tr>
<tr>
<td></td>
<td>Instructors</td>
<td>1</td>
<td>117.866</td>
<td>3.7107</td>
<td>0.0594</td>
</tr>
<tr>
<td></td>
<td>Pre-post Test Results X Instructor</td>
<td>1</td>
<td>6.587</td>
<td>0.2074</td>
<td>0.6561</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>34</td>
<td>31.764</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
TABLE 8

Analysis of Variance to Determine Difference Between Post-Test Means of Traditional and Movement Education Approaches Coquitlam Sample

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SKILL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach</td>
<td>1</td>
<td>6.538</td>
<td>0.4904</td>
<td>0.5043</td>
</tr>
<tr>
<td>Instructor</td>
<td>1</td>
<td>8.795</td>
<td>0.6598</td>
<td>0.5718</td>
</tr>
<tr>
<td>Approach X Instructor</td>
<td>1</td>
<td>10.843</td>
<td>0.8134</td>
<td>0.6225</td>
</tr>
<tr>
<td>Error</td>
<td>31</td>
<td>13.331</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ATTITUDE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach</td>
<td>1</td>
<td>9.386</td>
<td>0.3117</td>
<td>0.5871</td>
</tr>
<tr>
<td>Instructor</td>
<td>1</td>
<td>45.068</td>
<td>1.4968</td>
<td>0.2285</td>
</tr>
<tr>
<td>Approach X Instructor</td>
<td>1</td>
<td>1.017</td>
<td>0.0338</td>
<td>0.8495</td>
</tr>
<tr>
<td>Error</td>
<td>31</td>
<td>30.109</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
(p = 0.2102). It would therefore appear that while the traditional approach was effective in increasing the skill level of the sample members, it did not produce a significant change in their attitudes.

A significant difference occurred between instructor groups in skill development (p = .0069) but not in the attitude change (p = .6196). This difference between the instructor groups in skill development was most likely due to the original differences between the groups as illustrated by their means (10.50 vs. 15.88 out of a possible score of 20).

The interaction of instructor and pre-test/post-test was not significant for either skill development (p = .2151) or attitude change (p = .8455) which indicated that the interaction effect of the instructor and the pre-test/post-test was not a factor in either case.

**Movement education approach.**

The improvement that occurred between pre-test and post-test in skill development was highly significant (p = .0019) and was attributed to the teaching approach. There was also a significant change in attitude between the two tests (p = .0133). This again was attributed to the teaching approach. It therefore appears that the movement education approach was effective in producing a significant
change in both skill development and attitude.

While no significant difference occurred between instructor groups in skill development \( (p = .8684) \), a significant difference \( (p = .0594) \) did occur between instructor groups in attitude. Therefore even though the two instructors performed equally in regard to skill development, the attitude change that resulted in their respective classes was not equal.

The interaction of instructor and pre-test/post-test was not significant for either skill development \( (p = .8119) \) or attitude change \( (p = .6561) \) which indicated that this factor did not influence the results as observed.

Comparison between the two approaches.

There were no significant differences between the two approaches in regard to skill development \( (p = .5043) \) or attitude change \( (p = .5871) \); no significant differences in the way in which the instructors performed \( (p = .5718) \) for skill development and \( (p = .2285) \) for attitude change; and no significant difference in the interaction of instructor and approach \( (p = .6225) \) for skill and \( (p = .8495) \) for attitude. It was inferred from this that while both approaches produced significant results, the differences between them were not significant and therefore it was not possible to say one approach was superior to the other. On the basis
of these findings, the null hypotheses could not be re-
jected.

THE SEYMOUR SAMPLE

As indicated previously, the study was conducted
twice using different samples, pools, and instructors. The
second administration of the study involved the sample
drawn from a single school located in Vancouver.

Initial Equality of Groups.

A total of four classes were involved. Each class
was administered an attitude questionnaire and a skill test.
Two of the four classes were to receive instruction by the
traditional approach and the other two by the movement edu-
cation approach. Two instructors were used, each one teach-
ing one class by each approach. In determining the initial
equality of groups, skill level and attitudes toward swimming
were both considered. In each of these, the total sample
(i.e. the combined movement education classes and the com-
bined traditional classes) was first compared. Second, the
individual classes in the two approaches were compared.
And third, the two instructor groups were compared. This
procedure was followed for both the skill test and the at-
titude questionnaire. Table 9 shows the results of these
comparisons on the skill test.

**Total sample.**

There was no significant difference between the combined traditional classes and the combined movement education classes and it was therefore assumed that the subjects had been assigned fairly to the two approaches.

**Traditional approach.**

Although approaching significance, there was no significant difference between the two traditional classes and it was therefore assumed that these classes were initially equal.

**Movement education approach.**

Although approaching significance, there was no significant difference between the two movement education classes and it was therefore assumed that these two classes were initially equal.

**Instructor groups.**

Although once again approaching significance, there was no significant difference between the two classes assigned to Instructor I nor the two classes assigned to Instructor II. It was therefore assumed that the instructors
TABLE 9

Summary of Pre-Test Results on Skill Test Seymour Sample

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>MEAN</th>
<th>S.D.</th>
<th>MEANS</th>
<th>T-VALUE</th>
<th>SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Sample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Classes</td>
<td>17</td>
<td>2.53</td>
<td>2.46</td>
<td>0.06</td>
<td>0.0764</td>
<td>Nil</td>
</tr>
<tr>
<td>Movement Ed. Classes</td>
<td>17</td>
<td>2.47</td>
<td>1.997</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Traditional Sample</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>8</td>
<td>3.50</td>
<td>2.48</td>
<td>1.83</td>
<td>1.6018</td>
<td>Nil</td>
</tr>
<tr>
<td>Class B</td>
<td>9</td>
<td>1.67</td>
<td>2.00</td>
<td>0.47</td>
<td>1.5950</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Movement Ed. Approach</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class A</td>
<td>9</td>
<td>1.78</td>
<td>1.21</td>
<td>0.47</td>
<td>1.5950</td>
<td>Nil</td>
</tr>
<tr>
<td>Class B</td>
<td>8</td>
<td>3.25</td>
<td>2.30</td>
<td>0.47</td>
<td>1.5950</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Instructor I</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Traditional Class</td>
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<td>2.48</td>
<td>1.72</td>
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<td>Movement Ed. Class</td>
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<td>1.21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Instructor II</strong></td>
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<td>1.58</td>
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<td>Nil</td>
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<tr>
<td>Movement Ed. Class</td>
<td>8</td>
<td>3.25</td>
<td>2.30</td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
TABLE 10

Summary of Pre-Test Results on Attitude Questionnaire
Seymour Sample

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>MEAN</th>
<th>S.D.</th>
<th>MEANS</th>
<th>T-VALUE</th>
<th>SIGNIFICANCE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIFFERENCE BETWEEN</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>MEAN</td>
<td>S.D.</td>
<td></td>
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<tr>
<td><strong>Total Sample</strong></td>
<td></td>
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<tr>
<td>Traditional Classes</td>
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<td>0.59</td>
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<td>Nil</td>
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<tr>
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<td></td>
<td></td>
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</tr>
<tr>
<td>Class A</td>
<td>8</td>
<td>73.88</td>
<td>9.33</td>
<td>0.90</td>
<td>.2178</td>
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</tr>
<tr>
<td>Class B</td>
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<td>74.78</td>
<td>6.56</td>
<td>0.22</td>
<td>.0625</td>
<td>Nil</td>
</tr>
<tr>
<td><strong>Movement Ed. Approach</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Class A</td>
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<td>5.94</td>
<td>4.22</td>
<td>1.2536</td>
<td>Nil</td>
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<tr>
<td>Class B</td>
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<td>75.00</td>
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<td>0.22</td>
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<tr>
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<td>Movement Ed. Class</td>
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<td>6.56</td>
<td>0.22</td>
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<td>Nil</td>
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<tr>
<td>Movement Ed. Class</td>
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<td>75.00</td>
<td>7.05</td>
<td>0.22</td>
<td>.0625</td>
<td>Nil</td>
</tr>
</tbody>
</table>
had been assigned classes that were initially equal.

Table 10 summarizes the results of the comparisons between the various classes on the attitude questionnaire.

**Total sample.**

There was no significant difference between the combined movement education classes and it was therefore assumed that the two groups were initially equal.

**Traditional approach.**

There was no significant difference between the two traditional classes and it was therefore assumed that these two classes were initially equal.

**Movement education approach.**

There was no significant difference between the two education classes and it was therefore assumed that these two classes were equal initially.

**Instructor groups.**

There was no significant difference between the two classes assigned to Instructor I nor the two classes assigned to Instructor II. It was therefore assumed that the two instructors were assigned classes which were initially
equal.

On the basis of the statistical analysis described above, it was concluded that all groups were initially equal in both their attitudes toward swimming and water and in their present skill level. Therefore, any differences observed after the prescribed lessons were attributed to the instruction received.

Results of Seymour Sample.

The same procedure that was used in analyzing the results of the Coquitlam sample was used with the Seymour sample. Firstly, the success of each teaching approach was determined by analyzing the net change that had occurred from pre-test to post-test. Tables 11 and 12 show this analysis. Secondly, the two approaches were compared on the basis of their post-test results. Table 13 shows this comparison.

Traditional approach.

