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ABSTRACT

The concept of personalized learning is developed in this book for teachers who want students to work and play at their own level of ability. Part one clarifies the concepts of personalized learning in chapters focusing upon teacher behavior, goal selection, and self-control. Part two offers practical applications at the teacher-student level, both in the form of specific delivery systems and general suggestions and recommendations. Part two contains chapters that deal with quiet individualizing, individualized instructional materials, task cards, student-teacher contracts, problem-solving, values clarification, the open gymnasium, multimedia approaches, and a simulation game. Each chapter is written by a different author. (PC)

PERSONALIZED LEARNING IN PHYSICAL EDUCATION

AMERICAN ALLIANCE FOR HEALTH, PHYSICAL EDUCATION, AND RECREATION

AAHPER publications

CONTENTS

PREFACE

This book is a committee product with most of the strengths and weaknesses inherent in committee publications and committee decisions. The committee did, however, make an effort to build in some checks and balances to offset its biases and to provide thorough coverage. With some assistance from an earlier committee, a tentative format was developed, and this format, together with the book's introduction (written by the committee chairman in consultation with the committee), was sent to four "consultants-at-large" (Mary Jensen, Lawrence F. Locke, Ann Rothstein and Christopher Stevenson) who reviewed the material and made suggestions for modifications and additions. Specific authors were then identified by the committee, and their manuscripts were reviewed by both the committee and two specialists chosen by national headquarters in consultation with the committee.

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INTRODUCTION

Although for years, physical educators have paid lip service to meeting the individual needs, abilities and interests of their students, there is general agreement that two approaches to learning nevertheless have tended to dominate the public school gymnasiums and playing fields. One of these approaches, the command style of teaching,[1] represents a highly structured teacher-centered orientation, while the other, commonly known as "rolling out the ball," is teacher-directed to the extent that the sport and setting are selected for the students but otherwise this approach more closely resembles a recreation period. Recently, the concept of personalized learning has intruded both into and outside physical education in the schools, offering an alternative to more traditional styles of teaching. This is not to say that personalized learning is new to physical education, as early as the late 1800s Dudley Sargent had "evolved a comprehensive system of individualized exercise programs."[2] What is new is the rapid growth of a wide range of approaches directed at personalizing the learning process in physical education. Some of these inroads have been organizational in nature such as elective programming and the expanded role of paraprofessionals,[3] while others such as learning packets and contracts have been aimed at personalizing the teacher's function with students.

As Locke has pointed out, personalized learning means more than "cutting a kid out of the herd" for a few minutes to work individually with him.[4] Personalized learning implies a style of teaching that allows students to work (and play) at their own level of ability and to progress at their own pace, a style which can be tailored to individual needs and interests. It entails personalizing the educational process as well as the product.

At least two and perhaps three theoretical-philosophical assumptions underlie this concept and therefore need to be made explicit at the start. (1) Personalized learning is student-centered rather than activity-centered or teacher-centered so that the focus becomes the welfare and development of each student rather than the enhancement of a particular activity or the dominance of a particular teacher. (2) Personalized learning assumes that each student

[1]See Muska Mosston, *Teaching Physical Education: From Command to Discovery* (Columbus, Merrill, 1966), pp. 19-30, for a detailed description and critique of this teaching style.

[2]Ellen W. Gerber, *Innovators and Institutions in Physical Education* (Philadelphia: Lea & Febiger, 1971), p. 285.

[3]See, for example, AAHPER, *Organizational Patterns for Instruction in Physical Education* (Washington: AAHPER, 1971).

[4]Lawrence F. Locke, Physical education: If I had it my way (Paper presented at National AAHPER Convention, Minneapolis, March 1973).

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is a unique person who brings to physical education a complex network of individunl potentialities, experiences and values. (3) A third assumption, particularly crucial to personalized learning experiences in which students are given choice, is that each student has the capacity to reflect on his/her potentialities, experiences and values and to make decisions appropriate to his/her situation. This means that each student has the capacity to be an agent of change in his/her life. The extent to which students exercise this capacity is another question which depends on a host of factors, probably including stage of development[5] and self-perception of this capacity;[6] the point here is that the capacity does exist, and growth toward its realization can be encouraged.

These assumptions provide the basis for the chapters which follow. The book has been divided into two parts. The original intent was to separate the conceptual from the practical to make the parts more accessible to the reader. However, most chapters evolved from the why to the how and what of personalized learning, so the assignment of certain chapters to Part One and others to Part Two may seem arbitrary to the reader. The emphasis of Part One, however, is on clarifying the concepts of personalized learning, while Part Two offers practical applications at the teacher-student level, both in the form of specific delivery systems and general suggestions and recommendations. If the publication appears to lack continuity, it is because the authors represent, to some extent, diverse points of view. Readers are encouraged to contrast, compare and select from the teacher-learner options presented.

[5]Elizabeth Monroe Drews and Leslie Lipson, *Values and Humanity* (New York: St. Martins Press, 1971), pp. 63-69.

[6]M. Brewster Smith, On self-actualization: A trans-ambivalent examination of a focal theme in Maslow's psychology, *Journal of Humanistic Psychology* 13 (Spring 1973), pp. 19-20.

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TEACHER BEHAVIOR

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INTRODUCTION

Purpose of Chapter

The purpose of this chapter is to talk about Individualized Instruction in general terms, to explain how it relates to other forms of instruction and to the tasks of the teacher. The intention is to provide some background and basic concepts which will make it easier to think about the more specific materials in the succeeding chapters. Some parts of this chapter are designed to help in exploring your personal feelings about individualizing and in avoiding some of the common problems encountered in this form of instruction. Other parts deal with the wide variety of alternatives from which teachers may select their strategies.

Throughout the chapter we have attempted to show how an understanding of the logic behind Individualized Instruction can make it easier for a teacher to take effective steps toward dealing with students as individuals. A subsequent chapter, "Quiet Individualizing: The Teacher as a System," illustrates how the fundamental concepts explained here can be employed to individualize aspects of physical education through simple teaching behaviors which do not require elaborate materials or sweeping changes in personal style.

Note. The authors gratefully acknowledge the assistance of Mary K. Jensen (professor, Dalhousie University) who made creative and significant contributions to the structure of this chapter, and Shiela Higgins (University of Massachusetts) whose critical review of a preliminary draft produced important clarifications.

Chapter Language

This chapter will break with tradition in several ways. First, it will not use the impersonal phrase "the authors"; we will call ourselves "we" because we are two people (a school teacher and a college professor) writing for other people to read. Having made the decision to be ourselves, we feel that naturally you ("the reader") may as well be called "you" rather than some collective euphemism such as "physical educators" or "teachers."

Second, we will mention the names of a number of educators (inside and outside physical education) who have written about individualizing instruction. The purpose of these citations is not to certify that we have read a lot of heavy books and therefore can be credible as experts. The purpose is to suggest resources *which you may want to consult* if you decide to become involved in individualizing instruction in your own classes.

Third, we will avoid the prescriptive modes of speech such as "should," "ought" and "must." This is because we are not convinced that it would be desirable for you to accept all our conclusions as sound or all our suggestions as useful in your particular situation. In fact, we are convinced that making an attempt to individualize your instruction just because other people think you should, *without also deciding why it is worth trying*, is likely to be a disruptive and even dangerous thing to do.

Fourth, while there are not many physical education teachers who have been involved in Individualized Instruction over a substantial period of time (if there were this book would be unnecessary), we see no reason to talk exclusively in hopeful rather than definite terms. Some teachers are struggling now to individualize learning in physical education, and a few have been involved in that task for a long time. We are writing in this chapter about real teachers, some of whom we know and have watched. In honesty, we also are writing about the kind of teacher we are struggling to become ourselves (with less than perfect success).

If these breaks with tradition do not repel you, we hope you will read this chapter and try to understand why teachers have been drawn to the task of designing ways to individualize instruction. Curiously, while figuring out exactly how to do it is a bedeviling problem that can absorb a whole professional career, how to do it is not now, never has been and never will be the central problem. Your central and first problem is to figure out what you want to accomplish as a teacher, why your objectives are worth accomplishing and how the constraints, demands and payoffs of individualizing fit your particular case. Without coming to grips with those questions *first* (even if they can't be settled in any permanent sense), concerning yourself about how to install Individualized Instruction in your gymnasium is like building a house without a foundation.

Compatibility Scale for Individualized Instruction

Before we go further, perhaps you would like to try a simple assessment of your personal compatability with the concept of Individualized Instruction. In the time-honored tradition of the *Ladies Home Journal*, here is a short quiz for rating yourself as a candidate for teaching strategies involving Indi-

vidualized Instruction. Just jot down the letter which seems most correct for each of the items. Perhaps some of the "right" answers will be obvious to you, but there is nothing to gain by kidding yourself, so try to be completely honest rather than "right" in your choices (no penalty for guessing).

1. What is your level of satisfaction with results produced by your present teaching strategies?
   A. Mostly satisfied with the results produced by my present methods.
   B. Not satisfied with some of the results produced by my present method of teaching.
   C. A little bored with teaching the same old way and am looking for something fresh to try.

2. What is your judgment concerning your students' capacity for self-direction?
   A. Given a fair opportunity, most of my students probably could make sound choices about what they need to learn in physical education class and how to go about learning it.
   B. Some of my students might be mature enough to take some responsibility, but there would be chaos if I ever let them try.
   C. Few if any of my students could reliably make sound choices about what they need to learn in physical education or how to go about learning it.

3. Which of these characteristics would you want to have used in judging the effectiveness of your instruction?
   A. My personal knowledge of the subject matter, including my capacity to demonstrate excellent performance, answer all student questions and gain their respect with my ability.
   B. My ability to get many students to learn what I intend them to learn in my class.
   C. My ability to maintain good class control, to produce lots of orderly student activity and to get prompt responses to my instructions.

4. What do you really want to get from reading this book?
   A. Some ideas about individual instruction (what worked well for other people) which I might be able to adapt to fit my situation.
   B. A practical and specific set of instructions for how to individualize instruction in my classes.
   C. The opinion of physical education experts about how I should be teaching my classes.

5. What is your estimate of significant differences among your students?
   A. My students obviously are all different from each other, but not in ways that mean very much for my program or how I teach my classes.
   B. My students are the same in some ways but vary a great deal in some abilities and interests that are significant for how I teach my classes.
   C. The majority of my students are pretty much the same in their abilities and interests.

6. If you become inspired to try some individualized instruction which is the most likely?
   A. I probably will try to get some other teachers (and possibly my principal or supervisor) involved or at least interested.
   B. I probably will have to do it on my own because others with whom I work would not be particularly interested.
   C. I will want to do it on my own. I just don't think it matters whether other people in the school are interested or approve of what I am doing.

7. What is your judgment about students who already have mastered a particular skill you plan to teach?
   A. They should listen and practice just like the others because there always is something else you can learn.
   B. They should not have to listen and practice just like the others because they need to learn something else.
   C. They will have to listen and practice just like the others because in classes like mine you have to deal with the majority, not with the exceptions.

8. What is your judgment about students who clearly will not be able to master a particular skill you plan to teach?
   A. They should not be required to work at tasks which are inappropriate for them.
   B. They should be good citizens and not disturb the lesson because it always is true that some people can learn a particular skill and some can't.
   C. They should try hard anyway because making a good effort on an impossible task toughens the character and helps the student accept reality.

9. How much work do you think will be involved in an attempt to individualize your instruction?
   A. In terms of preparation and execution it should work out about the same as my present method because I already make it a regular practice to write up lesson and unit plans.
   B. There probably will be a lot more time and effort required, some of it tedious and some of it very difficult.
   C. Once I get the system started the students will be on their own and the overall load of preparation and execution should be considerably reduced.

10. What do you think is the *most* significant thing to know if you are planning to try individualizing your system of instruction?
   A. Exactly why I am doing it.
   B. Exactly how to go about individualizing my instruction.
   C. Exactly which methods the experts recommend most highly.

To find your compatability score:

Score two points for each even numbered item if you picked (A).
Score two points for each odd numbered item if you picked (B).
Subtract one point for every time you picked (C) on any item.
Score zero for all other choices.

Total your points and find your compatibility rating on the scale provided below.

15-20 points — You are ready: advance to GO and begin.

10-15 points — Proceed with caution. Better read this chapter with care, talk it over with colleagues and give it some hard thought.

0-10 points — Not a good bet for you. Your personal values and present situation will make

it difficult to be effective and impossible to be comfortable with Individualized Instruction.

Negative points — You can always try for a refund on the book!

Although the Compatability Scale was designed in a playful spirit, and despite an admission that the penalty for the (C) responses reflects some of our peculiar prejudices, each item is based upon an important truth about Individualized Instruction. We will explain each of these points in the following pages. Although you never may agree with the scoring of all the items, a good test of how clearly we write and how carefully you read will be whether or not you can return to this quiz and explain the reasoning used in assigning each of the positive points.

Problem of Terminology

If you already have done some reading about Individualized Instruction you will have discovered that individualizing means many different things to different people. To further confuse matters new terms have emerged which seem to be related or synonymous, such as Personalized Instruction and Humanistic Instruction. You may have noticed that we are consistently using the term "Individualized Instruction" in a book which is titled *Personalized Learning*.

Much of the dialogue presently going on in the profession has been handicapped by our inability to communicate clearly about Individualized Instruction through systematic and invariant terminology. Not only is the confusion of terminology inconvenient and annoying, there is the constant risk that we will end up "talking past" each other. Misunderstanding can be a serious matter when a teacher is interested in adopting a procedure which has been successful in another location, but has only a verbal description from which to work.

Our advice is to accept the proposition that, inconvenient or not, words are tools which mean whatever we can agree they mean. If a writer defines a term as standing for one teaching method, you will have to work with that meaning — even though another writer or speaker obviously intends reference to another teaching method by use of the same term.

We will define a few words which are essential to the discussion in this chapter. If you discover or already know that those words have been used elsewhere to mean something different, *do not assume that someone is wrong*. Just remind yourself that such confusion of language usually characterizes an enterprise in which a lot of new thinking is occurring and read on sorting things out as well as you can.

Definition of Terms

These are the meanings we found useful for the discussion undertaken in this chapter.

Cohort Instruction — In its theoretically pure form, Cohort Instruction makes subject matter and the characteristics of groups of students the two paramount facts in determining teacher behavior. Cohort Instruction includes any pedagogical strategy which leads the teacher to teach the same thing to all students at the same time, by the same method, and requires all the students to practice in the same way, at the same pace, for the same length of time, and to be subject to the same kinds of standards and the same criteria for evaluating achievement.

Selection of objectives, method and content is determined by the internal logic of the subject matter and an appraisal of the group. The assumption is made that it is not possible to deal with students whose needs and interests deviate significantly from the type selected as the target for instruction (often the average of the group, though sometimes a higher ability segment) without an unreasonable loss in educational efficiency. It further is assumed, explicitly or implicitly, that any disadvantage which

accrues to students who are not well matched to the instruction is unfortunate, but inevitable and therefore tolerable.

Individualized Instruction — In its theoretically pure form Individualized Instruction makes the learning characteristics of individual students the paramount fact in determining teacher behavior. Individualized Instruction includes any pedagogical strategy which leads the teacher to adjust objectives (ends) or content, instruction and practice (means), or all of those elements, to produce the most appropriate match with the characteristics of individual students. The process of matching educational ends and means to student needs and interests may be controlled by the teacher, the student or shared by both. In short, this process adjusts learning to the student.

The assumption is made that it is possible for the teacher to deal with most students as individuals (irrespective of the diversity of their unique needs and interests) and maintain, or improve, educational efficiency. It further is assumed, explicitly or implicitly, that individualizing is necessary because some of the consequences of Cohort Instruction are intolerable.