The improvement that occurred between pre-test and post-test in skill development was highly significant \((p = 0.0017)\). At the same time, there was a significant and corresponding change in attitude \((p = 0.0211)\). However, no significant differences occurred between instructor groups in skill development \((p = .2120)\) or in attitude change.
### TABLE 11

Analysis of Variance to Determine Difference Between Pre- and Post-Test Means: Traditional Approach Seymour Sample

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
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<td><strong>SKILL</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>237.815</td>
<td>12.3913</td>
<td>0.0017</td>
</tr>
<tr>
<td>Instructors</td>
<td>1</td>
<td>30.894</td>
<td>1.6097</td>
<td>0.2120</td>
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<tr>
<td>Pre/Post Test Results X Instructor</td>
<td>1</td>
<td>0.048</td>
<td>0.0025</td>
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<tr>
<td>Error</td>
<td>30</td>
<td>19.192</td>
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<td></td>
</tr>
<tr>
<td><strong>ATTITUDE</strong></td>
<td></td>
<td></td>
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<td></td>
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<tr>
<td>Pre/Post Test Results</td>
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<td>Instructors</td>
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<tr>
<td>Pre/Post Test Results X Instructors</td>
<td>1</td>
<td>33.254</td>
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<tr>
<td>Error</td>
<td>30</td>
<td>66.751</td>
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<td></td>
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</tbody>
</table>
TABLE 12

Analysis of Variance to Determine Difference
Between Pre- and Post-Test
Means: Movement Education Approach
Seymour Sample

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>187.780</td>
<td>14.4714</td>
<td>0.0009</td>
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<tr>
<td>Instructor</td>
<td>1</td>
<td>19.414</td>
<td>1.4962</td>
<td>0.2289</td>
</tr>
<tr>
<td>Pre/Post Test Results X Instructor</td>
<td>1</td>
<td>0.014</td>
<td>0.0011</td>
<td>0.0727</td>
</tr>
<tr>
<td>Error</td>
<td>30</td>
<td>12.976</td>
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<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre/Post Test Results</td>
<td>1</td>
<td>220.434</td>
<td>3.2890</td>
<td>0.0764</td>
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<tr>
<td>Instructor</td>
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<td>127.555</td>
<td>1.9032</td>
<td>0.1749</td>
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<tr>
<td>Pre/Post Test Results X Instructor</td>
<td>1</td>
<td>0.662</td>
<td>0.0099</td>
<td>0.9183</td>
</tr>
<tr>
<td>Error</td>
<td>30</td>
<td>67.021</td>
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</table>
TABLE 13

Analysis of Variance to Determine Difference Between Post-Test Means of Traditional and Movement Education Approaches Seymour Sample

<table>
<thead>
<tr>
<th>Source of Variance</th>
<th>df</th>
<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
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</thead>
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<tr>
<td><strong>SKILL</strong></td>
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<td></td>
</tr>
<tr>
<td>Approach</td>
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<td>3.687</td>
<td>0.1459</td>
<td>0.7065</td>
</tr>
<tr>
<td>Instructor</td>
<td>1</td>
<td>0.393</td>
<td>0.0156</td>
<td>0.8971</td>
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<tr>
<td>Approach X Instructor</td>
<td>1</td>
<td>26.562</td>
<td>1.0513</td>
<td>0.3144</td>
</tr>
<tr>
<td>Error</td>
<td>30</td>
<td>25.266</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ATTITUDE</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Approach</td>
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<td>81.827</td>
<td>1.1092</td>
<td>0.3011</td>
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<tr>
<td>Instructor</td>
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<td>0.0085</td>
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<tr>
<td>Error</td>
<td>30</td>
<td>73.772</td>
<td></td>
<td></td>
</tr>
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</table>
Neither was the interaction between instructor and pre-test/post-test significant for skill development ($p = .9595$) or attitude change ($p = .5075$). It was therefore concluded that the changes that had occurred were attributable to the teaching approach used and that it was effective in increasing the skill level of the sample members and in producing a positive change in their attitudes toward swimming and water.

**Movement education approach.**

A highly significant difference was observed between pre-test and post-test results in skill development ($p = 0.0009$) but the corresponding attitude change that occurred between the two tests was not significant ($p = 0.0764$) although very nearly so. Since no significant differences resulted between instructor groups ($p = 0.2289$ for skill and $p = 0.1749$ for attitude) and since the interaction effect of instructor and pre-test/post-test results was also not a factor ($p = 0.9727$ for skill and $p = 0.9183$ for attitude) it was therefore assumed that the observed changes were real and attributable to the teaching approach.

**Comparisons between the two approaches.**

There were no significant differences between the two approaches in regard to skill development ($p = 0.7065$) or
attitude change ($p = 0.3011$); no significant differences in the way in which the instructors performed ($p = 0.8971$ for skill development and $p = 0.9243$ for attitude change); and no significant difference in the interaction effect of instructors and approach ($p = 0.3144$ for skill and $p = 0.2725$ for attitude). As a result it was inferred that both approaches, while producing significant results in skill development and significant or near-significant results in attitude change, the differences between them were not significant and it could not be said that one approach was superior to the other. Therefore, on the basis of the Seymour sample, the null hypotheses could not be rejected.

**COMPARISON BETWEEN THE TWO SAMPLES**

In comparing the two samples, the differences that existed between them must be kept in mind. Also to be kept in mind is the fact that these differences were part of the design of the study.

The Coquitlam sample was composed entirely of children of Canadian descent drawn from a middle-to-high socio-economic area. The swimming pool was in close proximity to the children's homes and schools and part of a very popular recreation complex. In addition, the children began the lessons with a reasonably high skill level.
The Seymour sample was drawn from a low socio-economic area and was composed largely of children of Chinese descent. There was no pool in the community and very few recreation facilities. The children began their lessons with a very low skill level.

Because of these differences between the two samples, the most meaningful comparison was the difference between net score means. Table 14 presents the results of the analysis of variance of this comparison. No significant differences occurred on any of the items in regard to skill development. Stated positively, this means that the two districts showed the same amount of improvement ($p = 0.9457$) and that the two teaching approaches produced the same amount of improvement ($p = 0.9745$). There was also no interaction between the districts and the approaches ($p = 0.5211$). For attitude change, the same results were repeated: the two districts showed the same amount of improvement ($p = 0.1998$) and the two teaching approaches produced the same amount of improvement ($p = 0.3130$). Therefore, on the basis of the comparison of net score means, the null hypotheses could not be rejected.

**SUMMARY STATEMENT**

The purpose of this chapter was to examine the changes that had occurred within and between the Coquitlam and Seymour
### TABLE 14

Analysis of Variance of Net Score Means of Coquitlam and Seymour Samples

<table>
<thead>
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<th>M.S.</th>
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<th>P</th>
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</thead>
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<td>District</td>
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<td>0.055</td>
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<td>0.9457</td>
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<tr>
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<td>0.011</td>
<td>0.0099</td>
<td>0.9745</td>
</tr>
<tr>
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<td>6.460</td>
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<td>0.5211</td>
</tr>
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<td>Error</td>
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</table>

### ATTITUDE

<table>
<thead>
<tr>
<th>Source of Variance</th>
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<th>M.S.</th>
<th>F-Ratio</th>
<th>P</th>
</tr>
</thead>
<tbody>
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</tr>
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samples. In each case the results were the same. The null hypothesis that there is no significant difference in skill development between a movement education and a traditional approach to teaching beginning swimming could not be rejected. Likewise, the null hypothesis that there is no significant difference in the change of attitude toward swimming and water between a movement education and a traditional approach to teaching the activity could not be rejected. In Chapter Five conclusions and recommendations resulting from these findings are presented.
Chapter 5
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The purpose of this study was to compare the effectiveness of a movement education approach with a traditional approach in the teaching of swimming to beginners at the Grade Three level. Specifically, comparisons were made in skill development and attitudes toward swimming and the water. In this regard, a review of the literature and interviews with people actively involved in swimming instruction did not produce evidence of evaluative instruments suitable to the study. Two tests were therefore constructed with reliability and validity established for each.

The two samples used in the study were subjected to the same controls. For both samples, the same data was collected using the instruments constructed for this study. The reliability coefficient of the final form of both instruments was high enough to be significant beyond the .01 level. The validity of the instruments was established according to accepted procedure. The results for both samples were analyzed separately with only a single comparison being made between samples, namely the differences between net score means. Analysis of data was carried out at the Simon Fraser University Computing Center with the following data format being used:
CONCLUSIONS

With due regard to the procedures followed and the limitations imposed on the study, the following conclusions seem justified:

1. A valid and reliable skill test to measure skill development of Grade Three children eight to ten years old was developed. With it, it was possible to measure the progress of each sample from pre-test to post-test.

2. There is a wide range in the skill level of Grade Three children entering an instructional swimming program for beginners. This was illustrated by the pre-test findings which showed a number of children unable to pass a single item and others capable of passing all of them.

3. There is no significant difference between a movement education and a traditional approach to teaching beginning swimming in regard to skill development. This was true for both samples. Both approaches are capable of producing significant results when handled by capable individuals familiar with the given approach. The fact that the traditional approach can and has been effective in teaching millions of youngsters and adults to swim is indisputable.
The findings show that the movement education approach can be equally as effective. On this basis, it was further concluded that the movement education approach warrants attention as a viable means of teaching children to swim.

4. A valid and reliable attitude scale to measure attitudes of eight to ten year old Grade Three students towards swimming and water was developed.

5. There is no significant difference between a movement education and a traditional approach to teaching beginning swimming to Third Grade children in regard to their attitudes towards swimming and water. The majority of the Grade Three children had a very favorable attitude towards swimming and water before beginning instruction, and in almost every case it became significantly more favorable after instruction. Although the findings are somewhat inconclusive, both approaches seem to be capable of producing significant and positive changes in children's attitudes toward swimming and water.

6. The influence of the instructor in the results obtained was minor and can be discounted. Therefore the results observed were likely those resulting from the approaches employed.
RECOMMENDATIONS

1. It is recommended that further research be conducted to develop a variety of attitude and skill testing instruments suitable for this age group.

2. It is recommended that further research be conducted regarding methods of instruction which produce the most favorable results in relation to elementary school children of other ages and grade levels; promote social growth; develop motor fitness; and overcome fear of the water.

3. Further research should be conducted to determine the reasons for the favorable or unfavorable attitude of beginning swimmers toward swimming and water.

4. Inasmuch as the present research was confined to swimming, it is recommended that findings be supplemented by information on other aspects of the elementary school curriculum, namely: games, gymnastics, and dance.
BIBLIOGRAPHY


APPENDIX A

LESSON PLANS

FOR

MOVEMENT EDUCATION APPROACH
Free Practice Before Lesson Starts

This is a "bonus" time for the children who change quickly and wish to enter the water. The child is allowed to practice any previously learned movement pattern or to experiment with small equipment such as balls, hoops, flutter boards, etc. During this time, the teacher has an opportunity to talk with the children and provide assistance or encouragement wherever he finds it necessary. As a general rule, this part of the lesson should be approximately 3 - 4 minutes long, or until all children are on deck. Create a few clear-cut rules regarding use of this time - for example: practice should be restricted to individual skills; horseplay will not be tolerated; instructor and lifeguard must both be on deck before the child may enter the water; etc.

Introductory Activity

Activities in this part of the lesson may be: independent practice using small equipment (balls, hoops, flutter boards, etc.); independent practice on material of the last lesson; or teacher-directed activities where the teacher sets tasks that introduce the theme. It should be an active period, emphasize individual work, and last for a maximum of 5 minutes. The introductory activity should not be devoid of skill or thoughtfulness. It is as important to "coach", stimulate, and "refine" the performance of this part of the lesson as it is in the main part of the lesson.

Movement Training

This is the part of the lesson where the children gain skill. A vocabulary of movement is developed. Activities are largely individual in nature. These activities would all relate to a theme or central movement idea. Each theme will be covered at a different rate depending upon the individuals in the class. One theme may take part of a lesson to develop, whereas another theme may take two, three, or more lessons.

*Glenn Kirchner, Jean Cunningham and Eileen Warrell, Introduction to Movement Education (Dubuque: Wm. C. Brown, 1970).
As children become more skilful, the time allotted to this part of the lesson is shortened. Some rules to bear in mind are: teach one aspect of your theme and let them explore possible variations; explorations will be aided by phrases such as "Can you show me...," "Is it possible to...," "How many different ways...," etc: after presenting a task, allow sufficient time for the children to think about it and work out their ideas.

**Final Activity**

In this part of the lesson, the movement activities developed are put to practice in game situations that relate to the theme. This period will frequently include partner and group work and the use of small apparatus. It receives a brief portion of time in the beginning stages but as the child gains more skill, it becomes longer.

*Department of Education, Alberta, Elementary Physical Education (Edmonton: L.S. Wall, 1969).*
Movement Education Approach

Overview of Themes and Skills

A. Orientation

1. Buoyancy
2. Propulsion
3. Relative Temperature
4. Chlorine and Chemicals
5. Pool Regulations and Courtesy
6. Physical Understandings
7. Psychological Understandings

B. Adaptation to Water

1. Getting into water
   - entering the water without splashing
   - water entries: jumping, flying, turning, sliding, etc.
2. Balance and Stability
   - bouncing, walking, running, etc.
   - individual, partner, and group work
3. Underwater Adjustment
   - face in water
   - open eyes under water
   - submerging

C. Breath Control

1. Blow Bubbles
   - through mouth, nose, mouth and nose
   - water in cupped hands
   - face in water
2. Bob and Breathe
   - individually and with partner
   - different ways

D. Buoyancy

1. Develop Various Shapes
   - feet on the bottom
   - body in and out of water
   - wide, long and narrow, twisted, round
   - different parts high
2. Develop Floats in Various Shapes
   - feet off the bottom
   - on top and under the water
   - wide, long and narrow, twisted, round
   - different parts high
   - recovery from floating positions
   - changing from one shape to another

E. Propulsion and Body Position

1. Gliding
   - pushing off of wall, off of bottom
   - on different body parts
2. Using Arm and Leg Action
   - glide with propulsion: arms only, legs only, both
   - on side, back, front
   - while changing position from back to front, etc.
   - on top of water, under water

F. Adaptation to Deep Water

1. Adjustment to Deep Water
   - entering safely
2. Buoyancy
   - making shapes while holding onto edge, pole, etc.
   - float while in different shapes
3. Propulsion
   - on front, back, side
   - kick, arm action, breathing
4. Jumping Into Deep Water
   - holding onto pole, unassisted
   - feet first, different parts leading
   - followed by swim
5. Keep Afloat
   - swim in place, tread, drownproof, float
Lesson #1

<table>
<thead>
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<th>Topic:</th>
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<tr>
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<td>Movement Education</td>
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<tr>
<td>Theme:</td>
<td>Adjustment to Water</td>
</tr>
<tr>
<td>Materials:</td>
<td>Hoops, canes, balls</td>
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</table>

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
</table>

**INTRODUCTORY ACTIVITIES (3 - 5 minutes)**

Welcome, attendance, important rules of pool, routines, etc. Instructor and children on pool deck.

After welcoming the children and checking attendance, discuss those procedures that are to be followed.

**MOVEMENT TRAINING (12 - 15 minutes)**

Adjustment to Water

1. Getting Into the Water.

Children sitting on pool edge initially, then standing or kneeling. Unhurried experience in which child gets used to the temperature of the water and getting into the pool.

Limitation:

- How many different parts of your body can you rub with H₂O?
- Can you find a way of washing your stomach without using your hands?
- Show me a way to slide safely into the water feet first.
- Try to enter the water so that only one foot gets wet.
- Who can enter the water feet first without making a splash?
- Making just a little splash?
- How many different ways can you enter the water so that your back...stomach...side is closest to the edge of the pool?
Activity and Class Organization

Suggested Methods and Possible Commands

*How can you enter...get out of...the water using a partner to help you?  
*Can you and your partner be like a mirror and do exactly the same things to get into and out of the water?  
*How slowly can you enter the water?...How fast?

Limitation:  
- Show me a way of balancing on two feet, on one foot, on one toe. What part of you is closest to the ceiling?  
- See if you can make a shape that takes up a lot of space...that is very small.  
- See if you can balance with just your face out of the water.  
- Is it possible to walk in the water on your tip toes?...on the outside of your feet?...on the inside of your feet?  
- Try to take giant steps.  
- Show me a way of running in the water.  
- Can you bounce on one foot?...one foot and then the other?...two feet?  
- Who can move the farthest while they bounce?  
- Discover a way to enter the water feet first, move through the water on your feet, and finish in a balance.  
- Practice for a minute and then I want to see what you have done.  
*Can you balance on one foot inside your hoop?  
*How many times can you run around your hoop before I say STOP?

Adjustment to Water  
2. Balance and Stability. Children scattered in shallow water. Stationary activities initially then on the move. Activities to include those in which student gets used to loss of equilibrium in the water and its effect on body buoyancy.
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
</table>
| *Is it possible to move a ball in the water without using your hands?*  
*Play a game of follow-the-leader showing me different ways of moving...of balancing. Each time I clap my hands the other person becomes leader.*  
3. Underwater Adjustment Activities to include Limitation:  
those in which student gets used to the effect of water on the eyes, ears, nose, and mouth.  
- Show me a way of washing your face with: one hand, other hand, two hands, back of hands, no hands.  
- How softly can you put your face in the water?  
- Can you put your head completely under water?  
- Try to submerge slowly and come up quickly.  
- How many different ways can you find of submerging yourself?  
- Can you gently place your face in water and open your eyes to see your toes?...to see the lifeguard's pet goldfish?  
- Can you open one eye?...both eyes?  
- Can you wink? blink?  
*Who can see their partner smile under water?  
*Can you count your partners fingers?  
*Can you find and pick the puck up off the pool bottom?  
*Try to duck under the water and come up inside your hoop.  
*Can you come up head first, hands first, elbow first?  
*Can you tell what color of button your partner has in his hand?
## Activity and Class Organization

### FINAL ACTIVITY (5 - 10 minutes)

<table>
<thead>
<tr>
<th>Activity</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Games relating to theme</td>
<td>Direct:</td>
</tr>
<tr>
<td>of lesson.</td>
<td>*Play in two's. Tag only your partner.</td>
</tr>
<tr>
<td>*Partner tag.</td>
<td>*Same but if you submerge, your partner can't touch you until he counts to 10.</td>
</tr>
<tr>
<td>*Turtle tag.</td>
<td>*Red=stop; yellow=go slow; green=go fast.</td>
</tr>
<tr>
<td>*Red light, Yellow light,</td>
<td>*Use any small equipment you wish.</td>
</tr>
<tr>
<td>Green light.</td>
<td></td>
</tr>
<tr>
<td>*Children make up a game.</td>
<td></td>
</tr>
</tbody>
</table>
Lesson #2

Topic: Swimming - Grade Three Pre-Beginners

Approach: Movement Education

Theme: Adjustment to Water, Part II

Materials: Hoops

Relationship to Previous Lesson:
Continues and extends work of lesson one.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>FREE TIME (1 - 3 minutes)</td>
<td></td>
</tr>
</tbody>
</table>
| Unhurried practice and experimentation in the water. Children work individually on activities which may include small equipment. | Indirect:  
- Show me what you can do in the water. Use some of this equipment if you wish. |
| INTRODUCTORY ACTIVITIES (3 - 5 minutes) |                                    |
| Practice of skills from lesson one. Individual or partner work (if covered previously). | Limitation:  
- Show me 3 ways of entering the water without making a splash...making just a little splash.  
- How many parts of your body can you touch the bottom of the pool with? (individually and at the same time). |
Activity and Class Organization

Suggested Methods and Possible Commands

- See if you can run, following a curvy pathway, without bumping into anyone! ... following a zig-zag pathway!

MOBEMENT TRAINING (12 - 15 minutes)

1. Getting Into the Water
Children spread out along pool edge working independently of each other. Entries from standing, kneeling, lying position. Combine with body-part leading and shape.

Limitation:
- How many different ways can you find to enter the water from a standing position on the deck? What part of the body enters first?
- How can you enter the water while lying on your stomach on the deck?
- Is it possible to enter the water seat-first?...hands first?...etc.
- Can you fly...twist...into the water?
- Can you enter the water in a long-narrow shape?...in a round shape?
- Can you jump into your hoop from the pool deck? How else can you get into it? Can you jump over it? See if you can enter the water and come up inside of...go right under...your hoop. How far away can you place your hoop and still jump into it?...come up inside it? How high can you jump into the air when entering your hoop?

Further exploration of ways to get into the water - hoops or tubes to add variety - combine with distance and height.

*Diving - stress on those activities designed to encourage a head-first entry into the water. Equipment may be used if desired.

*Can you get into the water so that your feet are the last things to get wet? Can you be in a long narrow shape? Etc.
| Activity and Class Organization | Suggested Methods and Possible Commands |
|--------------------------------|
| Children scattered in shallow water working in their own space. |
| 2. Balance and Stability Activities to include balancing on feet, hands, feet and hands, and other body parts - combine with shapes. |
| *With equipment - use equipment to further develop balance and stability in the water - stationary and on the move. |
| *With partner - working with partner in shallow water to further develop balance and stability. |
| 3. Underwater Adjustment *Working with partner in shallow water playing games involving ducking under the water. |

- Who can balance on one foot and be in a twisted shape? ...round shape?...wide shape? Try to balance so that one foot and one hand...two hands and one foot...are touching bottom. See if you can put both hands on the bottom and lift your feet up. Are you able to lie down on the bottom? *Show me a shape inside your hoop...while holding onto your hoop. Holding onto your hoop in some way, let me see you travel in the water. Show me another way of doing it. *Show me a shape with your partner so that both of you are in a wide shape. Can you and your partner make a shape under water? *Heads or Tails: drop pennies in the water for your partner who then tries to see if it's heads or tails. *Speak to your partner under water. What did he say? *Hum a tune under water. Can you hear it? Well, hum along with him then. *Clap your hands under water. Stamp your feet. Can you hear it, partner?
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FINAL ACTIVITIES</strong></td>
<td></td>
</tr>
<tr>
<td>Games or simple contests</td>
<td>Direct:</td>
</tr>
<tr>
<td>relating to theme of lesson.</td>
<td>*What time is it Mr. Wolf?</td>
</tr>
<tr>
<td>*Mr. Wolf</td>
<td>Time to bounce on one foot...</td>
</tr>
<tr>
<td></td>
<td>turn around and around...</td>
</tr>
<tr>
<td></td>
<td>duck under the water...etc.</td>
</tr>
<tr>
<td></td>
<td>SWIMMING TIME!!!</td>
</tr>
<tr>
<td></td>
<td>*Big A, little a, bouncing B,</td>
</tr>
<tr>
<td></td>
<td>cat's in the cupboard but he</td>
</tr>
<tr>
<td></td>
<td>can't catch me. Cat (when ready): Yes, I</td>
</tr>
<tr>
<td></td>
<td>can!!!</td>
</tr>
<tr>
<td></td>
<td>*Travel around hoops and</td>
</tr>
<tr>
<td></td>
<td>when I clap my hands, everybody into a</td>
</tr>
<tr>
<td></td>
<td>hoop as quickly as they can.</td>
</tr>
<tr>
<td>*Big A, Little A, Bouncing B</td>
<td></td>
</tr>
<tr>
<td>*Musical hoops</td>
<td></td>
</tr>
</tbody>
</table>
Lesson #3

Topic: Swimming - Grade Three Pre-Beginners

Approach: Movement Education

Theme: Breath Control

Materials: Hoops or tubes

Relationship to Previous Lesson:
Introduces breathing technique to activities performed in earlier lessons.