Personalized Instruction — In the evolving language of education, two different meanings have been assigned to this term. First, as suggested by the title of this collection of essays, Personalized Instruction has been used as a generic term intended to encompass all methods of instruction in which students, or students in concert with teachers, undertake to adjust *what* is to be learned to the needs and characteristics of the learner. When the term is employed in this way it ordinarily implies particular emphasis on personalizing learning products. Thus, contract learning systems are an appropriate illustration of this kind of method.

Educational theorists who use Personalized Instruction in this first sense, reserve the term Individualized Instruction to designate methods which place particular emphasis on matching the means of instruction (*how* skills are to be learned) to individual needs and characteristics. Thus, programmed learning systems are an appropriate illustration of this kind of method.

A second and quite different meaning has been assigned to Personalized Instruction. Here the term is used to designate any version of Individualized Instruction in which there is use of, or emphasis upon, the learner's involvement with others in the learning environment. This either may involve the learner in a tutor-student relationship with the teacher, or may involve the learner in transactions with peers.

Used in this second sense, Personalized Instruction is made synonymous with personalization, a variable which crosscuts all sytems for Individualized Instruction, but which particularly characterizes some methods. The purpose of personalizing may rest in the positive impact of personal association on learning efficiency or may rest in educational ends which involve learning skills useful in social transactions. In any case, Personalized Instruction here is clearly distinguished from independent study, or those group settings for Individualized Instruction which may be noninteractive, such as learning stations or circuit training. We have elected to employ Individualized Instruction as the generic term and have used Personalized Instruction in the more limited second sense.

Humanistic Instruction — This strategy includes any version of Individualized Instruction which, in addition to a strong component of personalization through social transactions, stresses primacy of the individual's feelings (and a variety of related affective goals), the value of long-range outcomes such as self-actualization and personal

awareness, and involvement in such processes as continual self-examination and open communication with others in the learning environment.

Great stress is placed on active participation and immediate personal experience, rather than passive learning processes employing verbal abstraction. Humanistic Instruction often involves substantial student participation in the selection of learning content as well as learning method.

Humanistic Instruction is premised upon an explicit system of teacher belief and personal commitment which holds the basic nature of the individual to be good and the capacity of individuals for significant change and growth to be great. The assumption is made that individual students have a positive tendency toward self-development and personal fulfillment. With proper support and encouragement it is assumed that students are capable of rational self-direction in learning. Such self-direction is cultivated both because of its posited relationship to the quality and efficiency of learning, and because of its essential role in nurturing autonomy, positive identity and personal fulfillment.

INDIVIDUAL DIFFERENCES AND COHORT INSTRUCTION: THE WAY IT IS

Individual Differences

The fact that learners differ in many significant ways is well established and will not be argued here. In addition to the Association for Supervision and Curriculum Development's classic collection of materials on human variability (1961), more recent collections provide vivid illustration and ample documentation for the relevance of individual differences in all educational processes (Gagne 1967; Murray & Thomas 1965). Behavioral scientists have generated an impressive body of research on human variability, much of it readily available in several excellent texts by Anastasi (1963; 1965). In physical education, books on

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motor learning (Cratty 1973, Knapp 1966, Oxendine 1964, Singer 1968) and texts on growth and development (Corbin 1973, Espenschade 1967, Rarick 1973, University of California 1971) give close attention to individual differences.

It is simplistic and misleading to say that all learners are different. The eloquent model used in anthropology is much closer to the truth. Every person is like all persons in some ways, like some persons in other ways, and like no other person in still other ways. Within a single class, each learner shares some characteristics with all other learners (examples. physical needs, dependency on adults, basic anatomical structure), some characteristics with some other learners (examples. sex, language, area of residence), and some characteristics with no other learner (examples: genetic pattern, past experience, self-concept).

For teachers, each class is an intricate tapestry woven out of the similarities and differences supplied by each learner. This situation is more than an elegant abstraction. It is a hard fact embedded in reality and bears potential consequences for what will happen to students engaged in the process of learning.

Because they are different, students learn effectively at different rates and under different conditions. *Both* fast and slow learners have characteristic problems which require attention and adjustment. Some students learn best under direct guidance while others do best when left completely on their own (Frymier & Galloway 1974). Some learn effectively in large groups while others do not (Bahner & Willis 1974). Entire models for teaching have been designed to be responsive to the fact that student differences interact with content and method in ways which ultimately control the quality and quantity of learning (Joyce & Weil 1972).

Cohort Instruction

Generations of teachers in the classroom have struggled with the problem of individual differences. Although the millenium of an education perfectly matched to the needs of each learner remains a dream, progress has been made. Reading the annotations in Drag's recent *Bibliography on Individualized Instruction* (1974) provides a sense of the breadth of the attack, the excitement of the struggle and the growing optimism with which classroom teachers are creating new methods and materials. Why it is that Cohort Instruction has so long remained the undisturbed norm for teacher behavior in many gymnasiums is a matter for the most melancholy conjecture (Hoffman 1971).

As indicated in our working definition, Cohort Instruction involves two central assumptions. (1) the teacher must decide what all students should learn and must control exactly how all learning takes place and (2) all students should be subject to the same instructional process. The first assumption is based upon a generally covert but nonetheless profoundly pessimistic view of student capacity for rationality and self-direction. The second assumption is based upon the belief (supported by ready rationale) that it is impossible to attend to individual differences while also maintaining reasonable cost efficiency. Both assumptions conform perfectly to a Taylorian model of rationalized industry which has influenced American educational institutions throughout the first half of the twentieth century (Callahan 1962).[1]

Given a cohort group (all the students present in a single instructional unit, such as a class), the teacher typically aims instruction at the theoretical midpoint of a distribution of student characteristics assumed relevant to learning. When the teacher selects objectives and designs instruction, the imagined student

[1]Cohort Teaching probably does not exist in pure form. The behavior of all physical education teachers falls somewhere on a continuum of instructional style ranging from mostly cohort to mostly individualized. It simply is convenient to present the pure typology as a foil for Individualized Instruction. All teachers pay some attention to the needs of individuals, and all teachers deal in some measure with group characteristics when planning and executing instruction. The cohort style of instruction, nevertheless, does characterize the model behavior of many physical education teachers.

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target is a mythical learner who does not deviate "noticeably" from the theoretical average of learner needs and interests.

Experienced and skillful cohort teachers often are highly perceptive in their selection and reading of characteristics represented within the cohort. The center segment of the cohort for which the instruction is geared will contain students who:

1. do not already know the material to be learned;
2. are capable of learning the material;
3. under the learning conditions created by the teacher, can master enough of the material to meet the demand for reasonable efficiency.

Even under the best of conditions, however, a typical cohort group also will contain learners who already know how, or who don't want to learn or who can't learn under the conditions provided as appropriate for the central segment. These students are asked (expected) not to emit disruptive signals concerning the inappropriateness of the instructional process for their needs and interests. Much of the emphasis on control in physical education (and the great apprehension about loss of control) is a reflection of the teacher's awareness of those potentially disaffected students.

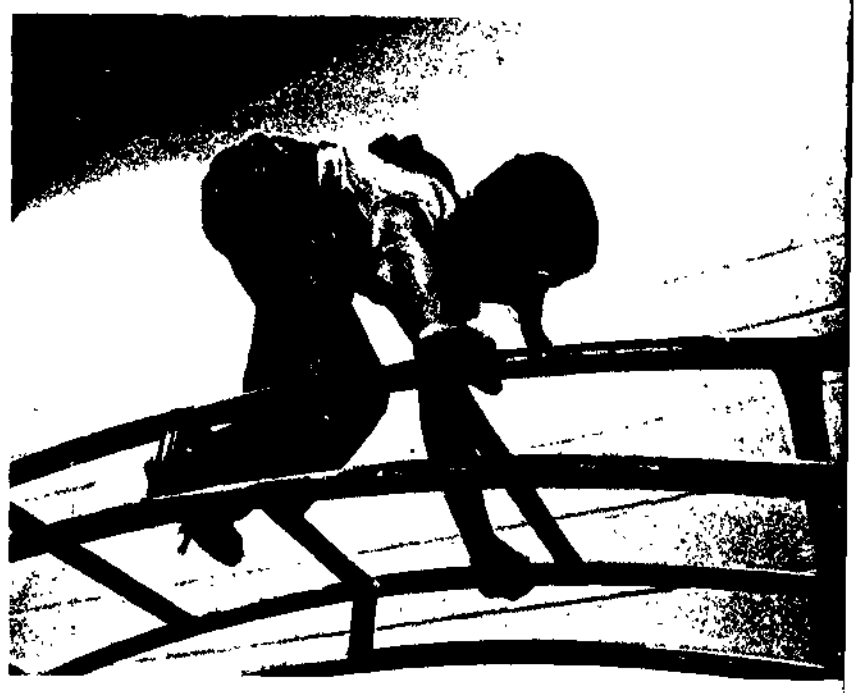
A system of sanctions and whole rhetoric of suppression has grown up around the problem of managing students who are outside the central segment of the cohort. If you already know how to slide into second base, do the hokey-pokey, or perform a kip on the high bar, you are told to listen attentively (quietly) to the instruction and then practice diligently (obediently) because:

1. "More practice can never hurt you."
2. "There always is something else you can learn about any skill."
3. "You will be a good model for those who don't know how to do it" (And that will help the teacher).
4. "Good school citizens have to learn that they can't have things their way all the time. You just have to wait until there is something for you."

If you can't possibly learn the skills (at least in the time provided for the central segment) because you don't have the requisite motor capacity, didn't get a chance to consolidate foundational elements in the previous lesson or are frightened by the physical or social demands of the task, you are told to pay attention and do the best you can because:

1. "You must not spoil the class for the others."
2. "If you work hard you might learn something, or if not, trying hard is good for you anyway because it helps you learn good work habits."
3. "You have to learn that some people are good at some things but not good at other things. You just have to wait until there is something for you."

There are endless variations on the theme, but all of the rhetoric adds up to one message: "Don't disrupt



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a lesson that is not designed to help you learn." Some students learn to accept the rhetoric as true, but others act out their natural feelings of discontent and discomfort through deviant behavior.

There is some shifting of individual students between the central segment and the periphery where varying degrees of noticeable mismatching occur. These shifts are produced by subject matter changes (curricular effects) and the passage of time (developmental effects). There are many more students, however, who *always* are in one group or another. A large part of the cohort stays either inside or outside the zone of appropriateness for instruction. The consequences of this fact are cumulative (and easily noticed by observing the contrasts between elementary and secondary school classes) — in the gymnasium, as in life, the rich get even richer and the poor get progressively poorer.

There is nothing sinister about Cohort Instruction. It is the good of the group which motivates the teacher That beneficent impulse is translated into an attempt to do the best possible job for the largest number in class. It is one way of running families, industries, armies, nations, schools and physical education classes. A generally skeptical view of student capacity for making rational decisions makes teacher control seem a necessity and, thereby, makes the impossibility of individualizing instruction seem a reality. It is a logical system and, within certain limits, a workable system.

Proponents of Individualized Instruction argue that, logical or not, Cohort Instruction works very poorly and produces undesirable consequences for too many students. If the basic presumptions are wrong, the argument goes, then the trade-offs of mismatching learning conditions for some students in order to gain minimal effectiveness with other students is unnecessary. We choose not to argue the matter at length here. Each of you can provide your own evidence by answering the following sequence of questions as honestly as you can

1. How many students fail to master part or all of the subject matter in physical education classes?
2. How many students dislike coming to physical education classes, find the subject matter meaningless, resent the compulsion involved, find participation unpleasant and ultimately come to dislike play in physically active forms?
3. How many of the students identified in questions one and two above do you think would still have failed to learn and enjoy learning if the instruction in all of their physical education classes *had been geared exactly to meet their personal needs and interests*?

Before you cry "foul," go back and give question three an honest answer! Reflecting on the students we have known, our conclusion is that there would be very few left of the considerable number created in the first two questions. We find this conclusion relevant to the feelings we have about Cohort Instruction.

It is the feeling that cohorting is both necessary and "right" that makes the third question seem unfair or irrelevant (just an exercise in theory that does not consider reality). For a teacher, *the reasoning which supports Cohort Instruction is the pivotal element in determining whether alternatives can be entertained.* More specifically, it is this reasoning which will determine whether it is possible to adopt any form of Individualized Instruction into his/her teaching repertoire.

Novice teachers may adopt Individualized Instruction out of commitment to its alleged advantages, but for the rest of us any substantial step toward individualizing must be preceded by a rejection of the rationalizations which sustain our present behavior. Put another way, physical education teachers do not turn to Individualized Instruction because they become convinced of its advantages or because they are convinced that Cohort Instruction produces poor results, but rather because they come to reject the personal beliefs which make cohorting seem necessary and individualizing an impossible dream.

Because changing or abandoning such feeling-loaded beliefs is a difficult and chancy process, relatively few physical education teachers have attempted (and persevered in) the use of strategies to individualize instruction.

The rationales which support cohorting exist at two levels. On the surface there are familiar arguments.

1. "If I pay too much attention to one student, the rest of the class will climb the walls."
2. "My classes average 45 students and there just is not time to get to know the kids, much less cater to their interests."
3. "If you give them a chance to decide what to do, students will just want to play and repeat the things they already know how to do."
4. "I want to provide quality instruction with real standards for achievement which make kids really put out some effort. If every kid just does his own thing, standards will go out of the window."

With some teachers, however, we sense a deeper level of rationale. These unspoken arguments are less obvious and more disturbing. A common assumption is that it is entirely natural for those who are "too different" to suffer some penalty. The disinterested, the disaffected, the unusually slow learner, the exceptionally quick learner, the painfully timid and the very aggressive are at a disadvantage within the cohort model. To remove (by individualizing instruction) the natural penalties which come with such deviations would also be to remove the forces which encourage the exceptional student to move toward the acceptable norm. It is impossible for us to avoid the impression that for some teachers encouraging such differentiation would be much more than a logistic inconvenience in the gymnasium. To make being really different free of disadvantage, would be to create a threatening violation of natural conditions. For some teachers, that would be an uncomfortable and threatening situation. Under those circumstances individualizing instruction will not seem particularly attractive.

INDIVIDUALIZED INSTRUCTION: WHAT IT IS

Taking the First Step

The primordial step from which commitment to Individualized Instruction germinates is the decision that the old arguments may not be entirely true. Given that decision, it becomes possible to find the consequences of cohorting unacceptable, and the search for a better way to teach can then begin.

Teachers arrive at this first step for many different reasons. Some may be concerned about distressing consequences such as lowered self-esteem in students who fail to learn. Others may have become sensitive to the fact that some students seem to be learning to avoid situations involving physically active play. Other teachers may be concerned about the quality of the learning that is produced. Carl Rogers has argued persuasively that significant learning is impossible under the conditions created by Cohort Instruction (1969).

The only uniform element for all teachers who take the first step is the growing sense that life in the gymnasium does not have to remain the way it always has been. However tentative the first step may be, it is likely to lead to a genuine commitment if based upon the teacher's feeling that:

1. It is not natural or right to put any student at a disadvantage because of individual characteristics.
2. It is possible for some students to make (or learn to make) rational decisions about their own learning.
3. There are ways (teacher strategies) which make it possible to be responsive to individual students without risking safety, sacrificing efficiency or evading teacher accountability for what happens in the gym.