Activity and Class Organization | Suggested Methods and Possible Commands
--- | ---

**FREE TIME (1 - 3 minutes)**

Individual exploration in shallow end. Children work independently; equipment, as set out by instructor, may be used. | Indirect: - Work in your own space. What can you do in the water? Let me see everybody busy.

**INTRODUCTORY ACTIVITIES (3 - 5 minutes)**

Independent practice on material of last lesson. Individual or partner work; teacher-directed activities to include balancing, getting into the water, and underwater work. | Limitation: - Show me some of the ways of using your hoop to help you balance or get into the water. - What else can you do with your hoop? - How can you and your partner use your hoop underwater? Show me a way of using it one at a time and then together.
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>MOVEMENT TRAINING (12 - 15 minutes)</td>
<td></td>
</tr>
</tbody>
</table>

Breath Control. Children spread out in shallow water and work in their own space; include partner work.

1. Breath holding - activities to include submerging and holding breath for varying lengths of time. Contests involving self, group, and partner will also be used.

2. Blowing bubbles - activities to include breathing through mouth, nose, mouth and nose, face down, face to side, face up.

Limitation and Direct:
- Can you take a breath, submerge, and hold it while you are under water?
- This time, while you're under, count slowly as high as you can. See if you can beat your own record the second time you try it. Count the same as last time. How many beat their record? ...tied it? ...did better the first time.
- Who can be the last one to come up for air in this group? Whoever is the person is the one we're going to try and beat next time.
- Work with a partner now. Who can stay down longer? Can you go under before your partner counts to 3 after he comes up? Take turns.
- Scoop up some water in your hands. Can you blow it out through your mouth?... nose?...mouth and nose?... side of your mouth?...etc.
- Place your face in the water. Can you blow bubbles? See if you can blow little ones...medium ones...giant ones.
- Who can blow them so that they'll go into your right ear?...left ear?...under your chin.
- Can you blow them down to the bottom of the pool?
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Bobbing and breathing - individual and partner activities to include various speeds, ways of submerging, and ways of breathing.</td>
<td></td>
</tr>
<tr>
<td>- Try to look up at the ceiling while you're under water and blow them.</td>
<td></td>
</tr>
<tr>
<td>- How many times can you bob and breathe before I say STOP?</td>
<td></td>
</tr>
<tr>
<td>- How slowly can you go under, breathe out, and come up?</td>
<td></td>
</tr>
<tr>
<td>- How many can take a breath, blow it out under water, but be in a new place when they come up?</td>
<td></td>
</tr>
<tr>
<td>- Show me a way of bobbing and breathing so that you turn your head rather than lift it to take your breath.</td>
<td></td>
</tr>
</tbody>
</table>

**FINAL ACTIVITIES (5 - 10 minutes)**

Games or simple competitions relating to theme of breath control. Activities in which the individual competes against the group.

*In and Out of Hoops

*Mr. Wolf - as previously played but with activities from this lesson added.

Direct:

- Who can be the first to duck in and out of their hoop 5 times?

- Time to bob and breathe two times...blow bubbles under your arm...etc.
Lesson #4

Topic: Swimming - Grade Three Pre-Beginners

Approach: Movement Education

Theme: Buoyancy: Adaptation to Deep Water (Introduction)

Materials: Hoops, flutterboards, masks and snorkels, reaching pole.

Relationship to Previous Lesson:

Introduces floating techniques to previous skills.

Activity and Class Organization

<table>
<thead>
<tr>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
</table>

FREE TIME (1 - 3 minutes)

Individual practice of skills in the shallow water. Children work independently with instructor providing assistance or encouragement wherever necessary.

Indirect:

- Practice some of the things you've learned in your previous lessons.

INTRODUCTORY ACTIVITIES (3 - 5 minutes)

Practice of teacher-directed activities from previous lessons. Individual and partner work with activities to include breath control and selected aspects of first two lessons.

Limitation:

- Take a breath, submerge your body, and then show me one part of you sticking out of the water while the rest of you is under.
- Show me a different part out of the water.
- How many times can you bob
Activity and Class Organization

MOVEMENT TRAINING (10 – 12 minutes)

1. Buoyancy
   Independent practice followed by partner work with children working in their own space.

2. Developing various shapes – activities to include exploration of long narrow, wide, round, and twisted shapes.

3. Floating in various shapes – exploring various floating positions and various methods of recovering from them.

4. Introduction to Deep Water.
   Individual or small group practice of previously learned shallow water skills.

Suggested Methods and Possible Commands

and breathe while turning around and around?

Indirect and limitation:
- Show me a shape.
- Show me another shape.
- Show me a shape that is long and narrow...round...twisted...wide.
- Can you make a shape under water?

Limitation:
- Make a shape with your feet off the bottom but finish with both feet firmly on the bottom of the pool.
- Can you float one of your shapes?...another one? Finish by standing up each time.
- Can you float in a twisted shape?...long shape?...wide shape?...streamlined shape?
- Can you make a shape on your back and recover?...on your front?
- With a partner, one of you make a shape and then your partner copy it.
- Make a shape while holding onto a hoop...flutter board.
- Change from one shape to another and then recover.

Direct and limitation:
- Show me a safe way of entering the water by climbing down the ladder, holding onto the pole, or holding onto the edge of the pool.
<table>
<thead>
<tr>
<th>Activity and Class</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organization</td>
<td>- Can you enter and submerge entering safely and breath control. Keep initial exposure brief and maintain close supervision at all times. Use the corners of the pool. Use a pole as a teaching aid.</td>
</tr>
<tr>
<td></td>
<td>- Try to bob and breathe while still holding onto the ___</td>
</tr>
</tbody>
</table>

**FINAL ACTIVITIES (10 - 15 minutes)**

Games, competitions, or further activities relating to buoyancy. Activities involving individual, partners, and group work.

*Mr. Wolf - as previously played but with activities from this lesson added.

*Float with aid of mask and/or snorkel.

Direct:

*Time to float in a shape like a ball...float with your back to the ceiling, etc.

*Let's see if we can make some of these floats while wearing a mask and/or snorkel.
Lesson #5

**Topic:** Swimming - Grade Three Pre-Beginners

**Approach:** Movement Education

**Theme:** Buoyancy (continued) Deep Water Work (continued)

**Materials:** Hoops, reaching pole

**Relationship to Previous Lesson:** Continuation and extension of Lesson #4.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FREE TIME (1 - 3 minutes)</strong></td>
<td>Indirect:</td>
</tr>
<tr>
<td>Individual practice and</td>
<td>- Everybody busy by themselves</td>
</tr>
<tr>
<td>experimentation in shallow water.</td>
<td>practicing some of the things</td>
</tr>
<tr>
<td>Children work independently with</td>
<td>you've learned so far.</td>
</tr>
<tr>
<td>or without small equipment.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</strong></th>
<th>Limitation:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practice of teacher-directed activities from</td>
<td>- Show me three different ways</td>
</tr>
<tr>
<td>previous lesson. Individual and/or partner</td>
<td>of floating on your back (or</td>
</tr>
<tr>
<td>work with activities to include developing</td>
<td>front or side).</td>
</tr>
<tr>
<td>and floating various shapes.</td>
<td>- Can you float in three different</td>
</tr>
<tr>
<td></td>
<td>ways in a long, narrow shape? (a wide</td>
</tr>
<tr>
<td></td>
<td>shape or round shape or twisted shape).</td>
</tr>
<tr>
<td></td>
<td>- Make a shape in the water</td>
</tr>
<tr>
<td></td>
<td>while holding onto the hoop with your</td>
</tr>
<tr>
<td></td>
<td>hands...your feet...with the hoop around</td>
</tr>
<tr>
<td></td>
<td>your middle...while lying on the hoop.</td>
</tr>
</tbody>
</table>
Activity and Class Organization

Suggested Methods and Possible Commands

MOVEMENT TRAINING (10 - 12 minutes)

1. Buoyancy
Organization as before.
Activities, while depending on what was covered in previous lesson, will include a continuation of developing shapes and floating in various shapes, and increasing time child can remain in a floating position.

2. Deep Water Work
Organizational details as before.
Activities to include making various shapes.
Slightly longer period than first time.

Limitation:
- Can you float with your back...stomach...side...arm...foot...etc. closest to the ceiling?
- What shape can you be in while you do it?
- How long can you float on your stomach...back?
- See if you beat your record...your partner's record...the class record.
- How many different shapes can you make while floating?

Limitation and direct:
- Take a deep breath, (holding on), duck under and make a shape.
- Can you make a long, narrow shape?...round shape?...twisted shape?...wide shape?
- Can you be on your stomach...back...side...and make a shape.
- Change from a shape from on your front, to a shape on your back.
- Try to make a shape inside the hoop held by your partner.

FINAL ACTIVITIES (10 - 15 minutes)

Games, competitions, or activities that further increase skill in floating.
Activities involving individual, partner, and/or group work.

Direct and limitation:
*In two's, partner makes a floating shape (or series of shapes) and other partner then tries to do the same.

*Follow the leader
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Donkey (Horse, etc.)</strong> can be played using any word the child can spell.</td>
<td><em>Same idea as above but take turns being leader and each time they cannot copy their partner, they get a letter of the word DONKEY until one of them has all the letters.</em></td>
</tr>
</tbody>
</table>
Lesson #6

Topic: Swimming - Grade Three Pre-Beginners

Approach: Movement Education

Theme: Propulsion; Deep Water Work

Materials: Flutterboards, hoops, pole

Relationship to Previous Lesson:
Child begins to move the shapes previously developed.

Activity and Class Organization | Suggested Methods and Possible Commands
--- | ---

FREE TIME (1 - 3 minutes)

Independent practice of any previously learned movement pattern. Children work individually with instructor providing assistance or encouragement.

Indirect:
- Practice some of the things you've learned so far.

INTRODUCTORY ACTIVITIES (3 - 5 minutes)

Teacher - directed practice of activities from previous lesson. Individual and/or partner work covering buoyancy.

Limitation:
- Can you float while holding onto a flutter board?
- Hold the board in some other way and be on a different part of your body while you're floating.
- Can you float in a shape that looks like a letter? Partner try to guess what letter it is.
Activity and Class Organization | Suggested Methods and Possible Commands
--- | ---

**MOVEMENT TRAINING (10 - 12 minutes)**

1. **Propulsion**
   - Children working individually on activities designed to propel shapes through the water with the arms, legs, or both the arms and legs simultaneously. Stress particular stroke form only after children have had sufficient experience in the water.
   - **Limitation:**
     - How far can you glide on your front?...on your back?
     - Can you glide in a long narrow shape on your front?...on your back?
     - How far can you go using your arms and legs to help you? Try to beat your own record each time.
     - Holding onto a hoop or flutter board show different ways of moving your legs...your arms.
     - Make any shape and then try to make it move through the water by using your hands...your legs...both your hands and legs...with your face in...face out...of the water.

2. **Deep Water Work**
   - Individual, partner, or small group practice around corner of deep end.
   - Activities to include assisted and unassisted floating.
   - **Limitation:**
     - Hold onto the edge of the pool...the ladder...reaching pole...hoop held by partner lying down on deck...and make a shape like a ball...pencil...star...corkscrew...on your front...on your back.
     - How long can you float each position?
     - Which shape can you float for the longest?
     - Can you float while holding on with only one hand?
     - See if you can float a shape and then let go and still float. Try to float longer the second time.

**FINAL ACTIVITIES (10 - 15 minutes)**

Games, competitions, or further activities relating to propulsion.
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Activities involving individual, partner, and group work.</td>
<td>Direct:</td>
</tr>
<tr>
<td>*Hill Dill (Tag game)</td>
<td>*The person cannot tag you while you are swimming. You cannot start until he says &quot;Hill Dill come over the hill, or else I'll catch you standing still.&quot; Etc.</td>
</tr>
<tr>
<td>Children stand in a line facing &quot;it&quot; and try to get past him to second line without being tagged.</td>
<td>*You cannot tag your partner while he is swimming. If you're tagged, you switch lines with your partner. Remember the name of the line you're in. Etc.</td>
</tr>
<tr>
<td>*Crusts and crumbs (tag game) - children stand back to back in two lines four feet apart, one line the &quot;crusts&quot; - the other the &quot;crumbs&quot;.</td>
<td></td>
</tr>
<tr>
<td>Instructor calls out either one who then tries to tag his partner in the other line before he reaches the safety zone.</td>
<td></td>
</tr>
</tbody>
</table>
Lesson #7

Topic: Swimming - Grade Three Pre-Beginners

Approach: Movement Education

Theme: Propulsion; Deep Water Work

Materials: Hoops, flutterboards, pole

Relationship to Previous Lesson:
Continues and extends propulsion and deep water work.

Activity and Class Organization | Suggested Methods and Possible Commands
--- | ---
FREE TIME (1 - 3 minutes) | Indirect:
Individual practice of skills learned so far. | - Work by yourself in the shallow water, practicing anything you've learned.
Individual activities with or without equipment. |

INTRODUCTORY ACTIVITIES (3 - 5 minutes) | Limitation:
Teacher-directed activities relating to propulsion skills previously covered. | - Pull your partner in a round...wide...long, narrow...twisted...shape. Which is the easiest?
Individual and/or partner work with activities to include gliding on front and back and propelling various | - How many glides will it take you to reach the second black line? Try to do it in one less the second time.
- Show me two different ways of moving your legs...your arms...while on your front...back.
Activity and Class Organization

Suggested Methods and Possible Commands

MOVEMENT TRAINING (8 - 10 minutes)

1. Propulsion
Organization and activities as before.
This lesson simply extends the work of the previous one.

| Limitation: |
| Make a float with your stomach back...facing the ceiling and then make it move by kicking your legs...moving your arms... moving your arms and legs at the same time. |
| What other ways can you find of moving your legs...arms... legs and arms at the same time? |
| Try to move your body while changing position from front to back and back to front. |
| Can you move your arms and legs in the same way?...in different ways? |

2. Deep Water Work
Organization as before.
Activities to include gliding and arm and leg action. Working in corner of pool or along edge, child pushes off and travels the short distance to the other side or to the instructor's pole. Distance travelled will be steadily increased.

| Limitation: |
| Push off from the side of the pool and glide on your stomach (face in, face out) to the other side (to the pole). |
| This time, kick your legs... move your arms and kick your legs at the same time. |
| Try to take one...two... breath(s) as you swim. |
| Use a flutterboard to practice. |

FINAL ACTIVITIES (15 - 20 minutes)

Games, competitions, or further activities relating to themes of lesson.
Children working individually, with a partner, or in groups as it best suits the activity.
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Jumps into deep water holding onto the pole.</td>
<td>Direct and limitation: - Hold onto the pole until you're above water again, then take a breath and back to the edge.</td>
</tr>
<tr>
<td>*Swim under partner's legs or through hoop held under water (shallow end).</td>
<td>*Can you swim under your partner's legs?...through the hoop? How can you do it?</td>
</tr>
<tr>
<td>*Swim under water</td>
<td>*See if you can swim under water.</td>
</tr>
</tbody>
</table>
Lesson #8

**Topic:** Swimming - Grade Three Pre-Beginners

**Approach:** Movement Education

**Theme:** Propulsion; Deep Water Work

**Materials:** Five cloth strips, pole

**Relationship to Previous Lesson:**
Develops still further propulsion and deep water work.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FREE TIME (1 - 3 minutes)</strong></td>
<td></td>
</tr>
<tr>
<td>Individual practice of skills</td>
<td>Indirect:</td>
</tr>
<tr>
<td>learned to date.</td>
<td>- Let me see some of the things you can do in the water.</td>
</tr>
<tr>
<td>Children allowed to work on</td>
<td></td>
</tr>
<tr>
<td>their own and activities of</td>
<td></td>
</tr>
<tr>
<td>their own choosing.</td>
<td></td>
</tr>
<tr>
<td><strong>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</strong></td>
<td></td>
</tr>
<tr>
<td>Teacher-directed practice of</td>
<td>Limitation:</td>
</tr>
<tr>
<td>propulsion skills from</td>
<td>- Show me 2 different ways of kicking your legs...moving your arms...while on your back...on your stomach.</td>
</tr>
<tr>
<td>previous 2 lessons.</td>
<td>- With which kick...arm action ...can you go the farthest?</td>
</tr>
<tr>
<td>Individual work with</td>
<td>- Make a float on your side and try to move it by kicking your legs...moving your arms...doing both.</td>
</tr>
<tr>
<td>activities to emphasize arm,</td>
<td></td>
</tr>
<tr>
<td>leg, and combined arm and leg</td>
<td></td>
</tr>
<tr>
<td>action.</td>
<td></td>
</tr>
</tbody>
</table>
Activity and Class Organization | Suggested Methods and Possible Commands
---|---
- Can you move your hands while on your back...stomach...so that they stay below the surface of the water?...so that they come out of the water some time?

**MOVEMENT TRAINING (8 - 10 minutes)**

1. Propulsion (shallow water)
   Organization and activities as in lessons 6 and 7. This lesson continues the work begun in the previous 2 lessons by giving attention to the refinement of various swimming strokes such as crawl, side, elementary back, etc.

2. Propulsion (deep water)
   Organization as before. As skill and confidence develop, larger numbers of children can be in the water at one time. Activities to focus on propulsion techniques already learned in shallow water.

   Limitation:
   - While on your stomach, can you move your arms so that your elbow points to the ceiling when you lift it out of the water?
   - Can you turn your head to the side, putting your ear in the water, to take your breath?
   - Try to let your knees bend slightly when you kick.
   - Etc., etc.
   - How far can you swim along the side of the pool without stopping?
   - Try to use some of the strokes we've just been practicing in the shallow water.
   - Which is your best stroke?
   - Can you begin swimming on your back and then roll over onto your stomach and keep going?
   - Show me how you can turn a corner...turn right around.

**FINAL ACTIVITY (15 - 20 minutes)**

Games, competitions, or further activities relating to themes of lesson.
Activity and Class Organization

<table>
<thead>
<tr>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
</table>

Children working as before by themselves, with a partner, or as a group.
- Jumping into deep water

Limitation and Direct:
- Jump into the water holding onto the pole, surface, level off, and swim. Can you go further next time?
- Jump into the corner of the deep end - without using the pole.
- Can you jump in so that your head does not go under?
- The only time you can catch a tiger by the tail is when he is standing on the bottom, so swim to prevent being caught.

*Catch a tiger by the tail
One partner tucks the end of a foot long piece of cloth into his trunks and tries to prevent his partner from getting it.
*Swim across the pool (shallow water)

*How many times did you touch bottom while swimming across the pool?
Lesson #9

**Topic:** Swimming - Grade Three Pre-Beginners  
**Approach:** Movement Education  
**Theme:** Deep Water Work  
**Materials:** hoops

**Relationship to Previous Lesson:**  
Adds treading to deep water skills already learned.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FREE TIME (1 - 3 minutes)</strong></td>
<td>Indirect:</td>
</tr>
<tr>
<td>Independent practice of water skills. Children work individually on whatever activities they choose.</td>
<td>- Practice some of the things you've learned so far.</td>
</tr>
<tr>
<td><strong>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</strong></td>
<td>Limitations:</td>
</tr>
<tr>
<td>Teacher-directed practice of propulsion skills. Individual or partner work. Activities to focus on refining the various swimming strokes the children have developed.</td>
<td>- Show me how you can swim on your stomach...on your back... using your arms and legs both. - This time try not to splash as you swim. - Can you breathe as you swim? Try it.</td>
</tr>
</tbody>
</table>
Activity and Class Organization | Suggested Methods and Possible Commands

MOVEMENT TRAINING (8 - 10 minutes)

Deep Water Work
Children working individually with instructor or with partner in corner or along side of pool. Activities to focus on jumping into the water (with and without pole) and keeping afloat partner?
- Jump into the water, surface, and then try to swim with your head out of the water and stay in one spot.
- Can you swim in place...float...inside a hoop held by your partner?
- How long can you stay up?
- Can you make it a longer time each time you try it?
- Can you jump into the water, come up inside your hoop and tread water inside it?

FINAL ACTIVITY (15 - 20 minutes)

Games, contests, and further activities relating to theme. Individual and partner work in the deep end. Activities to include "ducking under", turning corners, and more work on strokes and entering the water.

Limitation:
- Can you take a breath, duck under the hoop held by your partner on top of the water, and come up inside?
- Can you get out of it in the same way?
- Can you swim around a hoop held by your partner on the surface of the water?
- Can you do it in the other direction?
*How far can you jump?
*Can you enter the water in a way other than jumping?
*Enter the water and swim as far as you can with your best stroke.
Lesson #10

Topic: Swimming - Grade Three Pre-Beginners

Approach: Movement Education

Theme: Review of Lessons 1 - 9 or make-up time

Materials: Those of previous lessons

Relationship to Previous Lessons:

Brings together themes and skills in a final practice.