Alternative Strategies

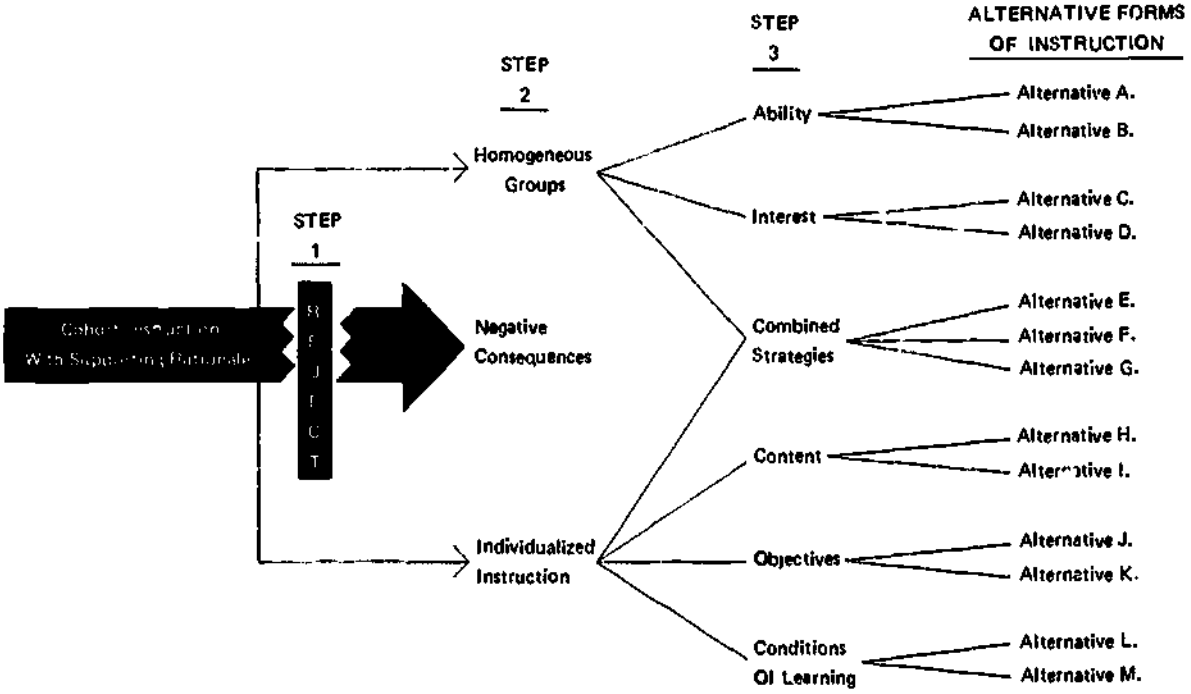
One way to better match instruction to individual needs is to make classes, or subgroups within classes, more homogeneous. If students are more alike, the

logic runs, there should be fewer serious mismatches with objectives or methods. Ability grouping is a method of class (or school) organization which reflects this logic. Historically, such organizational strategies have proved less than satisfactory. This arises from the implacable fact that homogeneous groups can be formed on only one or two variables at a time, yet a whole host of variables are potentially relevant to learning.

The obvious alternative is to match the instruction to the students (taken individually) rather than attempt to match the students (taken in groups) to the instruction.[2] This logic produces what we have defined here as Individualized Instruction. The strategy created may be as simple as providing a student (or group of students) with extra opportunity to practice or as sophisticated as computer-assisted instruction, contracting, task cards or a behavior modification system for shaping and sustaining student self-direction.

It is important to understand, however, that once the first step is taken, no *particular* strategy necessarily follows. As illustrated in Figure 1, there are endless possibilities, some of them very different from each other in the values they reflect. Put more simply, a teacher's decision to individualize does not necessarily lead to Personalized Instruction, Humanistic Instruction, open gymnasiums or programmed learning texts — even though it may lead to any one or several of them.

[2]Combinations of these strategies which begin with some form of homogeneous grouping and then employ instruction particularly suited to the individuals within the groups may provide a third (and potentially more powerful) alternative.



Steps and Alternatives for Individualized Instruction

FIGURE 1

The particular strategy a teacher selects will reflect: (1) knowledge of alternatives, (2) constraints within the teaching situation, and (3) important personal values — particularly those involved in the selection of educational objectives. A good example is the degree to which the teacher elects to share decisions with students (an element which is present in varying degrees in most Individualized Instruction). The decision to meet individual needs does not necessarily involve a concomitant decision to give students the power to select objectives, content or methods of learning. Yet many teachers are drawn to such behavior by forces which combine the impulse of their own values with the peculiar demands of Individualized Instruction.

A typical sequence of events begins with the fact that any strategy for instruction which goes beyond a strict model of teacher-dominated diagnosis and prescription immediately encounters the need to increase the student's ability to make decisions about learning. This is because operating a class in which the teacher is responding to one individual requires some degree of reliable self-direction by the other individuals. Developing capacity for responsible self-control quickly becomes an educational objective. Accomplishing such a goal, however, is possible only if there are situations which permit the student to practice responsibility for making choices. Students may first be involved in determining what learning process is individually appropriate for them. From that point it is only a short step to sharing decisions about evaluation, content and, ultimately, the objectives of the class.[3]

Some teachers find that the process of giving priority to individual needs in planning instruction produces a paradox. If you define your role as providing opportunities, guidance and support for the natural growth of each student, how much advanced planning and direction giving can you honestly do? Joyce and Weil have put the paradox in succinct terms. "Can one, in short, teach at all if one's purpose is to put the student in the center of the teaching-learning process?" (1972, p. 207).

Each system for individualizing instruction reflects a particular resolution of the paradox. Some teachers elect to retain complete control over particular categories of learning decisions while others manipulate the environment to "nudge" the student in certain directions. Common to all solutions, however, is a shift of teacher accountability from the production of the same set of skills and knowledge in all students, to helping students acquire the skills needed to direct learning in terms of their own needs. Content must be mastered and standards for performance are not discarded, but individualization is achieved by some measure of student responsibility for diagnosing and prescribing their own content and method. The teacher is held accountable for producing an environment which nurtures and supports the assumption of such new responsibilities by the learner.

Source of Perseverance

All forms of individualization, particularly in the planning phases, are costly in terms of teacher time and creative effort. Some varieties of Individualized Instruction presently demand much greater inputs than even the most conscientious forms of Cohort Instruction.[4] It is difficult to regard this negative trade-off as acceptable simply in terms of the positive results which may begin to appear. The additional force of a commitment not to return to the negative consequences of Cohort Instruction often is required to sustain enthusiasm and productivity. In simple

[3] It is this natural process of accommodation to the demands of Individualized Instruction which produces a further consequence. Individualizing has a significant impact not only on the learning experience of students for whom Cohort Instruction would have produced negative results, but also on those for whom Cohort Instruction would have been reasonably appropriate (given the goals of the instructional system). When teachers begin to individualize, the introduction of new educational objectives and the restructuring of contingencies within the learning environment have consequences for all students in the class.

[4] The wider availability of commercially produced materials for individualizing instruction in physical education will greatly reduce the problem of preparation.

terms, the struggle to introduce and refine any form of Individualized Instruction requires that most teachers initially apply a "lesser of evils" philosophy. Few things in teaching are easy. For experienced teachers, mastering new instructional behaviors is a particularly difficult and sometimes discouraging chore which requires all of the supporting motivation available.

Analyses and Taxonomies for Individualized Instruction

The selection of a method for individualizing remains a complicated process. One way to improve the probability that you will identify a satisfactory method is to analyze some key variables which seem to be important, and then examine each method you are considering in terms of how the key variables are represented (Hull, 1973). Textbook sources are available which provide taxonomic systems for such analyses (Edling, 1971; Gibbons, 1971).

At the University of Wisconsin an instrument based on key components has been constructed for use in describing individualized learning systems. Developed as part of an NIE funded project at the Center for the Analysis of Individualized Instruction, the instrument uses objectives, assessment, sequence, rate, media, grouping and management as the key variables for analysis (Vere DeVault, 1974).

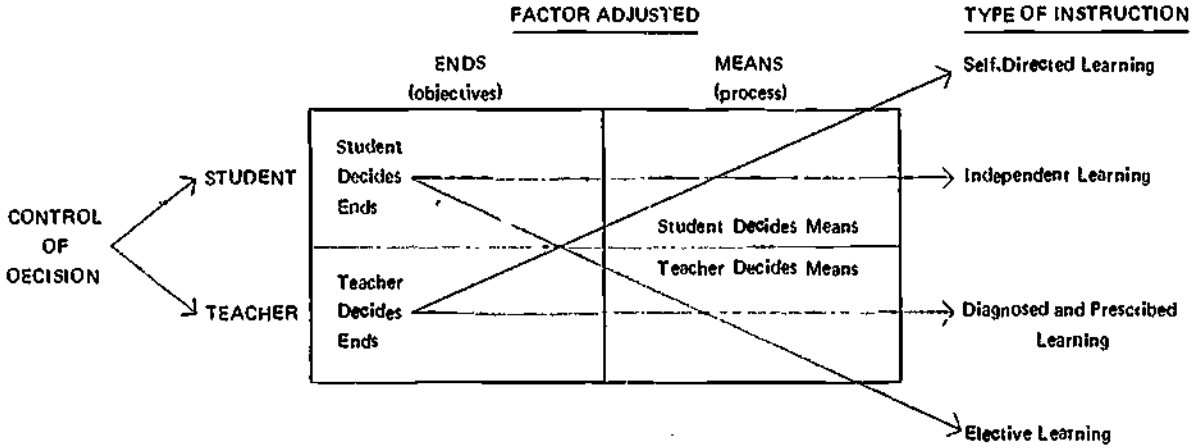
For the purpose of illustration, we have freely adopted a categorization system devised by Edling (1971). The analysis is quite simple and uses only two main variables, each of which may exist in one of two states.

Variable A. The factor adjusted to individualize learning
- State 1. Ends (objectives)
- State 2. Means (learning conditions and media for instruction)

Variable B. The person in immediate control of the adjustment of learning factors to achieve individualization
- State 1. Student Control[5]
- State 2. Teacher Control

The simple paradigm shown in Figure 2 generates four

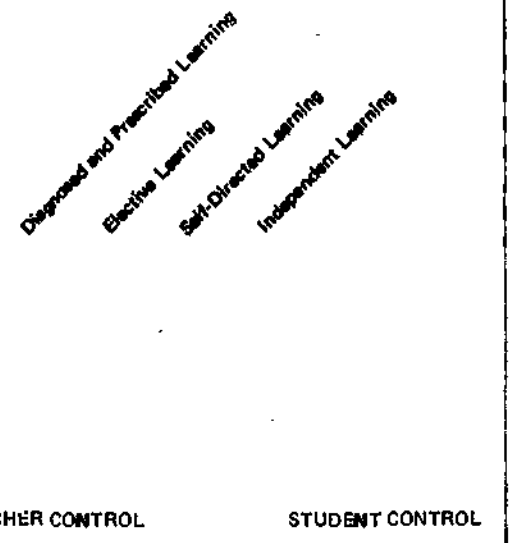
[5]The nature of schools as social institutions, and the nature of teacher and student roles, insure that all teaching methods are by definition teacher controlled. Methods do, however, range from direct teacher control of all immediate decisions to indirect teacher control exercised through a set of rules establishing expectations and limits for student behavior. Within such indirectly controlled classes, students may make some or even all of the immediate decisions. It is in this latter sense that we use the term "student control."



A Four Variable Analysis of Individualized Instruction
FIGURE 2

"pure types" of individualization. It is obvious that various admixtures and relative emphases would produce an infinite variety of subspecies.

Such an analysis can provide a number of useful insights for the teacher. For example, the four "pure types" of Individualized Instruction may be ranged along a continuum, as in Figure 3, which reflects varying degrees of commitment to student participation in

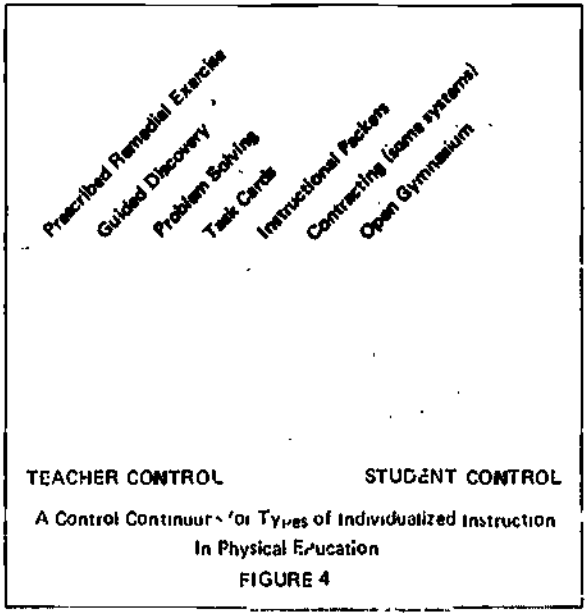


A Control Continuum for TYpes of Individualized Instruction
FIGURE 3

decisions about learning. At one end of the continuum is independent learning (in which students exercise some measure of control over both ends and means); at the other end is prescribed learning based on the teacher's diagnosis of student needs (in which teachers control both ends and means). It should not be difficult to identify conditions which might push your choice of teaching method toward one or the other end of such a continuum. For example consider the following factors:

1. How important to you is the development of student capacity for self-direction (as an educational objective)?
2. How comfortable will you be if you are not at the center of the instructional process?
3. How willing do you think you are to permit students to make decisions — even to make poor decisions?
4. How much human and material support will you have available to meet the need for initial investment in planning and development?

After reading this book you may wish to use this kind of analysis to examine some of the methods specifically suggested for physical education. Other variables on which to base a continuum analysis would be (1) degree of personalization, (2) range of choices (variety) provided in the selection of ends and means and (3) the extent to which hardware and materials are required. An example of one of our analyses is presented in Figure 4. If you find that you disagree with our analysis why not do a more satisfactory one for yourself?



A Control Continuum for Types of Individualized Instruction
In Physical Education
FIGURE 4

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EVALUATING THE RESULTS

Missing Body of Knowledge

You already will have noticed that this book contains no separate chapter presenting a review of the accumulated body of research on Individualized Instruction in physical education. The reason for the omission is simple. There is no accumulated body to present. There are at least three (and probably more) reasons for this state of affairs.

1. Highly developed individualized systems (with stable characteristics suitable for study) are a relatively recent phenomenon. There just has not been much time to accumulate evidence of any kind.
2. The people involved in the construction and use of individualized systems generally operate from a base of deep personal commitment. They "believe" in the rightness of the system. This makes rigorous empirical inquiry seem less important than developing model programs and disseminating materials and information.
3. There are many difficult problems in the task of program evaluation. This type of inquiry is one of the most complex forms of educational research and requires the highest kind of technical sophistication. It also is a particularly expensive form of research. As a consequence, few physical educators have found program evaluation very attractive.

There is a growing mountain of evidence available concerning various tactics for individualizing instruction in the classroom.[6] No one yet has pulled all of this research together into a broad-based, critical review. If you want to look at the evidence for any particular strategy we again recommend you start with Lillian Drag's excellent *Bibliography on Individualized Instruction* (1974). The only safe prediction is that you will find the evidence to be variable in quality and, like much educational research, it will point in many directions simultaneously.

For some types of individualization the case is reasonably clear. The following have all been subject to careful evaluation: some programs for Computer Assisted Instruction (CAI), some of the nationally distributed subject matter programs such as Individually Prescribed Instruction (IPI), Individually Guided Education (IGE) and Program for Learning in Accordance with Needs (PLAN), as well as the now venerable Personalized Systems of Instruction (PSI). One of the most extensive track records has been accumulated by PSI (sometimes called the Keller System). When the criterion measure is acquisition of cognitive material the evidence is overwhelmingly positive for PSI. Siedentop recently has provided physical educators with a brief but persuasive review of the PSI system (1974). Not only is PSI relevant to such problems as Competency Based Teacher Education (CBTE) for physical education teachers, but many underlying principles of PSI are applicable to any system of Individualized Instruction which might be used in the gymnasium.

One question that must be answered before any useful research can be undertaken is "what are supposed to be the advantages of Individualized Instruction?" Do we look just at the acquisition of motor skills, or must we look at such long-term affective consequences as self-concept? What will be the standard of reference when Individualized Instruction is contrasted? In other words, if it is better, what is it supposed to be better than?