PART ONE (15 - 20 minutes)

Activities in this part of the lesson should include practice of individual skills and groups of skills. The attempt of the instructor, through his assistance and encouragement, will be to "coach", stimulate, and "refine" the performance of the children - just as he has done in the previous nine lessons. This lesson will continue to emphasize the problem-solving approach and provide for individual differences by offering a wide variety of movement tasks. This is not a pre-test but a time to help the child consolidate simple skills in the water.

PART TWO (10 - 15 minutes)

This part of the lesson will center around games, contests, and/or work with equipment with the intent being to offer a variety of activities in which the child can further put his newly-acquired skills to practice. Teacher or student-directed activities can be used.
APPENDIX B

LESSON PLANS

FOR

TRADITIONAL APPROACH
Introductory activities may include a warm-up drill, land drill, water safety skills, or on the odd occasion, a free swim. The warm-up period is not wholly a conditioning practice but is also of value in preparing the pupil for the water and for further skills. Water safety items may also be taught at this time.

New Skill and Stroke

This is the important part of the plan. The explanation, demonstration, and practice of the stroke or skill occurs at this time. A short review of the previous days work may also be included here.

The instructor should have his lesson well prepared so that his explanations and demonstrations are clear and concise.

Tapering Off Activities

This period of time may be used for recreational games and relays, water safety items, informal competition, stunts, or free swim. It should be meaningful.
activity that is provided.

The pupils should be called out of the water while they are still happily active and the class period should end on time.

Traditional Approach

Lesson Progression, Skills, and Strokes

Lesson #1 - Entering the Water
            Putting Face in Water
            Bobbing and Breathing

Lesson #2 - Opening Eyes Under Water
            Front Tow
            Recovery from Front

Lesson #3 - Front Float
            Front Glide
            Jelly-fish Float

Lesson #4 - Back Tow
            Recovery from Back
            Back Float (introduction)

Lesson #5 - Back Float
            Back Glide

Lesson #6 - Front Glide and Flutter Kick
            Back Glide and Flutter Kick
            Introduction to Deep Water

Lesson #7 - Dog Paddle (human stroke)
            Straight Arm Crawl
            Back Glide with Finning and Flutter Kick

Lesson #8 - Turning Around in the Water
            Rolling Over - Front to Back
            Rolling Over - Back to Front

Lesson #9 - Jump Into Deep Water
            Treading Water

Lesson #10 - Review
Lesson #1

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Entering the water; Putting faces in water; Bobbing and breathing.

Materials: None

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</td>
<td>After welcoming the children and taking attendance, discuss briefly some of the procedures that will be followed.</td>
</tr>
<tr>
<td>Welcome, attendance, important rules of pool, routines, etc.</td>
<td></td>
</tr>
<tr>
<td>Children sitting in semi-circle in front of instructor on pool deck.</td>
<td></td>
</tr>
</tbody>
</table>

NEW SKILLS AND STROKES (12 - 15 minutes)

1. Entering the water
   Proceed cautiously so as not to frighten children; keep activities simple; use "fun" activities.
   Direct:
   - Everyone sit on the edge of the pool with your feet dangling in the water.
   - Scoop up some water in your hand and rub it on the back of your neck, on your chest over your heart, and on your face.
   *Kick your legs in a flutter kick action. Make the water really bubble and boil.
   - Now holding onto the edge of the pool with both hands, lower yourself into the water until you're standing with both feet on the bottom.
2. Putting Face in Water and Submerging
Children standing in semi-circle in water facing pool edge.
Begin by submerging part of the face in hands full of water and proceed to submerging the whole head for varying lengths of time; encourage and praise those who succeed; some children may prefer to work in pairs.

3. Bobbing and Breathing
Children holding onto pool edge in the water facing the instructor on the deck.

- Walk over to the black line on the bottom of the pool there and turn around to face me. When I say 'go', see who can be the first back to the edge of the pool.
*Mary's the leader. Everybody follow her (like a big long snake) as she moves around in the water.
Direct:
- Cup your hands together, fill them up with water, and then simply place your face in it.
- Bend at your knees, and lower your body until your shoulders are under water...until half your head is under...until your whole head is under.
Now this time, see if you can keep your whole head under for a longer period of time.
*Take a big breath, put your hands on your legs, and then slide them down until your face is in the water and you are touching your toes.
Do it again and this time stay under for a longer period of time.
*Hold your partner's hands and one person submerge while the other watches. Take turns.
*All join hands in a big circle and sing as you walk around to the left: "Ring Around the Rosy, Pockets Full of Poseys, etc."
Direct:
- Take a big breath, bend your knees until you're right under the water, and then blow out your breath to make nice, big bubbles.
Activity and Class Organization

Review breath holding; practice action on land first; in chest deep water, attempt to establish rhythm; use partner activities.

Move children one large step backward away from edge so they cannot touch pool wall.

Suggested Methods and Possible Commands

- This time, see if you can do it two times without stopping. Remember now, blow out all your breath under water, only one breath when you come up, and then right back down again. Now try it three times, four times, five times.
- Let's try it again without holding onto the pool edge. Make it smooth now. Lots of bubbles.
*Now let's try the same thing in chest-deep water. Do exactly the same things as you did before.
*Join hands with a partner. One at a time, go down and blow out your breath and then when you come up, your partner must go down. Let's see which group is the best.

TAPERING OFF ACTIVITY (5 - 10 minutes)

Game - Tag

Direct:
- Let's finish with a game of tag. "John's It". As soon as you're touched, you're "It". Ready? Go!

*Tag Variations

Limitation:
*This time, ...
Lesson #2

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Opening Eyes Under Water; Front Tow; Recovery from Front

Materials: None

Relationship to Previous Lesson:
Continues progression begun in first lesson.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTRODUCTORY ACTIVITIES</strong> (3 - 5 minutes)</td>
<td></td>
</tr>
<tr>
<td>Review skills from Lesson #1</td>
<td>Direct: - Sit down on the edge of the pool like we did last time and let me see you kick your feet. (Refer to Lesson #1.)</td>
</tr>
<tr>
<td>Entering the water; putting face in water and submerging; bobbing and breathing.</td>
<td></td>
</tr>
</tbody>
</table>

**NEW SKILLS AND STROKES** (12 - 15 minutes)

1. Opening eyes under water
Children in straight line or circle formation in the water.
Break the skill down into small steps, guard against rubbing the eyes; introduce objects to pick up, maintain fun element.

Direct:
- Cup your hands just below the surface of the water, place your face in them, and open your eyes. When you come up, run your hands smartly over your face but do not rub your eyes.
- This time, without using your hands, bend at the waist and place your face in the water right up to your ears and open your eyes.
2. Front Tow  
Double straight line using partner system.  
Face may be kept out of water at first; gradually increase distance; encourage placing face in water for better body position. Demonstrate with a member of the class.

3. Recovery from Front  
Double straight line using partner system. Break the skill into small steps, teaching and practicing each step; have partner stand by to assist and observe; practice in chest or waist deep water. Demonstrate while children watch.

*Search for pennies.  
*Search for colored objects.  
Direct:  
- Hold onto your partner's hands and pull him a short distance through the water. Let your feet come off the bottom so you are on your stomach.  
- Now change with your partner.  
- This time, see if you can place your face in the water as you are being pulled.  
- One last try and this time see if you can go further than you did last time.  
Direct:  
- Try to stand up from the prone position. You must lift up your head, touch your knees to your chest, and sweep your hands back to your chest - all at the same time - then straighten your legs. Try it with your partner now.  
- Keep trying it until you can do it smoothly and easily.

TAPERING OFF ACTIVITIES (5 - 10 minutes)  
Games  
*Keep Away  
*London Bridge Is Falling Down  
*Bobbing Contest  
Direct:  
- Let's play a game to finish off this lesson...
Lesson #3

**Topic:** Swimming - Grade Three Pre-Beginners

**Approach:** Traditional

**Skills:** Front Float; Front Glide; Jelly-fish Float

**Materials:** Stout rope, flutter boards, water wings

**Relationship to Previous Lesson:**
Continues front skills and activities from previous lessons.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
</table>

**INTRODUCTORY ACTIVITIES (3 - 5 minutes)**

Review all skills learned in Lesson #2.
Opening eyes under water; front tow; recovery from front.

Direct:
- Bend at the waist, place your face in the water, and open your eyes. How many can see their toes? etc.
  (Refer to Lesson #2.)

**NEW SKILLS AND STROKES (12 - 15 minutes)**

1. Front float
Children along pool edge initially, then double straight line using partner system in deeper water.
Begin with shallow water float with hands on bottom or edge; teach the child to relax and hold his breath; maintain position

Direct:
- Hold onto the edge of the pool and stretch your legs out behind you, let your body float.
### Activity and Class Organization

as long as possible.
Demonstrate with student as partner.

### Suggested Methods and Possible Commands

- Now try it with your face in the water.
- Everybody get a partner and move out to the black line there.
- I want you to help your partner to float on his stomach by holding him like this (demonstration) and then gradually take your hands away. Stay close to help him up if he needs it.
- The other person try it now.
- See how long you can float before you have to come up for air. Make it longer every time.

**Direct:**
- Watch closely while I demonstrate.
- Now, all the #1's, place your feet together and crouch until the water is just over your shoulders.
- Extend your arms over your head, take a big breath, place your face in the water, and push-off gliding to your partner.
- Okay, #2's ready! Go!
- #1's ready again! Go!
- #2's, your turn. Go!

**Activity and Class Organization**

2. Front glide
Double straight line using partner system in chest deep water.
Emphasize crouch prior to push-off to establish glide position and prevent sinking; attention to head position is important, also; glide short distance.
Demonstrate, showing long glide.

3. Jelly-fish float
Double straight line using partner system in chest deep water.
Stress holding the breath.
Avoid jumping into position, bringing feet up to hands with head above surface, keeping head up, and pushing off bottom.

**Direct:**
- Feet shoulder width apart.
Take a deep breath and then slide your hands down your legs and grasp your ankles. Keep the legs straight and don't fall forward or backward.
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continue practice until position can be held for extended period of time. Demonstrate, showing partner's job prior to practice.</td>
<td>As your feet come off the bottom, your back will come out of the water. - Partners, make sure you help them back to their feet. - All the #1's first. - Now the #2's. - Keep practicing now until you can really hold it for a long time.</td>
</tr>
</tbody>
</table>

**TAPERING OFF ACTIVITIES (5 - 10 minutes)**

<table>
<thead>
<tr>
<th>Games</th>
<th>Direct:</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Floating Competition</td>
<td>- Let's play a game to finish off...</td>
</tr>
<tr>
<td>*Gliding Competition</td>
<td></td>
</tr>
<tr>
<td>*Tug O'War</td>
<td></td>
</tr>
</tbody>
</table>
Lesson #4

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Back Tow; Recovery from Back; Back Float (introduction)

Materials: 2 balls

Relationship to Previous Lesson:

Continues floating progressions begun in Lesson #3.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</td>
<td></td>
</tr>
<tr>
<td>Review skills learned in Lesson #3 Front float; front glide; jelly-fish float.</td>
<td>Direct: Everybody get your partner and practice floating on your stomach, etc. (refer to Lesson #3)</td>
</tr>
</tbody>
</table>

NEW SKILLS AND STROKES (12 - 15 minutes)

1. Back Tow
Children in double line using the partner system. Demonstrate the skill; children work with partner taking turns pulling each other; correct the floater's position on the back; do not let partners provide too much support; correct common errors as they occur.

Direct:
- Stand behind your partner, both facing me.
- All the people in front bend your knees and lean back. Partners, place one hand under their shoulders and one hand under their head.
- Pull them gently through the water.
- Change and let the other person try it.
Activity and Class Organization

2. Recovery from Back
Double straight line using partner system.
Break the skill into small steps, teaching and practicing one part at a time; have partner stand by to assist and observe; practice in waist to chest deep water. Explain and demonstrate the skill before beginning practice. Correct practice as necessary.

3. Back Float
Children along edge of pool initially, then double straight line using partner system. Review shallow water floating with hands on pool edge; stress holding the breath, keeping hips up, head well back, hands at side for balance. Explain and demonstrate the skill before children begin. Correct practice as necessary.

Suggested Methods and Possible Commands

- Keep practicing it until you can all do it.
- To stand up from the back float position, lift your head, draw your knees up to your chest, and use your hands to balance or push (all this done at the same time) then straighten your legs.
- All the number 1's try it first.
- Now the number 2's try it.
- Keep practicing until you can do it easily all by yourself.

Direct:
- Hold onto edge of pool and let your legs float up to the top of the water.
- Everybody get a partner and move out to the black line.
- You're going to help your partner float on his back by helping him like this (demonstrate). Remember, don't hold your partner up, just help him.
- Alright, first group try it.
- Now the other group.
- Keep trying it until you can do it easily together.

TAPERING OFF ACTIVITIES (5 - 10 minutes)

Games
*Ball relay - two straight lines, ball passed over head to person behind, last person runs it up to the front, continue until the first person is back in front.
*Variation of above - pass ball under legs, etc.

Direct:
*Line up in two lines, the person in front has the ball, ...etc.
*as above
Lesson #5

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Back float; Back glide.

Materials: 1 ball and hoop

Relationship to Previous Lesson:
Continues back float activities begun in previous lesson.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
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</thead>
<tbody>
<tr>
<td>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</td>
<td></td>
</tr>
</tbody>
</table>

Review of activities on back from previous lesson.
Double line using partner system.
Back tow and recovery from back.

Direct:
Everybody get a partner and get ready to practice the back tow. Remember the things we did last time... (refer to Lesson #4).

NEW SKILLS AND STROKES (12 - 15 minutes)

1. Back Float
(continued from Lesson #4)
Double straight line using partner system.
Review partner - assisted activities of last lesson. Then, gradually remove support until child is floating by himself.
Re-emphasize important points. Demonstrate and correct performance as needed.

Direct:
- Now, let's try it without your partner helping you. As soon as your partner is on his back, slowly take away your hands and let him float by himself.
Stay close by to help him if needed, though.
- First group ready? Try it now.
- Now the other group.
2. Back Glide
Double line using the partner system.
Can be done by pushing off side of pool or standing on bottom; stress keeping the head well back, hips up, and filling the lungs with air to maintain body position and keep the face above the water; gradually increase length of glide. Explain, demonstrate, practice, and correct.

- Keep practicing it until you can stay afloat by yourself for a long time.
Direct:
- Place your feet together, crouch down so your shoulders are just beneath the water, take a breath and hold it, rest back into the water and push off, gliding to your partner. The hands remain at the side. Watch as I demonstrate.
- Now, the first group try it. See if you can make it to your partner.
- Change and other try the same thing.
- This time, move farther apart so you have to glide further.

TAPERING OFF ACTIVITIES (5 - 10 minutes)
Games
*Pig in the Middle
*Water Basketball

Direct:
*Form a circle, John's in the middle. Pass the ball and try to keep it away from John, etc....
*Each team try to put the ball into the other team's hoop, etc....
# Lesson #6

**Topic:** Swimming - Grade Three Pre-Beginners  
**Approach:** Traditional  
**Skills:** Front glide and flutter kick; Back glide and flutter kick. Introduction to Deep Water  
**Materials:** 10 flutterboards  

**Relationship to Previous Lesson:**  
Addition of propulsion to front and back skills previously learned.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
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</thead>
<tbody>
<tr>
<td><strong>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</strong></td>
<td></td>
</tr>
</tbody>
</table>
| Review Lesson #5  
Work with partner as in previous lesson.  
Back float and back glide. | Direct:  
- Take turns practicing pushing off from side and gliding to your partner. Increase the distance each time. Etc.... (refer to Lesson #5). |
| **NEW SKILLS AND STROKES (12 - 15 minutes)** | |
| 1. Front glide with Flutter kick  
Individual at first, then double line using partners.  
Use land drill, side of pool, flutterboards, and then unassisted progression; keep activities relatively short; assist children by holding their | Direct:  
- Sit down on the deck, rest back on your elbows, and practice this alternate up and down leg action.  
Relax the leg, point the toe, keep it steady.  
- Everybody into the water now and hold onto the side. Do the kick exactly the same as before. |
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>ankles as needed; keep kick shallow and slow; explain, demonstrate, practice, and correct throughout.</td>
<td>- This time, hold onto the flutterboard like this and do the kick. Try to go further each time.</td>
</tr>
<tr>
<td></td>
<td>- Now, try it on your own. Remember to stretch out arms in front and keep your face in the water. See if you can make it all the way to your partner without stopping.</td>
</tr>
<tr>
<td></td>
<td>- As on front (see above).</td>
</tr>
<tr>
<td>2. Back glide with Flutter kick Teach and practice the flutter kick on the back using similar steps as on the front. One at a time using partner as a safety factor.</td>
<td>Direct:</td>
</tr>
<tr>
<td></td>
<td>- Take a big breath.</td>
</tr>
<tr>
<td></td>
<td>- Lean forward slightly.</td>
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<tr>
<td></td>
<td>- Keep your arms out for balance.</td>
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<td></td>
<td>- Try to go right under.</td>
</tr>
<tr>
<td>3. Introduction to Deep Water Begin jumping into chest or shoulder deep water from a crouch position; have partner stand by to assist. As before, explain, demonstrate, and allow ample practice time.</td>
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</tr>
</tbody>
</table>

**TAPERING OFF ACTIVITIES (5 - 10 minutes)**

Games
*Flutter kick races - with and without flutter board.*
*Relay race - on pool deck, jump in, glide and flutter kick out and back, then next person.*
*Inner tube races - sit in inner tube and paddle and kick.*

Direct and limitation:
*Hold onto the flutter board as you...*  
*The first person will jump in, ...*  
*See who can be first to ...*
Lesson #7

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Back glide with finning and flutter kick; dog paddle; straight arm crawl.

Materials: Flutterboards if desired.

Relationship to Previous Lesson:
Continues propulsion and begins front and back strokes.

Activity and Class Organization | Suggested Methods and Possible Commands
--- | ---

INTRODUCTORY ACTIVITIES (3 - 5 minutes)

Review Lesson #6
Work with partner as in previous lesson.
Front glide and flutter kick; back glide with flutter kick; introduction to deep water.

Direct:
- Spread out along the side of the pool. Holding onto it with your hands, push off, glide on your back, and then start kicking. Away you go, etc.... (refer to Lesson #6).

NEW SKILLS AND STROKES (12 - 15 minutes)

1. Back glide with finning and flutter kick.
Double line using partners.
Begin by combining legs and arms while lying on the deck; perform back tow with finning and flutter kick action; perform back glide and practice finning and

Direct:
- Lie down on your back on the pool deck. Begin a flutter kick and then at the same time move your hands like this (demonstrate).
- Everybody into the water. Practice that arm and leg action with your partner towing you. Take turns.
- Now try it by yourself,
flutter kick action; gradually increase distance. Explain, demonstrate, practice, and correct.

2. Dog paddle (human stroke arm action). Double line using partner system. Activities to include practice on land and standing in fast deep water before attempting complete stroke; stress should be placed on the pushing down and back arm action; keep head in water in initial stages; keep initial distances short. Explain, demonstrate, practice, and correct as before.

3. Straight arm crawl (introduction) Double straight line. Practice arm action on pool deck, and then in
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>chest deep water; combine with front glide and flutter kick; stress arms clearing the water and pulling and pushing to the rear. Keep head down on first attempts. Explain and demonstrate. Practice and correct.</td>
<td>this (demonstrate). Now move the right arm in this manner. See how it will come out of the water this time. Now the left arm, now together. - Try it in the water. - Push off in a front glide, start moving your arms and then add the kick. - Keep practicing.</td>
</tr>
</tbody>
</table>

**TAPERING OFF ACTIVITIES (5 - 10 minutes)**

<table>
<thead>
<tr>
<th>Games.</th>
<th>Direct:</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Races - dog paddle, straight arm crawl, and/or back stroke. *Dodge ball</td>
<td>*You must do the dog paddle. See who will be first to ...</td>
</tr>
<tr>
<td></td>
<td>*Form a large circle here in the shallow water ...</td>
</tr>
</tbody>
</table>
Lesson #8

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Straight arm crawl continued; turning around; rolling over.