Lurking behind these measurement problems is a knotty evaluation problem. How is a cost-effectiveness yardstick applied to the results of Individualized Instruction? After you have decided which tools are appropriate for measuring the results of a

[6] One public school district now is making wide use of the I-Scale for the purpose of obtaining direct measurement of the skills employed by teachers to individualize instruction (Wilson 1974). Based upon Danowski's five bi-polar dimensions of teacher behavior for individualizing learning (1965), the I-Scale was developed by Gelbman and Woog to record information from field observations in the classroom setting (1969). It should be possible to modify such an instrument for use in the environment of the gymnasium.

task card system of individualizing instruction, how do you determine whether task cards provide sufficient results in terms of student learning to justify the investment of preparation?

Reading the Research: What to Look For

Whenever you encounter an evaluation report involving Individualized Instruction you should be sensitive to three special problems — and look immediately to see how they are handled in the study. The first problem has been touched on: selection of criteria for judgment. The outcomes measured in any study must be those which the system is intended (and designed) to produce. To evaluate a system designed to influence student behavior in the affective domain by imposing a measure of skill acquisition is pointless. Exactly that problem of failing to match criteria to intentions has made nonsense out of much research in movement education.

The second problem is the degree to which the Individualized Instruction system has been developed. Most systems of individualization developed for use in the gymnasium are relatively new and still full of operational bugs. While ongoing evaluation is essential for generating corrective feedback in refining a new system, it makes little sense to embark on research involving a contrast of results with those produced by an established, well-refined system of instruction.

The third problem involves the use of Cohort Instruction as the standard of reference in studies of Individualized Instruction. Such contrasts make sense only if the cohort control employs instruction prepared with the same kind of careful attention to detail (subject matter analysis, sequencing, practice format, type and frequency of feedback, etc.) as that employed in creating the individualized system. Too many investigations have pitted an innovative teaching method against slipshod versions of Cohort Instruction in which the instructor attempts to extemporize on the basis of ability and experience, rather than developing a thorough plan for instruction. That is not research but quackery, and it produces not knowledge but nonsense (of which we already have a surplus). If any of these three research problems interest you, we commend the review of research on prepackaged learning programs for sport skills which appeared in the *Journal of Health, Physical Education, Recreation* (Locke & Jensen 1971).

We will close this brief discussion of evaluation with a personal conclusion which may surprise you. If all three research problems noted above were resolved, if a well developed system of Individualized Instruction were contrasted with a carefully prepared system of Cohort Instruction which employed all of the elements essential to a sound learning environment and if the contrast were limited to measures of the outcomes intended by both systems, *we would expect to find few dramatic differences*.[7] Despite this prediction, our own enthusiasm for experiments with various forms of Individualized Instruction remains unabated. This is because we are convinced about the importance of some educational objectives which Cohort Instruction is not (in its ordinary forms) designed to produce (such as student skills in self-direction).

All instruction systems must provide the rudiments of a sound learning environment. Singer and Dick's recent analysis of the "Systems Approach" in physical education (1974) has helped us understand much more about the nature of these rudimentary essentials. If a system (1) provides clear target objectives, (2) deals in some positive fashion with student motivation, (3) provides a strategy for instruction and practice based upon an analysis of objectives, subject matter and a preassessment of learner status, (4) measures and evaluates results so that instruction can be adjusted in terms of consequences and (5) does all of this in ways which lead the student to be attracted rather than repelled by the subject matter — *the system will*

[7]This conclusion holds only for comparisons made over relatively short periods of time (six months or less). Longer term trials in which students become more thoroughly acclimated to the expectations of Individualized Instruction might well provide different results.

work. It will produce learning. It follows that no system could consistently have the advantage for all purposes, in all places, with all students and with all teachers. Frymier and Galloway have put it perfectly. "There is no one best way of doing *anything* in education" (1974, p. 66).

The important question to ask here, however, is whether or not individualization of instruction also is one of those rudimentary essentials. Obviously, carefully planned Cohort Instruction can provide for all the essentials identified above. But if some form of individualization also is a requirement for a sound learning environment, the defect in the cohort system is permanent and unremediable (without turning Cohort Instruction into something else). If you ask whether individualization is an essential element of all sound learning environments, our response is that it depends entirely on what you mean by "individualization."

If individualization is taken to mean:

1. dealing effectively with the difficulties encountered by individual students during the period of practice and acquisition;
2. treating learners like people by creating and maintaining good interpersonal relations (friendly, supportive and mutually respectful) between students and teachers;
3. helping learners be accountable for managing their own actions within the learning environment;
4. helping learners get in contact with their own experience, in the sense of exploring their own behavior and feelings in physically active play

then we would hold that individualization is a prerequisite condition for a sound learning environment. We are convinced that no method of teaching can be complete without including attention to those kinds of individualization. On the other hand, particular goals such as those espoused in Humanistic Instruction, or particular delivery systems such as those employed in contracting or problem solving certainly are *not* essential elements in sound education. They simply are interesting options among the many alternatives.

BARRIERS TO PROGRESS: THE ECOLOGY OF CHANGE

Why Things Stay the Same

Individualized Instruction as a concept is not new. Its philosophic roots reach back from Neil and Illich to Rousseau. Probably more words have been expended on the need to educate the individual than on any other single concern in education. "More innovative ideas on individualized instruction were introduced in the fifties and sixties than in all of the years past" (Frymier & Galloway 1974, p. 65). Yet the problem of effectively individualizing learning remains. The typical physical education class in its organization and its processes still reflects the old belief that all children should learn the same thing at the same rate and in the same manner. Why?

One reason the problem remains with us is that we have attempted to individualize by the pursuit of what proved to be a low payoff type of strategy — school and class organization (ability grouping, streaming, nongraded classes, team teaching, modular scheduling, open classrooms and differentiated staffing). While any one of those strategies might form a genuinely useful support for individualization, organizational changes by themselves do not insure attention to the needs of each learner. Only a particular teacher can mediate that uniquely particular transaction — *and teachers will individualize only when they personally are committed to do so.*

Too often organizational changes have been imposed from above without the benefit of teacher understanding and support. On other occasions, teachers have introduced their own organizational innovations simply because it seemed to be the popular thing to do. Under such circumstances, the absence of a clear understanding of the purposes of organizational tactics makes it likely that the crucial transactions between student and teacher will remain unchanged in any important or permanent way. In an ironic commentary on the impotence of organizational

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innovations, Frymier and Galloway have reminded us that "the institution which once was considered to be one of the worst arrangements for learning — the one room schoolhouse — is now nostalgically remembered for its emphasis on individualized learning" (1974, p. 65).

Another factor contributing to our failure to make individualized instruction the norm for teacher behavior in the gymnasium has been the defects of our system of teacher preparation. Annarino has pointed out that while we have innoculated pre-service trainees in physical education with positive attitudes toward individualizing, we have failed to train young teachers in the procedures for using individualization (or for designing and evaluating such instructional strategies) (1973).

Certainly Annarino's indictment is true of the teacher education programs with which we are familiar (the exceptions being found among the newer programs designed to prepare specialists for the elementary school). Nevertheless, the explanation is too simple to account for the situation. Physical education teachers are so thoroughly indoctrinated with the values and rhetoric of "meeting the needs of the individual child," that the effects in memory and language last a lifetime. Why then have we not seen more individualization at work in school programs? Why is it that, in Cruickshank's eloquent words, individualization seems "an impossible, unattainable dream" (1974, p. 130)?

The answer to this puzzle rests partly in the fact that rhetoric requires the supporting substance of mastered technique if it is to withstand the realities of school life. There has been a lot of pious (and generally naive) exhortation to individualize by teacher educators who do not even apply the concept to their own college classes, much less model techniques of individualization in the public schools. Such professorial talk has proved to be persuasive (and cheap), but not particularly useful as preparation for the daily work of individualizing learning in the gymnasium.

A further explanation of individualization's puzzling nonsurvival in the behavior of so many teachers rests in the peculiar nature of the professional internship (student teaching and the first year on the job). Universally acclaimed by teachers as the most useful (sometimes the only useful) part of their four years of preparation, student teaching is a pressure cooker of intense learning about how to do the job and survive in school society. Behavioral scientists call this process of learning how to behave in a new cultural environment "socialization." Student teaching provides instant socialization, but at considerable cost.

Completely unprepared to teach, the average physical education major arrives at the internship without having taught anything to anybody, without having had any substantial contact with groups of children, and without having been inside a school in any other role than that of "student." The novice then is expected to exhibit all of the complex behaviors expected of the teaching role — at once. The student faces the obligation to transform himself or herself into a teacher instantly and completely. Changing frogs into princes and princesses might be an easier trick.

In a state of considerable anxiety, the student teacher does the obvious and intelligent thing — imitate the nearest model, furiously. The cooperating teacher knows how to teach, how to get along in the school society, and what has to be done with student teachers. From such readily available models trainees learn how to teach — exactly as it is being done. They also acquire protective coloration by swallowing the entire value perspective of the school society — whole. Among the items which go down to be assimilated are the propositions that (1) "meeting the needs of each student" (individualization of instruction) is just another impractical fantasy from the ivory tower, (2) students can't be relied on to make rational judgments about learning, and (3) teaching to the central segment of the cohort is the only way to be an effective teacher.

After the necessary socialization is complete, the old words and dreams still remain, harmless now like some attenuated virus still circulating in the blood.

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Periodic outbursts of individual attention (a relatively ineffectual substitute for individualized curricula or learning patterns) suggest that teachers still remember, and that some are saddened by the loss. Nevertheless, the powerful socialization of the student internship tends to last and forms a tough barrier to change.

Finally, schools themselves have a remarkable capacity to resist significant change at the level of basic transactions. The decision to treat the individual student as the primary fact of instruction (rather than subject matter or the group) strikes directly at the heart of the school's most basic transaction — the learning process. Organizational innovations, novel learning materials, new fashions in the language of educational objectives and sweeping changes in curriculum content are, if not commonplace, at least part of the scene in most schools. Changes in the basic transactions of teaching and learning, however, tend to be rare and transitory.

Bahner and Willis have described the fate of the solitary instructional innovator in stark terms.

> The individual teacher who wants to try new patterns of instruction rarely succeeds unless the school supports her efforts. Try as she may to adopt some interesting new idea her attempts at change are easily frustrated when unsympathetic colleagues regard her as a threat to their own professional standing, or when an unsympathetic principal who regards her as radical or unreliable translates this personal reaction into a denial of promotion or tenure. (1974, p. 108).

The authors might have added that students (as much as student teachers) are socialized into accepting the norms of Cohort Instruction and thereby can resist the intrusion of new conditions for learning as strenuously as any other resident of the school community.

How Things Change

Despite all the problems, there is new hope for instructional innovation. We are at last learning more about the complicated process Goodlad has called the ecology of change (Shiman et al. 1974). Curriculum experts (Miles 1964), behavioral scientists (Sarason 1971) and educational researchers (Smith & Keith 1971) have made important progress in teasing out the causes for acceptance or rejection of new instructional procedures. In the culture of the gymnasium as elsewhere in the school, to be forewarned about the dynamics of change is to be forearmed.

Physical educators considering the introduction of individualized instruction now can consult a four-volume series on educational change (Bentzen et al. 1974, Culver & Hoban 1973, Shiman et al. 1974, Williams et al. 1974). These modest, mostly non-technical books are based upon the five-year *Study of Educational Change and School Improvement* conducted by the Research Division of the Kettering Foundation supported Institute for Development of Educational Activities (IDEA). Because individualization of instruction was a central theme of the IDEA study, the experiences and recommendations have great relevance for the innovations suggested in this book.

Some of the suggestions in the brief section which follows were drawn from the experiences of Institute staff members and school teachers who participated in the IDEA Study of Change. At best, these suggestions are only a weak substitute for the originals. We urge you to become acquainted with the new literature on educational change. Detailed and factual information about the social dynamics of instructional innovation should be part of the survival kit of every physical educator who hopes to move a school program (or even just his or her own classes) toward individualization

CAUTIONS AND ADVICE

For those who are new to individualizing instruction, we provide here a few brief items of advice on issues which require some special caution. *Individualizing is not so much a method of instruction as it is a distinct way of thinking about learning and the respective roles of teacher and student.* Because individualizing does in-

volve changing the kinds of things people do and how they think about each other, the step of implementation may present special problems. Some of these problems must be dealt with as they arise, but others can be anticipated and defused before they become disruptive. In all cases it is better to think things through in advance.

Make Your Own Decision

Should you give some form of individualizing a try? No one but you can decide. If you are not happy with the results obtained through your present methods, and if some type of attention to individual needs and student responsibility for learning seems to make logical sense as a way of improving your situation, then certainly it is worth a try. But don't be stampeded. You must look at your own personal style of working with students, the details of your teaching situation, and the costs which have to be paid whenever you try to master a new set of teaching behaviors. It is important to feel convinced that there potentially is more to be gained than the price to be paid.

Whatever form of individualization you decide to try, it should be adjusted to fit your own situation. There will be many fine teachers who decide that certain forms of individualization are too alien to their predispositions about education. Perhaps a highly personalized way of meeting individual needs, such as the style described in the Lambdin chapter, will be a more attractive option for you than one of the large-scale innovations presented in the other chapters.

Decide for the Right Reason

Be sure you choose to individualize because of the learning consequences of the process. Contracting, an open gym or a system of diagnosis and prescription have no intrinsic value in themselves. They are means to accomplish educational ends. Pedagogical method is worthwhile only in terms of the results produced for student learning.

With many forms of Individualized Instruction you may have to become sensitive to some new kinds of evidence in order to recognize the consequences of your teaching. Affective objectives, particularly objectives involving psychosocial development, are difficult to read by direct observation. Nevertheless, the only healthy reason for getting into Individualized Instruction is valuing the particular consequences it produces for students. The only healthy reason for persevering with Individualized Instruction is feedback which indicates that the consequences exist (to some minimally satisfactory degree).

Work with Other People

A team approach is the ideal context for starting a program involving Individualized Instruction. A mutual support group can help you over the rough spots. Colleagues can share the burden of organizing resources, planning procedures, and developing materials. By reading and talking together, by visiting each other, by organizing workshops, and by developing a store of resource materials and references, you can increase the number of alternative strategies with which you are familiar. Sympathetic support and interest are best obtained by involving others in the process of change.

Group Instruction Is Not Prohibited

Too many teachers are discouraged from examining and experimenting with Individualized Instruction because they assume (incorrectly) that all class transactions would have to be on a one-to-one basis between teacher and student. Common sense suggests that this would be impossible to do in the work environments which most teachers inhabit. There is no reason, however, to avoid using groups for many kinds of class functions, including instruction. Individualized Instruction is a particular relationship between the student and what is to be learned, not a particular method of communication or strategy for class management.

Teachers who involve students in choices about content and method must use efficient ways to trans-

mit information and organize the learning environment. When a number of students encounter the same learning problem, when the progress of learners is to be evaluated (even by individual standards), when the meaning of a play experience is to be clarified, when cooperative or competitive activities are to be organized, then a traditional group format makes perfectly good sense. In that way, then, the teacher may continue to be very much at the center of class activity, may continue to exercise considerable control over the pace and direction of learning for the class as a whole, and certainly will deal with student needs in a variety of group formats.

Plan Pauses for Reflection, and Never Hesitate to Back Off

It often is best to proceed stepwise at first, setting up short-range goals for changes in your program and personal behaviors. Leave time for some evaluation and reflection before pressing on to add new parts to your system. If things don't seem to be going well, and particularly if students are not responding in positive ways, do not hesitate to gently pull in the reins on the pace of change for a period of time. It always is important to be consistent in your relations with students, but it is not necessary to press ahead with any particular instructional format just because you have initiated a trial run. As one teacher put the situation, "these periods of pulling in, at least for me, seem to provide a time for some stability and reevaluation of what might have been going wrong" (Kaplan et al. 1973, p. xv).

Be Aware of What Control Means for You

The teacher's personal ideology concerning control often turns out to be the pivot on which success or failure swings in any instructional innovation. If you generally are inclined to be concerned about student reliability and trustworthiness, and have some serious reservations about student ability to learn self-direction, chances are good that you usually put the maintenance of good class order high (or highest) on your list of teaching priorities. This viewpoint tends to center on your custodial responsibilities such as getting students to behave the way you think they should, protecting school property, and discouraging any important departures from the rules.

If, on the other hand, you are generally inclined to think of students as trustworthy, capable of learning to discipline themselves and able to assume responsibility for some aspects of their own learning, chances are good that you will put the production of learning at the top of your list of teaching priorities. Your responsibility for managing student behavior may be limited to situations in which students interfere with the learning of others, present a physical or psychological danger to others, or when property must be protected.

Although all of us fall somewhere along a continuum of attitudes toward control, some have a much higher need than others to avoid situations which contain a threat to the exercise of direct control over all student behaviors (Barfield & Burlingame 1974; Hoy 1967). *It is not impossible for such teachers to individualize, but it will be difficult*. Such simple things as the fact that when any individualized practice format is employed, some students will finish their learning tasks before other students, may prove to be a genuine threat to the security of a teacher who feels a strong need to exercise a high level of control. Some degree of self-management is a component of almost all systems of Individualized Instruction, yet some teachers feel it impossible to turn responsibility for behavior over to students without suffering severe anxiety about the possible consequences.

Some reservations about student capacity for self-direction are perfectly normal and, indeed, healthy. Bearing a load of discomfort and anxiety is not. Confronting your feelings openly, sharing your concerns with others facing the same problems, and attempting to find the roots of your attitudes about control (whatever they may be) all may make it more possible to live comfortably (and more effectively) with Individualized Instruction.

New Behaviors Mean Playing a New Role

Teaching is a social role which initially is defined by the behavioral expectations held by significant others in contiguous roles. Over time a role occupant comes to define the role in terms of the characteristic performances which are required to fulfill the expectations of others. A major shift in teaching strategy may require teachers and students to emit new kinds of performances not previously identified with the role. Sometimes these shifts in role expectation cause severe disruption of the self-concept.

Anderson suggests that teachers who suddenly find themselves off the center stage of class activity (as often happens in a contract system of individualization) may suffer real doubts about whether they still play a significant role in the learning environment (1973). These teachers have yet to discover that the time released by their new role behavior can provide opportunities for vastly more intensive and effective participation in the instructional process. Thinking through the problem of changing role expectations ahead of time, assuming the new role behaviors gradually, and providing yourself with some reassuring opportunities to use the old role behaviors from time to time, all can help make the period of role transition less traumatic.

Know the Alternatives

The varieties of Individualized Instruction presented in this book are a beginning, but only a beginning. There are literally endless variations, dozens of which already have been described in the physical education literature or are available for observation. In this confusion of riches you should not assume that because you have read a report about a given system, you know all of the useful alternatives involving that system. A single name may cover programs that have differences which would be very significant in determining your own choice. Contracting may include student choices of what is to be learned, or it may not. Likewise, contracts may offer alternative learning experiences, or they may not (Fast 1971). Diagnosis and prescription may involve student participation in various phases of assessment and evaluation, or may limit student involvement to self-direction and pacing during the practice phase (Discoll & Mathieson 1971; Shrader 1974). In the end you will have to refine, if not create, a system attuned to your personality, your students and your work situation. Having access to a rich array of alternatives, however, can speed that process and may save costly investments of time and materials.

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GOAL SELECTION

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The purpose of this chapter is to provide a theoretical framework for goal selection and achievement in physical education. To be considered are the kinds of goals and the sources and processes for their determination. Special attention is given to a most important source for goals in physical education, the diagnosis of the individual student's educational needs. In a volume devoted to personalized learning, such a diagnosis is at the heart of the problem of goal selection and also ties together the related problems of goal selection and achievement. Equally important is the stimulus for change provided by a periodic determination of students' needs. Indeed the traditional failure of physical educators to attempt diagnostic measures constitutes a major reason why programs have been static over the years; in the absence of such information, programs and their underlying spurious assumptions have gone unquestioned.

Too frequently, personalized learning and/or individualized instruction are widely misunderstood in relation to the roles of physical education teachers. Rather than eliminating teacher roles in physical education, the roles of teachers are in fact recast. It is to the problem of how and why these roles are recast that the discussion now turns.

Physical Education Professionals and the Dialectical Character of Education

Physical education teachers have long aspired for professional status. Although journals, meetings and associated activities use the label "professional," the fact remains that physical educators have fallen short of their target. Granted, physical educators have attempted to fulfill the mission of all professions — to shape and modify behavior for the ultimate betterment of mankind. Yet, such attempts have not conformed to A.N. Whitehead's classic definition of how a profession attempts to fulfill its mission. According to Whitehead (1948, pp. 73-74), a profession subjects its activities to theoretical analysis and subsequently modifies its activities as a result of theoretical conclusions derived from that analysis.

A professional in this light is continuously involved in the evaluation of (1) activities under his guidance and (2) directions (goals) that determine the activities. This definition implies that the practitioner (teacher) is figuratively the fulcrum of any profession. Relevant theory is derived from external sources (e.g., literature, meetings, etc.) as well as internally, where information regarding both the learning activities of students and goal selection and achievement are produced by the teacher.

Professions also "profess" to know something of value, to have information and skills that are not the common possession of laymen. It is in this light that the dialectical character of education and physical education enter the discussion. For years, education and physical education have reflected alternate swings of a pendulum between teacher-directed and student-initiated learnings. Indeed, any discussion of

personalized learning might be construed to represent a swing toward student-initiated learning at the expense of teacher direction in physical education. What needs to be emphasized is that effective learning and/or programming recognize the coexistence of what may appear to be contradictory trends. Examples include the split between the heredity of a student and his environment and between what a student experiences outside the school and what is intended to be accomplished within it. J. Holt (1972) in using the term "tension" to describe the existence of dialectical relationships states: "In a tension it is as if two hands were pulling us hard in opposite directions. Each is pulling us toward something good, one is as strong as the other, and neither will tire or let go" (pp. 27-28). The ultimate balance between teacher-initiated and student-initiated concerns is still another example of a dialectical process, a process in which what may appear to be opposing forces are operative at the same time.

When personalized learning is viewed as a dialectical process, the functions and responsibilities of a professional teacher become crystallized. Professionals interested in personalized learning, far from abdicating responsibility for their classes and the kind and amount of learning for students, are eminently responsible for their direction in a number of ways. As noted in the Locke-Lambdin chapter, teacher behavior must become more flexible and indeed sophisticated. Structuring an environment within which personalized learning can occur in physical education is an important task in and of itself. Furthermore, teachers must utilize their knowledge in a manner which facilitates individual learning within the context of what the physical education program is attempting to accomplish. That is, the dialectical character of physical education and the responsibilities of the professional teacher are such that while personalized learning is a reality, so is the need for identifying broadly defined, yet common goals which represent the directions of the program and the outcomes deemed appropriate for *all* students.

Such goals are commonly of two types as they relate to student behavior. *Student-expressive goals* attempt to change the student's identity or character in some fundamental way. Examples include traditional emphases upon cooperation, ethical behaviors and the like. *Student-instrumental goals*, on the other hand, reflect the need to provide students with specific experiences or skills useful to them outside the school. A striking example is the notion that students should learn lifetime sports in physical education classes. Responsibility for goal setting, whether student-expressive or instrumental, might well be a shared responsibility, the same can be said for the determination of how the goals will be achieved.

The breadth or general nature of these outcomes is reflected in the use of the term "goal" instead of the more commonly used and more specific term "objective." Because they attempt to depict specific behaviors, objectives are time-bound or short-term. Moreover, it has been assumed that merely by stating objectives in a precise fashion, permanent learning will occur automatically. Hence, there has been little attention given to how these objectives are derived and the values they reflect; emphasis is rather upon how they are stated.

Personalized learning as discussed in this book, on the other hand, recognizes that the decision to emphasize some behaviors in physical education classes at the expense of all other possible alternatives involves the expression of preferences based on student-teacher values (The Passmore-Passmore chapter which discusses values clarification, reflects this assumption.) Thus while objectives may have short-term merit in a unit plan or in the mechanisism described in Park II of this book, the general framework described herein is provided by statements of goals. At the same time, such comprehensive goals serve to provide the framework for vertical articulation[1] or progression in the physical education program.

Such broadly defined outcomes represent collectively the definition of the "physically educated student." After numerous years of school physical education classes, the student should be somehow different from what he/she would have been without such exposure. These broadly defined outcomes represent the desired changes brought about in the behaviors of students. They also provide direction for the learning activities that comprise physical education programs at various grade levels; in the provision of such a framework, they likewise maximize students' freedom. As the noted anthropologist B. Malinowski (1970) has observed:

> Thus it seems clear, first and foremost, that the concept of freedom must always be referred to the increase in range, diversity, and power in human planning. The ability to foresee and to plan ahead, that is, the ability to use past experience in order to establish future conditions corresponding to the needs, the desires, and the aspirations of man, is the first essential prerequisite of freedom. (pp. 298-299)

Examples of some general outcomes appear below (Lawson 1973b). These goals are much more comprehensive than those commonly regarded by physical education professionals who recurrently state that neuromuscular skills and physical fitness are the two major goals of physical education (cf. Wilson 1969; Rosentsweig 1969). The reasoning which underlies the following objectives centers upon the advisability of providing students with a knowledge base which, when coupled with laboratory experiences in the gymnasium, provides the basis for *understanding* performance. Such a knowledge base, it might be argued, is the key to adaptability as an adult. Possession of relevant information and selected skills would appear to have greater import for students when they become adults than reliance upon skills in selected activities

[1]Used here, vertical articulation refers to the sequence of curricular experiences K-12. That is, there should be a logical progression in the learning experiences of students as they proceed up the educational hierarchy; each experience should contribute to the goals of the physical education program. At the same time, efforts should be made at each grade level to integrate learning experiences in physical education with those of other subject matter areas (horizontal articulation).

and fitness changes (which are transitory) and produced during adolescence at the discretion of the physical education teacher.

1. Students should experience learning under a variety of environmental conditions and with numerous types of teaching-learning methodology.
2. After exposure to a variety of physical activities, students shall be afforded the opportunity to pursue excellence in the activity or activities of their choice.
3. Students shall be able to design exercise programs based upon known principles of training and conditioning.
4. Students shall be able to distinguish between fact and fantasy regarding the physiological and sociopsychological effects of physical activity and inactivity.
5. Students shall be able to identify the ways in which the following influence their own potential preferences and capacity for physical activity:
   a. Biomechanical factors
   b. Structural functional factors
   c. Sociocultural factors

It should be apparent that there exists a great deal of freedom within which learning can occur. The notion of student and teacher choice is implicit in such a general framework. Yet, the physical education program is given both cohesiveness and direction by such a statement of agreed-upon outcomes, whatever their nature and scope.

It is incumbent upon physical education professionals to meet and agree upon such minimal guidelines which shall shape the direction of their programs. Moreover, if the learning of students is to be personalized, students need to be involved in deciding how the goals are to be determined and achieved.

Processes for Goal Selection

The introduction to this book states that an approach to personalized learning assumes that the student has relevant experiences which are brought to the physical education setting and that these experiences need to be reflected in the conduct of physical education classes. This is best accomplished by allowing students to make decisions and exercise their choices. After all, life itself offers a continuous confrontation of choices, and it follows that the opportunity to make decisions and experience their consequences without penalty represents a viable emphasis in physical education programs.

Life in a democratic society allows freedom. Yet, there can be little discussion of freedom without mentioning its companion, responsibility. Both are learned behaviors which need to be practiced under the direction of professional physical educators. The quest for personalized learning thus involves the gradual increase of freedom of choice as the student is able to assume responsibility for such fundamental decisions. Accordingly, goal setting and the ways of achieving the stated goals move along a continuum from largely *teacher-initiated* to *cooperative*, to primarily *student-initiated* goal setting. By school level, one would expect these processes to correspond to elementary (primarily teacher-initiated), middle school (largely cooperative) and secondary school (dominated by student-initiated).[2] In their literature review, Nixon and Locke (1973) offer some support for this progression. It should be emphasized that all involve a mixture of student and teacher input; the balance between the two is the major variable.

Ultimately, the student becomes what is commonly labeled an independent learner. (The next chapter on developing techniques for behavioral self-control reflects this intent.) The student is allowed to exercise choices which reflect his individuality, including choices with regard to goals and the ways in which the goals are to be accomplished. The quest for an independent learner, one who has learned how to learn (hence he can control the process), can be discussed independently of teaching methodology. As Goldfried and Merbaum (1973) have noted in the discussion of Rogerian and Skinnerian approaches to learning and behavior change:

[2]An appropriate text which aids students in goal selection has been provided by Mager (1972).

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> Both acknowledge that the dangers associated with the control of human behavior can indeed be frightening, and both recognize the importance of providing the client with a certain measure of self-direction. The point at which the essential difference occurs between client-centered and behavioral approaches is with respect to the *means* by which this goal is achieved. Rather than viewing the client's inner direction as an outcome of some natural, though undefined growth process, the behavior therapist has staunchly maintained that the ultimate achievement of self-control, like any other ability, can be learned through the systematic application of various principles of behavior change. (p. 4)

In the context of the sample goals which were provided, the student has likewise gained the information necessary to complement what he has experienced in physical education. Both provide the preliminary basis for judicious decision making required for an adult in a democratic society.

Beyond Student Involvement: Sources to be Consulted by Professionals

The responsibilities of a professional make it imperative that the teacher involved in goal selection tap all relevant sources which should influence the physical education program. In this section, four of these sources will be identified and their potential impact clarified. Once again, the discussion is predicated upon the dialectical character of physical education. While granting legitimacy to the input of the student, it should be emphasized that the student's experience and perceptions are by definition limited in relation to the depth and breadth of exposure and knowledge of a professional physical educator. The art of teaching is that of striking a reasonable balance between the two.

The first of these sources is the local community and its associated environment, including topography, climate, ethnic background of residents, etc. Such factors invariably influence students' behaviors and choices. At the same time, however, teachers must consider the extent to which local conditions are typical or atypical of the nation at large. At a time when geographic mobility is high, such input is necessary to insure a greater degree of universality of outcomes. Local agencies which provide instructional and/or participatory opportunities in physical activity likewise should be examined to minimize all but essential overlap; complementary functioning represents the ideal relationship between school physical education programs and city recreation programs, private and public sports clubs and similar agencies. If truly personalized learning is the goal, then it must be recognized that some students will wish no more than what is provided locally while others will aspire to other activities. In either case, the era is gone when one could be given survival strategies for a local hamlet at the expense of national and international influences. The latter are among the teacher's responsibilities.

The second of these sources is the teacher. The subject matter of physical education is understood in its broadest sense only by the physical education teacher; hence, the teacher has the responsibility for implementing goals and/or procedures which allow the student to approximate the same boundaries of knowledge and experience. It has been noted that physical education is one of the few school subjects which encompasses by definition all three domains — cognitive, psychomotor and affective.[3] Without the input of the teacher, it remains doubtful how many students would ever gain such a realization. Certainly a physically educated student must have been exposed to such information about the very structure and substance of physical education.

A third source of information is relevant social indicator data, which include forms of literature depicting societal trends and problems as well as those describing the ideal or model citizen and society. Social indicator data thus provide the basis for long-range planning. Long-range projections often seem remote, but to borrow an aphorism, tomorrow is best anticipated

[3]For a discussion of each of these dimensions, see Bloom et al. (1956), Krathwohl et al. (1964) and Jewett et al. (1971).