Materials: none

Relationship to Previous Lesson:
Add turning activities to swimming strokes.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</td>
<td></td>
</tr>
<tr>
<td>Review Lesson #7</td>
<td>Direct:</td>
</tr>
<tr>
<td>Organization as in Lesson #7.</td>
<td>- See previous lesson for</td>
</tr>
<tr>
<td>Concentrate on back glide with finning and flutter kick and dog paddle.</td>
<td>commands.</td>
</tr>
</tbody>
</table>

NEW SKILLS AND STROKES (12 - 15 minutes)

1. Straight arm crawl (continuation)
Direct: |
Double straight line taking turns. |
- Keep your face in the water, but as soon as you need a breath, blow out under water, lift your head to get some air, put your face down and keep going. Watch here (demonstration). |
Review previous work; begin proper breathing technique; increase distance. Re-explain and redemonstrate. |
- The first group try it. Now the second. |
Continue to correct practice stressing the proper way of doing the skill. |
- Keep practicing until
## Activity and Class Organization

<table>
<thead>
<tr>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>you can go further and further.</td>
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<tr>
<td>- Now try it with your face</td>
</tr>
<tr>
<td>out of the water all the time.</td>
</tr>
<tr>
<td>Go as far as you can.</td>
</tr>
<tr>
<td>Direct:</td>
</tr>
<tr>
<td>- Notice how the person turns</td>
</tr>
<tr>
<td>the head and reaches in the</td>
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<tr>
<td>direction he wishes to go,</td>
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<tr>
<td>pulling the body around with</td>
</tr>
<tr>
<td>the arms.</td>
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<tr>
<td>- Start out in a dog paddle</td>
</tr>
<tr>
<td>and try it. Remember the im-</td>
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<tr>
<td>portant points. Go!</td>
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<tr>
<td>- Now try it on your back.</td>
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<tr>
<td>Do exactly the same things.</td>
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<tr>
<td>Go!</td>
</tr>
<tr>
<td>Direct:</td>
</tr>
<tr>
<td>- Watch how it's done</td>
</tr>
<tr>
<td>(demonstration).</td>
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<tr>
<td>- Remember, glide first, then</td>
</tr>
<tr>
<td>turn head and reach the arm</td>
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<tr>
<td>across the stomach. Use your</td>
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<tr>
<td>hands to balance you once</td>
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<tr>
<td>over.</td>
</tr>
<tr>
<td>- First group try it. Now</td>
</tr>
<tr>
<td>the second.</td>
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<tr>
<td>- Keep working on it until you</td>
</tr>
<tr>
<td>can do it everytime without</td>
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<tr>
<td>touching bottom.</td>
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</tbody>
</table>

### 2. Turning around.
Children spread out in single line.
Activities to include practice on front as well as on back.
Explain, demonstrate, practice, and correct performance.

### 3. Rolling over.
Double line using partner system.
Activities to include front to back and back to front; teach and practice one step at a time, pointing out the importance of each step; work with a partner to insure safety; begin from glide position.
Explain, demonstrate, practice, and correct as always.

### Tapering Off Activities (5 - 10 minutes)

**Games**

- *Pom-Pom-Pullaway - two lines facing each other, one person is called over and tries to break through opposite line. If successful, he takes one person back with him. If not, he stays in that line.*
- *Leap frog race - in partners.*

**Direct:**

- *Pom-Pom-Pullaway, if you don't come we'll pull you away...*
- *Place your hands on your knees, bend over well...*
Lesson #9

Topic: Swimming - Grade Three Pre-Beginners

Approach: Traditional

Skills: Jump into deep water; treading water.

Materials: Ball, flutterboards, pole.

Relationship to Previous Lesson:
Completes deep water work begun earlier.

<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTRODUCTORY ACTIVITIES (3 - 5 minutes)</td>
<td></td>
</tr>
<tr>
<td>Review Lesson #8</td>
<td>Direct:</td>
</tr>
<tr>
<td>Organization as in Lesson #8</td>
<td>- See previous lessons for commands.</td>
</tr>
<tr>
<td>Activities: straight arm crawl, turning around; rolling over.</td>
<td></td>
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</tbody>
</table>

NEW SKILLS AND STROKES (12 - 15 minutes)

1. Jumping into deep water
One at a time using partners as safety factor.
Be certain they have no fear of jumping into chest deep water before taking them to deep water; skill to include jump, submerge, and level off followed by swim. Have capable student demonstrate.

Direct:
- Remember to take a deep breath and lean forward to prevent sinking too deep. Hold onto the pole as long as you want. When you come up, look to see where you are, and then swim to the side. Watch Johnnie as he tries it. Okay, who's next?
- Let's try it now without the pole.

2. Treading water.
<table>
<thead>
<tr>
<th>Activity and Class Organization</th>
<th>Suggested Methods and Possible Commands</th>
</tr>
</thead>
</table>
| Group practice on deck and in shallow water, one at a time in deep water. Activities to include practice of each part on land, practice in chest deep water, then practice in deep water. Partners should be capable of performing reaching assists. Explain and demonstrate carefully. | Direct:  
- Watch as I do it. My legs do a bicycle or stair climbing action, my arms perform a sculling action, my body is inclined forward and my head is up.  
- Try it here on deck. Pretend you're climbing stairs. Move your hands.  
- Now try it in chest deep water - same action as before.  
- Hold onto the edge of the pool in the deep end and then let go and try it. Reach for the pole if you need to.  
- Try to stay up a longer time. |

**TAPERING OFF ACTIVITIES (5 - 10 minutes)**

<table>
<thead>
<tr>
<th>Games</th>
<th>Direct:</th>
</tr>
</thead>
<tbody>
<tr>
<td>*Water polo - modify rules to suit class and situation.</td>
<td>- Our game of water polo is going to be played like this...</td>
</tr>
</tbody>
</table>
Lesson #10

Topic: Swimming - Grade Three Pre-Beginners
Approach: Traditional
Skills: Review of Lessons #1 - #9 or make up time.
Materials: As in previous Lessons.
Relationship to Previous Lessons:

Brings all the skills together in a final review.

PART ONE (15 - 20 minutes)

Thoroughly review the skills from previous lessons. Stress the correct way of doing each. Provide ample encouragement.

Period may also be used as make up time to complete work left over from Lesson #9, if such was the case. Once having completed that, the review of previous lessons would begin.

This is not a pre-test but a time to improve performance.

PART TWO (10 - 15 minutes)

Complete the set of lessons by combining several skills - for example: jump into deep water, level off, swim as far as you can along side of pool. Finish with a game that was a favorite of the group.
APPENDIX C

SKILL TEST
# SKILL TEST

<table>
<thead>
<tr>
<th>Group</th>
<th>Approach</th>
<th>Pre- or Post-Test</th>
<th>Examiner</th>
<th>Date</th>
<th>Time</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th></th>
<th>Adjustment to Water</th>
<th>Body Buoyancy</th>
<th>Propulsion</th>
<th>Deep Water</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enters water confidently</td>
<td>Moves freely in water</td>
<td>Submerge and hold breath</td>
<td>Exhale under water</td>
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<td>1.</td>
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**TOTALS:**

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<tr>
<th>Item</th>
<th>Score</th>
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<td>11</td>
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<td>12</td>
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**TOTALS BY STUDENT:**

**148**
Description of Items

NOTE: All items except swim on stomach, swim on back, and keep afloat are to be marked on a pass or fail basis, the description of the item serving as the criteria.

For swim on stomach, swim on back, and keep afloat, record the total distance or time attained by the child on his first attempt.

All items, except the jump into water and keep afloat, are to be tested in water in which the depth does not exceed the candidate's height.

Part One: Adjustment to Water and Breath Control

1. Enter water confidently - child enters water confidently and moves away from the side of the pool without hesitation.

2. Moves freely in water - walks, runs, hops, etc. in water of various depths.

3. Submerge and hold breath - places face in water (or submerges entire body) and holds breath for more than three seconds.

4. Exhale under water - places face in the water (or submerges entire body) and exhales to blow bubbles; upon resurfacing, is not coughing, sputtering, etc.

5. Breath control by bobbing - executes #4 above at least three times consecutively without stopping or taking extra breaths when face is out of the water.

6. Identify object under water - can open eyes under water and identify an object held in the examiner's hand on the first attempt.

7. Retrieve object under water - submerges entire body and recovers object dropped by the examiner in shallow water on the first attempt.

Part Two: Body Buoyancy and Floatation

8. Float with aid of flutterboard, etc. - holds onto a floating device of any description and floats in any manner for more than three seconds and then re-
gains feet easily.

9. Float on stomach - floats on stomach in any shape for more than three seconds and then regains feet easily.

10. Float on back - may assume any shape while on the back; remains afloat for more than three seconds and then regains feet easily.

11. Optional float - floats for more than three seconds in a manner not previously shown; regains feet easily.

12. Turn over in the water - after assuming a floating position on either the stomach or back, rolls over to the opposite position without touching bottom; regains feet easily.

Part Three: Propulsion

13. Glide on stomach - pushes off from the side or bottom of the pool and glides, without kicking, in any shape reaching the horizontal position before putting feet down on bottom again.

14. Glide on back - as in #13 but on the back.

15. Front glide with kick - as in #13 but with a kick of any type added.

16. Back glide with kick - as in #14 but with a kick of any type added.

17. Swim on stomach or side - any ability to move through the water on the stomach or side is acceptable; distance swum, to the nearest foot, will be recorded.

18. Swim on back - as in #17 but on the back.

Part Four: Deep Water Work


20. Keep afloat - tread, drownproof, swim in place, etc. in deep water; record time to nearest second.
APPENDIX D

ATTITUDE QUESTIONNAIRE
A Questionnaire To Determine 
Attitudes Toward Swimming 
Of Grade Three Students

Initial Instructions To Students
What's your name? Do you know what kind of faces these are, (child's name)? Which face looks very happy? Which one looks very sad? Which one looks just a little bit happy? Which one looks just a little bit sad? Which one doesn't seem to be either happy or sad? I guess he's just not sure, is he?
Now that you know what all the faces mean, I want you to slide this red pointer to the face that shows me how you would feel about eating ice cream. Now show me how you would feel about having a stomach ache. How would you feel about going for a long walk?
Now I'm going to ask you some questions about swimming and I want you to slide the pointer to the face that shows me how you feel about each question - even if you've never done it before. Will you do that for me? Okay, let's get started...

Instructions On Second Administration Of Test
Hi, (child's name). How are you today? Do you remember how you used these faces last time to answer some questions about
swimming? I'd like to ask you some more questions if you don't mind. Good! Remember now, what I want to know is how you feel about each of these questions. Here we go...
A Questionnaire To Determine Attitudes
Toward Swimming And Water
Of Grade Three Children

Name: 

How would you feel about...

1. taking a ride in a motorboat?

2. putting your face in the water?

3. not receiving a swimming badge at the end of your lessons?

4. learning to swim in many different ways?

5. swimming in deep water?

6. diving into the water?

7. going swimming anytime you wanted?

8. being able to use floating things to help you learn to swim?

9. opening your eyes under water?

10. going to a lake for a holiday?

11. being tested, after your last lesson, to see how well you've learned to swim?

12. playing games in the water?

13. not having a swimming test at the end of your lessons?

14. floating on your stomach?
<p>| | | | | | | | | | | | | | | | |</p>
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<tbody>
<tr>
<td>15. receiving a badge at the end of your swimming lessons?</td>
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<tr>
<td>16. rolling over from your stomach onto your back in the water?</td>
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<tr>
<td>17. jumping feet first from the edge of the pool into the water?</td>
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<td>18. taking some (more) swimming lessons?</td>
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<td>19. swimming under water?</td>
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<td>20. being tested, on your very first lesson, to see how good a swimmer you already are?</td>
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**TOTAL (out of 100)** |   |   |   |
APPENDIX E

DEVICE FOR RECORDING RESPONSES TO ATTITUDE QUESTIONNAIRE
Device For Recording Responses To Attitude Questionnaire

Front View

Rear View