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today. Indeed a major criticism of all education and certainly physical education is that it has been overly ad hoc, that is, geared to the present at the expense of the future. The present-future problem is yet another dialetical relationship, and both must be emphasized for optimal programming in physical education. As R.M. Hutchins (1968) and others have noted, the astonishing rate of change is one of the most striking characteristics of the world in which we reside. Providing the basis for individual and collective adaptability should constitute a major concern for physical education and education in general. Hutchins states:

> The more technological the society, the less ad hoc education can be. The reason is that the more technological the society is, the more rapidly it will change and the less valuable ad hoc instruction will become. It now seems safe to say that the most practical education is the must theoretical one. (p. 8)

Personalized learning does not terminate with the end uf formal schooling. The thrust of physical education prugramming is toward lifetime invulvement in physical education activities. Such a long-term cumnitment on the part of physical education places it in the mainstream of what Hutchins labels *the learning society*.

The last suurce for goal selectiun and activities pursued in relatiun tu goal achievement is research. R. Bruderick (1971) and others (Locke 1969; Siedentop 1972; Stadules 1973; Rothstein 1973) have addressed themselves to the problems of practitioners and the salience of research in providing solutions. The few studies that are appropriate often cannot be understood by the practitiuner because of technical jargon in the report and the lack of research training for the practitioner. L. Locke (1969) clearly reveals that such research cannot substitute for decisions which must be made by practitiuners. R.E. Stadules (1973) has nuted the time lag between the availability of usable data and its widespread utilization in public schuols. Yet, the problems of the professions would seem to dictate not only more appropriate research to help the prac-

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titioner, but publications which disseminate this information in understandable and usable fashion. AAHPER's series on research for the coach represents one such attempt; another is the publication, *Bridging the Gap*. More recently, a section of the *Journal of Physical Education and Recreation* has been devoted to the same task. Yet, none of these are sufficient in and of themselves.

The functioning of a professional, as noted earlier, rests upon the extent to which stated goals and learning activities can be confirmed in practice. It is only reasonable that research regarding the effectiveness of the methods identified in Part II would be helpful to the teacher.[4] Indeed, such information is essential. In its absence, the substance and learning processes in physical education become mixtures of guesswork and tradition, and the profession in this instance violates all that it stands for. Learning, far from being personalized and judiciously guided, becomes entrenched in the past and based upon trial and error. Such is the fate of pseudo-professionals and programs which remain outside the mainstream of the dissemination of new knowledge. Aside from reading about or being told about professional activities, however, teachers who are intent upon embarking upon a course which includes personalized learning should become involved in gathering their own information by assessing individual needs in physical education.

Assessing Individual Needs in Physical Education

Perhaps the best example of the uses of research in personalizing learning is in the assessment of individual needs. Personalized learning and appropriate goal selection require the teacher to diagnose students' backgrounds and experiences. At the same time, relevant data which can help the teacher realistically determine what might be accomplished in physical education and how it might be accomplished are likewise necessary.[5] In this instance, what research tells the practitioner can be used to refine a tool(s) which the teacher uses to assess individual needs. The precise number and nature of the assessment tools will rest ultimately upon the goals deemed appropriate by teachers and students. Perhaps an example will better illustrate the point with respect to how research can help assess individual needs, and, in turn, how the assessment itself becomes a form of research.

It is increasingly apparent that factors outside the school may largely determine (or at least influence) personal preference for and the amount and kind of actual participation in physical activities. Such extra-school factors include the socioeconomic status of the child (Roberts & Sutton-Smith 1962; Loy 1969; Luschen 1969; Young 1970), the peer group (Coleman 1966; Kandel & Lesser 1972), gender (Kenyon 1969; Webb 1969; Petrie 1971; Saario et al. 1973), sibling-sex and ordinal position in the family (Landers 1971), and the family proper (Snyder & Spreitzer 1973). Better evidence exists to indicate that many of the same factors determine academic achievement in public schools, subsequent entry into college, and the probability of completion of college (Flanagan 1964; Central Advisory Council for Education 1967; Coleman 1966, Jencks & Reisman 1969; Jencks 1973).

Looking at direct outputs from secondary school physical education programs indicates that studies of college age students in programs of voluntary physical education (Gallon 1958, Faulkner 1968; Lawson 1973a) and in required programs (Thorpe 1967; Dotson & Stanley 1973) hint that a process of preselection takes place with regard to participation in physical activity. By the time students enter college, physical activity preferences are well established. Some students have lifestyles characterized by physical activity. Not only

[4]The most recent and qualitatively best review of the literature regarding teacher behaviors and conditions surrounding and influencing learning in physical education has been provided by Nixon and Locke (1973). Unfortunately, the profession generally has been content to rely on such pedagogical information at the expense of other applicable data. This reliance upon pedagogical means to achieve the same time-withstanding outcomes (neuromuscular skill and physical fitness) has allowed the latter to remain largely unquestioned.

[5]The key to the accountability issue for this and other professions is that of addressing physical education curricula to problems it can realistically be expected to solve.

do they elect classes in college, but they have probably paid for private instruction in extraschool contexts and have participated in intramural and athletics. Other students upon reaching college appear to avoid physical education at all costs, citing fear of low grades, awkwardness and embarrassment with motor skills as reasons (Gallon 1958) Similarly, Keogh (1963) found that some students avoid physical education classes but seek physical activities outside the school

The effort to personalize learning is in part a response to the information presented above. The assumption is that if physical education programs are not wholly effective as inferred from output data, then personalized instruction is a viable way to avoid malfunctioning for the present group of students. One major step in this direction is avoiding disconfirmation, which occurs when the students' cumulative experiences outside the school and within are invalidated by the physical education program and/or the teacher. Disconfirmation brings with it withdrawal, apathy and a passive approach to learning—its effects are thus negative.

If novelty and a role in the planning processes represent some essentials of good learning, every effort should be made to assess the student's previous experiences. In light of the above findings, it seems reasonable to assess the following in simple questionnaire form.

1. Socioeconomic status
2. Amount and kind of instruction in physical activities outside the school
3. Activity preferences (if any) of parents, siblings and peers
4. Activities in which the student would like instruction and the level preferred (beginning, intermediate, advanced)
5. Orientation to participation in physical activity (e.g., highly competitive, as a source of intrinsic satisfaction, as social experience, as catharsis) (cf. Kenyon 1968)
6. Frequency of extraschool participation
7. Team memberships and associated affiliations focused upon physical activities

Such information could be secured at the beginning of each school year and kept in a personal file, much like a case history kept by a physician. The fact that the information can be secured by self-report minimizes the time involved.

Part of the student's folder would naturally be physiological and physical growth assessments that could be administered by the teacher. The interest again is diagnostic rather than evaluation for grades or some other extrinsic purpose. If instruction is to be personalized, this kind of information, gathered over varying time spans, provides the only way that the process can be made with maximal accuracy.

Certainly other measures, assessments and commentary might likewise be included in such an assessment file depending upon the program's goals. Aside from enabling teachers to personalize instruction better, such information also provides a research base which can guide future programs. If such assessments are taken regularly, a wealth of feedback can be procured regarding the effectiveness of physical education programs. In the case of malfunctioning, corrective measures can be implemented immediately before the problems become more acute or chronic. Furthermore, longitudinal studies can be designed to follow up students who have completed school programs in an effort to determine the extent to which participation continues after schooling terminates. When such information has been gathered continuously, one can determine why the program has been successful or unsuccessful; the basis for this determination can be aggregate data or individual case histories.

Perhaps another point for use of regular individual assessments is the thrust for accountability in programs in all educational areas, not the least of which is physical education. With the availability of such data, changes in the behaviors of students may well be documented; at the very least, such information provides clues as to why programs are effective with some students and not with others. By utilizing research, the physical education teacher functions as an optimal

professional capable of personalizing services to the client (student) while offering evidence of effectiveness to the public to whom the teacher is accountable. Moreover, as the physical education program produces students whose behavior has changed, so too must the program and its teachers change as today's students become tomorrow's parents. Students of the future will therefore require different programming in response to differing needs. Such is the nature of change.

Summary

This chapter has explored the theoretical underpinnings for the selection and achievement of goals in physical education. Emphasized herein has been the dialectial character of physical education and education. In this light, some of the professional responsibilities of physical education teachers interested in personalized learning have been outlined. Given the dialectical character of physical education programs, the emphasis upon personalized learning and individualized instruction techniques can be seen as aids to the functioning of the teacher and guides to making learning more meaningful for students. Rather than eliminating the roles of teachers, personalized learning and individualized instruction techniques recast teacher roles in ways that are more beneficial to students, teachers and laymen alike.

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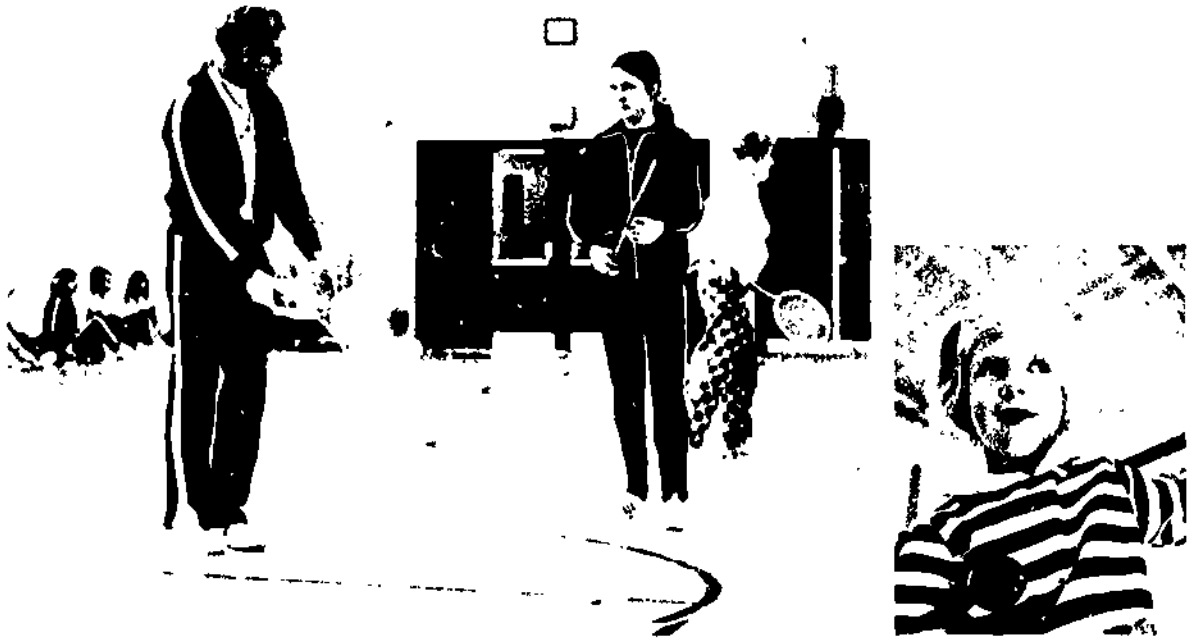

SELF-CONTROL

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Personalized Learning is like apple pie, mom and the flag. Nobody would dare profess to be against it, at least not in public, and certainly not at an educational conference or in an educational publication. For all this support, however, there has been little evidence of Personalized Learning in physical education. Recently, education has been inundated with a new avalanche of rhetoric about Personalized Learning, but this time there does appear to be a difference. That difference is that the rhetoric is accompanied by some models for achieving more Personalized Learning environments. The advancement from rhetoric to models is a major step not to be taken lightly, even though it marks not the end of the battle but perhaps just the beginning. At the university level, Personalized Systems of Instruction PSI (Siedentop 1974) is perhaps the most important model because it has been widely adopted and has a strong empirical base. At the secondary and elementary levels, the models range from the open classroom to contingency management, with many steps in between. At these levels the adoption rate is less dramatic and the empirical base is shaky at best. Still, the models presented in this book give evidence of the degree to which Personalized Learning can be utilized in today's schools.

All Personalized Learning models depend for their success on a basic assumption that the learner will behave in a responsible manner commensurate with the learner's freedom and opportunity for self-direction. Responsible behavior often requires a form of self-control. An explanation of self-control and some strategies for helping learners achieve it are suggested in this chapter.

Self-control and Personalized Learning Environment

The creation of a Personalized Learning environment will not automatically turn students into self-directed, self-controlled learners. Quite to the contrary, a student brought up in a traditional teacher-directed setting would no doubt experience some behavioral culture shock in attempting to function in a Personalized Learning environment. The only behavioral base this student would have to lean on is that which might generalize from the repertoire learned in the teacher-directed setting, and this would hardly allow for the aggressive, inquiring, persistent kind of learning behaviors which seem most suited for Personalized Learning. The alternative would be to have the personalized environment so structured that it requires no self-direction or self-control, but this might also strip it of its meaning as a personalized environment. A more likely probability is the kind of behavioral chaos seen in many "free schools." Many have found that freedom in learning requires some responsibility (Salzburg 1972), and responsibility usually means some self-control.

A Personalized Learning environment is thought not only to optimize the immediate educational value of an environment for the learner but also to create a disposition for the student to become a self-directed, lifelong learner. A major construct contributing to success is self-control. The learner with a short attention span has not acquired sufficient self-control to exhibit task persistence. The learner who is susceptible to immediate gratification or who cannot endure frustra-

tion does not have the self-control to be task oriented. Self-control implies that the emitted or omitted behavior (the self-control) has consequences somewhat less positive than those that might accrue to alternate behaviors; i.e., there is no *visible* reason for doing or not doing that behavior. A student who runs four laps of a track under the careful, continuous and often menacing supervision of the physical education teacher would not usually be described as exhibiting self-control. But, a student who runs four laps after class is over when the other students have chosen sides for touch football would more likely be described in that manner. Although the behavior is the same, the situation, the immediate external influences and the opportunity to engage in alternate behaviors are different.

A Personalized Learning environment could be designed, theoretically, so that progressions were so well suited to the individual and the tasks so immediately and intrinsically rewarding that the student could go through the program quickly and efficiently without exhibiting any self-control, his behavior being totally under the immediate control of the well structured learning environment. That such learning environments are difficult to design is obvious and that they should be so designed is at least suspect. If we are to help foster self-directed, lifelong learning, we should be careful to teach self-control.

Labeling behavior as self-controlled almost always involves a judgment about the probability of the behavior occurring as opposed to alternative behaviors, particularly those that have in the past been suscepti-

ble to immediate external influences. The student who stays in the library to study when his friends go for a few beers at the local pub is said to show self-control, especially if the student has in the past shown a tendency to prefer evenings at the pub to evenings with the books. Along with the notion of alternative behavior potential, self-control implies that the individual is the principle agent in directing those features of his behavior that we label as self-control (Goldfried & Merbaum 1973, p 11). When immediate external constraints become too evident, the behavior tends to fall out of the realm of the self-controlled. A workable behavioral definition of self-control was suggested by Thoreson and Mahoney. "A person displays self control when in the relative absence of immediate external constraints, he engages in behavior whose previous probability has been less than that of alternatively available behaviors" (1974, p. 12).

Forms of Self-control

It is in this framework that the following behaviors, crucial to success both in Personalized Learning settings and for lifelong learning, may be viewed as forms of self-control.

1. A student maintains task orientation while receiving instruction from sources other than direct teacher verbalization, e.g., a student perseveres at a task while getting instructions from a task card or while operating a loop film to check some point of form.
2. A student maintains task persistence in the absence of direct teacher supervision when other behaviors may be engaged in without immediate coercive control, e.g., a student persists at a learning contract even though half-court basketball is available and no punishment would accrue for participating.
3. A student works for deferred rewards even though other more immediate rewards are available for alternative behaviors, e.g., a student persists in a long-range learning task (such as learning a golf swing indoors when the payoff is deferred until a good swing can be used on a course) even though peers would reward him for playing in a group game.
4. A student exhibits task persistence and continues to exhibit it even when disrupted by a fellow learner, i.e., a student continues to be immersed in a learning project even though a classmate verbally disrupts the learning situation. The student ignores the disrupter, choosing not to further the disruption by interacting with the disrupter.
5. A student exhibits task persistence in the face of minor setbacks and frustrations, i.e., the student continues to work hard even though success is slow in coming and physical and personal frustrations were of sufficient strength to allow him to escape from the learning situation without punishment.

In each of these situations the student had an alternate behavior with an immediate consequence, but behaved in a manner more consistent with deferred consequences and did so without any immediate external constraints or prompting. It is usually implied that such behavior is truly *self*-generated and not caused by any external agent (immediate or deferred, covert or overt). From a behavioral viewpoint this is a serious error because it tends to discourage an examination of the factors which can teach and maintain the kind of behavior we label as self-control. B.F. Skinner has pointed out clearly that self-control is still behavior and must be accounted for by references to elements of the environment.

> When a man controls himself, chooses a course of action, thinks out the solution to a problem or strives toward an increase in self knowledge, he is *behaving*. He controls himself precisely as he would control the behavior of anyone else — through the manipulation of variables of which behavior is a function. His behavior in so doing is a proper object of analysis, and eventually it must be accounted for with variables lying outside the individual himself. (1953, pp. 228-229)

So when a learner persists at a task while learning to endure some frustration that might previously have resulted in his abandoning a learning task, one should not assume that the capability arose from some innate potential or predisposition. One should instead examine the variables in the environment that helped the student to *learn* to endure the frustration. Perhaps a student has learned to use one aspect of his behavior to help control another aspect (for example, to use a verbal prompt to help him remember the consequences of abandoning a learning task, thus helping him to endure in the task). This behavioral concept of self-control is based on three related assumptions.

1. Self-control is a learned skill and a repertoire of self-control behaviors builds gradually through interaction with a complex environment.
2. Self-control does not arise from any innate tendency or inner source, but is acquired through the consequences it generates, whether they occur in an unplanned or systematic fashion.
3. Self-control is not a global personality construct but is more appropriately viewed as a class of behavior relevant to functioning in specific settings. (Goldfried & Merbaum 1973, p. 13)

With this set of assumptions it is not surprising that the study of self-control has attracted behavioral psychologists in growing numbers in recent years. It is one thing to tell a youngster to "control his temper," but it is another to help him to learn how to do so. It is one thing to tell a youngster to "control your temper," ronment where students have varying choices, opportunity for self-pacing, and a relative absence of immediate constraints, but it is another thing to help them learn how to behave productively so as to optimize the usefulness of the environment and to develop learning behaviors that will indeed help them become lifelong learners.

Describing a behavior pattern in terms of the degree to which it shows self-control is a social labeling process that is relative. A student who aggresses against another student is said to show no self-control. A student who aggresses in specific, socially approved settings is not thought to show undue self-control. A student who never aggresses, no matter what the situation, is not only unlikely to be praised for self-control but is liable to be denounced. On the other hand, a youngster who, having been a frequent figher, learns to "count to ten" until he has had a chance to think about the incident over which he might fight is said to show self-control. This example illustrates the tendency to label behavior according to the situation, particularly to attribute self-control to those who previously had shown maladaptive behavior.

Self-control as Discrimination Training

The simplest form of self-control comes through discrimination learning. Students should be taught to discriminate circumstances in a Personalized Learning environment when certain classes of behavior are acceptable as opposed to situations when the same or similar behaviors are unacceptable. Gymnasiums and playing fields ought to be noisy places, yet there are times when students should be quiet. Much of the success of a Personalized Learning system depends upon cooperative behavior in certain crucial situations when a competitive-aggressive response would create a serious disruption.

There are two important facets in discrimination training. First, students need to be helped to learn cues in the environment that signal the need for a certain behavior. Students will learn these cues eventually, but trial and error learning is often very slow and the errors committed in discrimination training will not help to further the ends of the learning process. It is amazing how many teachers fail to teach a specific signal for attention. Time is a precious commodity in physical education and often 30-60 seconds are wasted while a teacher tries to bring the class to attention in order to provide some direction, group feedback or other important matter. The second factor in discrimination training is to reward consistently the appropriate behavior in the presence of the cue and to ignore it in the absence of the cue. When, in learning, students quiet down quickly following a signal for attention, they should be praised, while noise at other times should be ignored.

Students working at task cards need to learn the cues which tell them when to move to another station. Various cues might range from 1) a teacher signal to 2) a certain number of trials at each station to 3) a certain time period at each station to 4) reaching a criterion measure in the posted skill at the station. The pace of the physical education class would differ in each of these situations. The first is teacher-directed while all the others would find students moving around without direct teacher supervision. The first and third would find a fairly even flow of students from station to station, while the fourth would find a highly uneven flow. When a teacher decides which of these cue systems is best for his/her purposes, the cue should be taught in the elementary sense of praising students who are behaving consistent with the cue discrimination system (verbal and nonverbal praise is valuable in teaching) and ignoring or punishing those who are not. Punishment will probably bring a quicker discrimination learning but usually the time saved is not worth the potential antagonisms and negative atmosphere created.

Discrimination training allows for the shifting of control of behavior from the teacher to the environment. This in itself is often considered to be a form of self-control. The student working on a learning contract is not under direct teacher supervision. Such a student must monitor his/her own efforts in completing the contract, and in doing so must be guided by clocks, tasks completed and a host of other cues, each of which is most distinguished by the absence of immediate external constraints. A behavior useful in this situation is evenness of pacing. Many students when left to the demands of a Personalized Learning system will procrastinate until the end of the time period to complete the task, contract or whatever. Working at a steady pace is usually more beneficial and certainly more conducive to lifelong learning. Steady pace learning is a behavioral skill that can be taught, and in its own right is yet another discrimination, i.e., stu-

dents discriminate that learning situations in which there is no direct teacher supervision call for a steady effort toward task completion. They learn this by being differentially rewarded for steady effort as opposed to a hasty effort at the end of the time period.

Self-control Through Environmental Planning

Environmental planning refers to self-control in which the individual student plans and carries out changes in certain situational factors relative to a particular target behavior. This is a form of stimulus control and can be profitably viewed as a discrimination learning model in which the individual plans for and controls certain cues which lead to appropriate behaviors and also plans to remove other cues which have in the past lead to maladaptive behavior.

If a student has tended to engage in disruptive behavior when in the presence of several specific friends, he might ask those friends to leave him alone for the duration of a physical education period or for the duration of a work session if the learning is being completed outside the regular class schedule. A student who has a tendency to spend hours shooting baskets at home might lock up his basketball until he makes a certain amount of progress or finishes a cycling program or some other skill learning in a personalized program. Many students find it helpful to post signs to remind them of certain behaviors to be engaged in or others to be avoided. Signs placed in appropriate spots (where the behaviors are likely to be emitted) can prove most helpful. The prearrangement of such written cues is best if they refer to specific behaviors rather than generalized phenomena. A sign that says "when the going gets tough, the tough get going" doesn't really say much in terms of specific behavior. A small note taped inside a locker which says "I will not fool around with Cindy and Kathy today" or "I will spend my time in gym class learning as much as I can" is more likely to cue appropriate behaviors for a Personalized Learning setting.

Students can also prearrange consequences to support their efforts at Personalized Learning, especially consequences tied to the emission of behaviors particularly relevant to their success in these settings. Often prearranged consequences also can be usefully applied for the omission of maladaptive behaviors (a form of behavior modification known as omission training). In the first case, a student might prearrange to spend 5 minutes on the trampoline for every stage completed in a learning contract on archery. In the second case, a student might prearrange to spend 5 minutes on the trampoline for every class period in which no disruption occurs for 30 continuous minutes. The prearranged reward is the same, but in the first case it is contingent upon completion of target behaviors considered to be appropriate for Personalized Learning while in the second case it is contingent upon the omission of behaviors considered to be detrimental to success in a Personalized Learning setting. It is important to note that prearranged consequences in this model are contingent upon the occurrence of self-control behaviors or the omission of behaviors incompatible with self-control, i.e., these are strategies for students who need to learn self-control behaviors.

A typical kind of application of self-control through environmental planning might occur in a contracting learning system. A common problem in such environments is that students attempt progress checks (to demonstrate competencies in the contract) before they have really mastered the skill. Since there are usually no punishments associated with not passing a progress check, the student is in a sense encouraged to try as often as possible. This is not good for three reasons: (1) teacher time (or peer proctor) is wasted if too many students attempt to pass tasks before they are ready; (2) students might have to wait to get a progress check if too many are trying repeatedly, and the waiting is definitely aversive in a Personalized Learning system that advertises self-pacing as a feature; (3) students do not learn to work toward a criterion and to attempt to demonstrate mastery only when that criterion is reasonably well achieved. Indeed, a student who frequently takes and fails progress checks because of lack

of preparation does not exhibit self-control and might profit from some prearranged self-reminders about progress checks and working for mastery. The student might also prearrange a favorable consequence when a progress check is passed on the first attempt. The combination of the prearranged cue and consequence might be sufficient to develop and maintain the self-control necessary to be an effective learner in a Personalized Learning setting. The improvement in self-control of just several students can have a substantial impact on an entire Personalized Learning setting.

Self-control Through Behavioral Programming

Behavioral programming for self-control refers to the self-administering of consequences subsequent to the emission of the self-control behavior or omission of a maladaptive behavior. This strategy requires that the student administer self-imposed contingencies; i.e., the reward is self-administered only after having exhibited the self-control behavior (or omitting another behavior) at some predetermined criterion level or rate. For example, a student might reward him/herself with a swim after moving through a circuit training routine under a predetermined criterion time. Another student might decide to play in a pickup basketball game as a reward for persisting at a learning task through a frustrating phase of learning. It is important to note that the reward is contingent upon self-control, not on skill performance. In the circuit training example, the implication is that this particular student has a tendency to lose task orientation while progressing through the circuit. Reaching the criterion time limit demonstrates a level of task persistence rather than skilled performance, even though the two are obviously related. Thoreson and Mahoney (1974) suggest the following list of possibilities for self-administering consequences.

1. Self-observation, the recording, charting or display of information relevant to the self-control behavior (charting one's time on task during an open gymnasium).
2. Positive self-reward: the self-administration of an available reward only after performing a specific, self-control behavior (engaging in a favored activity after backing off from a conflict situation and talking it out with a classmate rather than engaging in aggressive behavior).
3. Negative self-reward: the avoidance of or escape from a freely avoidable punishing situation or event only after performance of a specific, self-control behavior (removing an uncomplimentary sign or poster after adhering to a self-control behavior for a specific period of time).
4. Positive self-punishment: the removal of a freely available reward after performance of a specific behavior that is incompatible with self-control (not allowing oneself a swim in the pool after losing task orientation because of an argument with a classmate who happened to disrupt the task).
5. Negative self-punishment: the presentation of a freely avoidable punishment after the performance of a specific behavior that is incompatible with self-control (engaging in an unfavored activity for one hour after every two consecutive days in which no effort is made to work toward the completion of a learning contract).

The research on self-administered rewards and punishments is broad, varied and consistent in showing a strong effect on the self-modification of behavior. It should be remembered that the self-administration of rewards and punishments contingent upon the emission or omission of a self-control behavior is in itself a behavior, and as such can be influenced by the consequences it generates. A student who self-administers a reward after showing some self-control should be praised by the teacher for both self-administration and self-control. A student who self-administers punishment after emitting a behavior incompatible with self-control should be praised for self-administration even though self-control was not evident.

Teachers who wish to help students learn self-control can have in mind both the strategies of self-

administered rewards and punishments and some concrete suggestions about (1) the self-control behaviors upon which rewards and punishments should be contingent and (2) some rewards and punishments that can be used with the strategies. Once these are suggested, the teacher can look for instances of students self-administering rewards and punishments and can provide the necessary support to help students use these strategies to learn and maintain their own self-control behaviors.

Self-control Through Verbal Mediating Responses

One of the most successful means for developing self-control is the use of verbal self-instruction and verbal self-reward. It is not surprising that man should be able to use the capabilities for complex thought and verbal behavior to achieve some measure of control over his own behavior. In the most real sense, this strategy entails an individual using one behavior (a verbal self-prompt, for example) to control another behavior (task persistence in the face of frustration, for example).

Verbalizing in order to promote one's self-control can take four forms. First, self-verbalization can be used as a form of environmental planning (stimulus control) in which self-instruction and self-direction act as reminders either to emit a self-control behavior or to omit a behavior incompatible with self-control. When students say to themselves "don't get involved in that argument" or "keep working, you'll get it" they are self-administering a cue which prompts a behavior that in the past has proved to be successful or avoiding a behavior that has proved to be troublesome. Symbolic thoughts, feelings and images appear to be able to fulfill the same function as actual overt verbalizations in developing and maintaining self-control.

A second use of self-verbalization is to provide verbal (symbolic, imagery, etc.) self-rewards contingent upon the emission of a self-control behavior. This is a form of behavioral programming, referred to earlier in this chapter. Saying to oneself, "I stuck that task out" or "It was good for me to not mess around this period" has been shown to be an effective reinforcer. Likewise, imagining a pleasant activity or reward immediately following the performance of a self-control behavior appears to have equal capability in strengthening that behavior.

A third form of verbal mediation is to self-administer a verbal contract (Homme 1965). This may be viewed as a combination of the first two methods in the sense that the verbal self-instruction states the behavior to be engaged in (or avoided) and the anticipation of reward through verbalizing it forms a contract contingent upon the successful performance of the target behavior. A student might say, "If I stick to the completion of this learning contract without letting any disturbances interfere, I'll buy some new tennis balls and play three sets." Another might say, "If I avoid any disruption with my classmates in the gym this week, I'll treat myself to a new record." The contract, of course, must be completed only if the target behavior goal is achieved. If the teacher is aware of the use of verbal self-contracting, it is important that all successes at this technique be supported through praise and other forms of reinforcement.

The fourth form of verbal mediation — the use of complex reasoning in a problem-solving format — marks the highest level in the ability to show self-control in a specific behavioral form. Goldfried and Merbaum (1973) suggest the following steps for utilizing complex reasoning in self-control.

1. Learn to be able to recognize situations that require self-control.
2. Learn to avoid both acting impulsively and doing nothing.
3. Learn to define the situation in concrete behavioral terms so as to formulate clearly the major issues.
4. Learn to generate a number of behavioral alternatives which might be used in the defined situation.
5. Learn to evaluate the behavioral alternatives in terms of the potential positive and negative consequences generated by each (short-term and long-term consequences).

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6. Learn to choose the course of action most likely to generate positive consequences.
7. Once having chosen, learn to act on the decision and verify the results.

Students who practice other forms of self-control outlined in this chapter will gain experience in doing the reasoning skills in this list. They can be helped by discussing with them various aspects of the use of reasoning (for example, discussing with a student various alternate behaviors which might be chosen or the difference between certain short-term and long-term consequences of any of the behavior alternatives). They can also be helped by having their efforts of using problem solving for self-control be supported by social praise and other forms of positive reinforcement.

Self-control Through Modeling

Modeling refers to learning by viewing someone else's behavior and the consequences of that behavior. The basic process in modeling is that the behavior will be adopted (or avoided) without having directly experienced the contingencies oneself. Modeling has proved consistently to be an extremely important form of human learning and forms the basis for much of social learning theory.

If a student shows self-control in a Personalized Learning setting and is publicly praised for it, other students will be more likely to adopt the behavior. Modeling can and probably should be highly specific in the sense that the behavior should be clearly delineated. A student might use a verbal self-prompt and avoid a troublesome situation. If recognized for this self-control, the teacher should point out the use of the verbal self-prompt in the praise statement.

Bandura and Kupers (1964) have shown that modeling is an effective method for helping students learn criteria for self-reinforcement. Students were presented with models who used varying levels of performance for administering self-reinforcement. The students tended to adopt those standards shown by the models, which indicates clearly that if models adopt fairly high standards for self-reinforcement, those who imitate the model will do likewise.

It also appears to be helpful to have models verbalize the specific contingencies of their self-reinforcement (Liebert & Allen 1967). This in a sense would be similar to having a model verbalize openly the verbal self-contract that had been self-administered. It appears that a simple statement of contingency, such as "that was a good effort and deserves some time on the trampoline," can help boost the likelihood that the self-reinforcement standards will be adopted by those viewing the model. Verbalization can also be effective if done in a more general, philosophical manner. A student who has shown a growing ability of self-control by being able to work for deferred rewards and long-term goals might, as part of the modeling process, talk about a "postponement of gratification" philosophy or the satisfaction of working for long-term goals.

A note of caution should be sounded. As with most behavioral learning situations, it appears that inconsistency in standards of models tends to produce the least profitable results. Students who view inconsistent standards tend to adopt the lowest criteria for self-reinforcement, i.e., inconsistency tends to produce the lowest standards possible. The practitioner cannot escape the necessity to treat individuals consistently. This makes the job of teacher extremely difficult, but those who suggest teaching is easy are not talking about good teaching. Individuals who are treated inconsistently not only tend to behave erratically, but also learn to distrust the agent (the teacher) who administers the reinforcement. Again, this is a heavy responsibility for the teacher, but the facts about the interactions are inescapable.

Teaching Self-control

It now appears certain that self-control can be taught in a manner similar to other behavioral phenomena. It should be obvious that self-control behaviors are extremely important in Personalized Learning environments. Traditionally, educators have

not had to teach self-control because student behavior was almost totally under the teacher's direct control. But, times have changed. Personalized Learning means that students will be doing different things, at different times and often in different places. The teacher cannot be everywhere, and, indeed, one of the benefits of Personalized Learning is that it places certain responsibilities on the learner which heretofore have been too often preempted by the teacher. It is important that those interested in exploring the potential of Personalized Learning understand that self-control does not come automatically nor can it be developed simply by telling students to "have more will power." Self-control needs to be taught, and it may sometimes require as much systematic attention and effort as teaching a front flip on a trampoline.

The first step is to define carefully those self-control behaviors which are important for a specific learning environment. Those needed for an open gym will be somewhat different from those needed for a contract learning setting. Once the behaviors are defined, the teacher should be able to suggest several strategies with which students might develop greater self-control over the specifically defined target behaviors. From that point on, it is a matter of watching carefully for the time when students display some form of the target behavior (self-control) no matter how rudimentary it might appear. These early efforts must be supported consistently, frequently and very positively. Gradually, the criteria that the teacher uses to support and reward self-control in students can become more stringent. In this manner, self-control can be gradually shaped through a series of approximations, each of which is positively supported. Once self-control is more firmly established, the teacher can intermittently support the target behaviors with the assurance that the self-control shown by the student will also generate its own natural consequences which, in the long run, will maintain it as an established behavior pattern.

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QUIET INDIVIDUALIZING: WHAT ONE TEACHER DID

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Individualizing Your Work

In the opening chapter of this book, the authors suggested that a commitment to Individualized Instruction must begin by confronting your own feelings. Along with such honest soul-searching, it is useful to experiment with some simple forms of individualizing in your own work. The key to success in such trial runs, I've found, is to go at it quietly, carefully and watchfully. Don't try to change the whole world, even the small world of your own gymnasium, on the first try.

First, of course, get straight in your own mind exactly why you want to individualize your instruction. Make sure you have identified one or two good reasons for getting involved and that you can express them clearly (because you certainly will be asked). Then pick one or two easy targets in your own teaching behavior. Identify something you actually could do to adjust the learning process to make it better fit some particular need or interest of a particular learner. Establish a short trial period such as a week or month, and work hard every single day at trying consistently to behave in the way you planned.

It is useful to check up on yourself. There is nothing wrong, for example, in keeping score by jotting down a running tally in your roll book, or in recording your day by day efforts in a log. It may help to provide an independent (unbiased) check if you can ask a trusted colleague to come in and watch with a specific eye for recording just how well you are carrying out your plan. Another useful form of feedback can be derived by paying careful attention to student comments about the learning process and your behavior. Checks like these help keep a clear picture and avoid letting your feelings of enthusiasm or discouragement smudge real events.

Try to stay aware of how you feel about what you are doing. If you feel uncomfortable or confused, don't fight it, just face it and try to identify the cause. A clear picture of your own head is the most important tool you possibly can have. It is a good practice to set aside a short period at the end of the day, or even at the end of each class, to review how things are working out and what your experience is. Just lock the office door or hide in the boiler room. It will take some self-discipline because there always are more pressing things to do. Consulting your head need not take long (a minute or two), but it can pay off. Review of this kind can consolidate a lot of specific detail in your memory for future use that otherwise would be lost in the daily tidal wave of experiences.

At the end of the trial period stop for a while and reflect on the whole experience. Establish the important questions and take your time in answering them. Did you really individualize the learning process for some students? Did it seem to matter to you or to the students? Was it worth the effort of planning and guiding the execution of your teaching behavior? How

did you feel about it? How did the students seem to feel about it? Does the strategy you selected need to be changed so it will be more effective (or so you can live with it)? Is it worth continuing the experiment? What other targets for individualizing have you spotted?

Perhaps the following example from real life will help you to visualize this quiet form of exploration. The notes below are from my own experiences in struggling to individualize daily instruction. The methods I have used thus far d not involve any of the dramatic, large scale delivery systems presented in the other chapters of this book. For the most part they involve a number of small tactical behaviors and a constant attempt to match all practical decisions with the values I have identified for individualized instruction. Some behaviors were planned well ahead of time to reflect my personal commitment to dealing with my students as individual people while other tactics just evolved as I went along.

As you will see, things do not always come out as intended. I have not discovered any magic formula for making individualizing work. Often those around you, including students, will seem determined to make you deal with teams, groups and classes rather than individuals. It becomes a daily struggle to be a particular kind of teacher for so many particular kinds of learners. Perhaps, however, you will be able to sense what makes all the hassle and struggle seem so worthwhile to me and perhaps you will want to share in the same adventures — and the same satisfactions.

THE TEACHER EXPLORES

The following material was extracted from a journal in which I have been recording my day to day efforts to develop methods for individualizing instruction in physical education classes.

September

I want my students to be skilled in movement and sports, to feel positively about learning skills, and to want to continue engaging in physical activity in the future. I am interested in individualizing the work I do with the kids because I think it's the most efficient and effective way for each of them to learn and the only way to prepare them to continue learning after they leave class. Whether a kid is a superstar, an average performer or a slow learner, if he spends time practicing tasks appropriate to his particular skill level, the effect of this practice on learning should be maximal. If he learns to analyze his own needs and devise appropriate practice situations, the learning can continue outside of class.

I am teaching in a small, private, urban elementary school (grades 1-8) which is ideal for my project. My co-teacher is an excellent, experienced teacher who shares many of my views and seems naturally to individualize a great deal of his own instruction. We meet each of our classes several times a week for a reasonable period of time, with groups of about 20 kids. Given these conditions we expect to produce significant learning in our students.

My first project involves developing ways of recording events that occur during class. It is hoped that this will serve the dual function of improving my powers of observation and memory (since I will be forced to remember what happened long enough to record it) and of providing some concrete material for use in planning future classes. A good deal of class time will be spent in practice and learning how to practice. During each class, time also will be provided for students to evaluate some of their own work. The more practice students get in evaluating their own and each other's work, the more skilled they will become in judging the quality of performance. Once they can evaluate their needs with some accuracy, they can begin learning to devise appropriate practice situations for their own improvement.

October

I've experimented with several recording systems in the past few weeks. They all are tedious and time-consuming so I choose to use them in only two classes until I can design a better system. The first method

involved evaluating each class in terms of the lesson I had planned. This required going over the lesson step by step and trying to record what happened during each activity. This lesson-based evaluation of the class soon was dropped because I found myself writing mostly in generalizations which included little about the individual students and their learning. "Everyone practiced catching and throwing for four minutes. Most were unable to catch without using their body but Jon and Laura could throw and catch with ease ..." Although this provided some significant information, it did not provide individual detail about the majority of students in the class.

I then switched to an individual recording sheet for each student. Using a block for each class period, I recorded everything I could remember about each child's behavior during that class. Although my memory for specific students improved, I soon discovered that almost everything I wrote either was affective or concerned only general behavior. "James listened carefully — worked well in the group — followed directions ..." I was recording little information about the student's actual skill or learning. To correct this problem an additional sheet was added which listed all the skills the children were learning. After each class I recorded brief notations for the performance of each child on the skills they had demonstrated during that class.

These exercises in recording behavior have served to improve my observational abilities and memory of individual students. After several weeks I was able to record something about the skill of each student at the close of each period (originally I would draw a blank for about two-thirds of the kids when it came time to record specifics about their skill performance). The greatest drawback of this system is the time necessary for recording. I have improved considerably, but it still takes about 30 minutes to record each 30-minute class. There seems to be an unexpected bonus, however, which may make it all worthwhile. I have begun to notice and remember the performance of individual students *in all my classes*, not just those for which I am keeping a formal record.

November

The first grade class has proved the most responsive to my experiments with practice time, self-evaluation and self-direction. This probably has something to do with the relatively short amount of time they have spent in structured learning situations. They have not yet learned that practice is something you do for the teacher rather than for your own improvement. They have not been so fully socialized into their role as students and my role as teacher that they do not want to accept some of the responsibility for their own learning.

The following is a description of what has been happening in the first grade classes. We begin the class with an open movement warm-up time that usually involves practice of basic locomotor skills such as skipping, hopping and running. I usually decide on the various activities and give the appropriate stop and go signals at the beginning and end of each activity. The kids are free to determine their own pathway and speed. The majority of the period then is spent in skill practice either as one large group spread around the gym or, more often, at several different stations (i.e., mats, jump ropes, dribbling, throwing and catching).

One of the first requirements for individualizing is sufficient equipment for every student to practice at the same time, even if the practice must be on different skills. For the first few classes I let students explore the implements and apparatus in the gym while I moved around giving suggestions and asking questions about what they were doing. At the end of class we would all gather to discuss and demonstrate the various uses of the equipment they had explored.

We do less general exploration now and before we start active practice I usually will review a specific learning task or introduce a new skill. New skills are incorporated into one of the practice stations. Each station involves work on a particular skill, but the actual form of practice is not dictated. All that I specify is, "Practice dribbling using the cones." During the station work I try to observe each child for at least a few seconds and give some specific feedback on his performance.

At the end of one class I began to ask questions like: "Are there some activities that you are better at than others? Is there a reason why you are better at those? How do you think you could improve in the areas where you're not so good? How do you think Marc got so good at throwing and catching?" Some beautiful discussions developed from this simple tactic and after two or three such periods I decided it was time to take the next big step.

During a subsequent class, stations were set up involving four different skills. After each group had spent some time at each station I called everyone together and told them each to go to the station where they had the most trouble, and practice that activity. I then recorded the activity which each child had chosen and checked it with my own evaluations and records. Happiness and success! Yea kids! In my estimation more than three-fourths of the class had made accurate judgments. The ability to make realistic evaluation of their own movement skill is an important first step toward self-directed learning for the students in my classes.

It is interesting to note that in this particular first grade the classroom teacher had been working with the students on a set of similar concepts, discussing strengths and weaknesses and the role of listening and practice in learning new skills in the classroom. Although we had not planned this together, many of the kids recognized the connection between the classroom and gymnasium versions of the concept. Because this seemed to help, the teacher and I often plan together now and frequently produce positive results.

In another first grade class in which the teacher was not specifically reinforcing the role of practice in learning, the kids responded somewhat differently to the initial opportunity for self-direction. They seemed to take my discussions of improvement through practice less seriously. For that reason, we began a demonstration testing program to make the relationship between practice and improvement more concrete for them. Every Friday for several weeks they performed two short skill tests, one involving a skill we had practiced during the intervening classes and the other a skill which we did not practice in any of the classes.

After several weeks we compared first and last scores for each skill. I had purposely chosen activities in which the majority of students had not yet developed much proficiency so there would be considerable opportunity for improvement. The results of the experiment demonstrated the desired relationship. The majority of the kids improved much more in the activity practiced during class than in the one neglected. For several children, however, there was a good deal of improvement in the activity we had not practiced (jumping rope). The obvious question arose: "Why did they improve so much when they didn't practice?" As I prepared for the message from my beautiful demonstration to go down the drain, one of the children came to my rescue answering "Oh, my brother got a jump rope for his birthday and I practiced at home."

There still are several children in each class who usually sit down or run around in circles unless I specify exactly what they should do and how to do it. I

have temporarily solved the problem of their need for more direction by going immediately at the beginning of each practice period to their station and suggesting something specific for them to work on. At the same time the other children are left to decide the actual practice situation for themselves.

It has been somewhat more difficult to introduce self-directed activities in the third grade class. The students' role expectations were confused when I asked them to make decisions about their own skills and practice. Questions like "How many times do we have to do this? and What are we supposed to do?" were common even when the task was reasonably well specified. I think that I tried to move them into a new role too quickly without spending enough time gradually changing their expectations for me as teacher and for themselves as students.

The first time I asked the members of a third grade class to practice the skill that they were worst in, most of them chose the group's favorite activity. I realized that not only did they not understand what I was asking them to do, but they were not even conscious of the connection I had been trying to make between practice and learning. With this discouraging bit of information, I decided the best thing was to go back to the very beginning and work on the two basic concepts of (a) the nature of individual differences in skill achievement and (b) the relationship between practice and learning. I began by structuring warm-up time for this class on a more individual basis, requiring them to think for themselves rather than as a group. "Everyone with brown hair hop on your right foot, blond hair on your left foot and black hair on both feet." Making them think for themselves rather than as a group seemed to help. From there we began to move more slowly into the idea of practice and individual work.

Since the two fourth grade classes meet at the same time we have decided to combine classes and try grouping them homogeneously by skill level. Rather than teaching both groups the same unit, thereby making the basis for the division obvious, my colleague and I are each teaching separate units to our half of the group. At the end of the unit we will switch groups so that each group will encounter each activity and each teacher. So far the kids seem pleased and we are finding it much easier to pace activities and structure practice to suit the needs of individuals within each group.

December

One of my favorite strategies for getting kids to think about their own ability originated from a purely practical problem. I always have found the decision of when to allow kids to go to the hall for a drink of water bothersome. Although I believe they should be able to get a drink when they need it during class, as soon as I permit 1 child to go, the other 19 stampede. The delay caused by the pileup and resulting confusion usually destroys that section of class time and me. Devising systems by which they could go one at a time meant the kids spent more time worrying if it was their turn to go to the fountain than they did listening to instruction or practicing.

My co-teacher devised a simple method for dealing with this problem with the older children and it has worked beautifully even with the youngest this year. The answer is an admission charge to the drinking fountain. During any practice time in class (of which there is a considerable amount) any student may offer an admission charge for the water fountain. The offer must involve specific practice of a skill chosen for its appropriateness to the individual's needs and ability. If I don't believe the offer reflects the child's needs and ability we negotiate until we are both satisfied with the practice conditions. For one child it may involve making 7 out of 10 layups while for another in the same class 3 out of 10 layups may be acceptable, or 20 situps even more appropriate.

In addition to ending the confusion and providing skill practice, the system accomplishes several other things. Each student must think about her own abilities in order to choose an appropriate offering. Then she must interact with me on a one-to-one basis getting feedback on the appropriateness of the choice directly from me. This forces me (a) to attend to individual capabilities in order to evaluate admission of-

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fers accurately and (b) to interact individually with each child about her skill level.

The more small steps I take toward individualizing the instruction for my students, the less satisfied I am with the times when I require all of the group to do something which obviously is inappropriate for some of them. For example, we had established a set of conditioning exercises for use before class as part of our fitness training. We do fitness testing several times a year and have developed our own standards based on the performance of our students over the past five years. We are pleased with this aspect of our program, but when kids started skipping the pre-class conditioners or doing them halfheartedly, we discovered that in good conscience we were unable to demand the same exercises from all students regardless of their fitness level.

We proceeded to discuss ways of making the exercises more relevant to the individuals involved and decided that we had to teach them how to set up their own programs based on their own needs. We have not yet worked out all the details of such a system and so have required the conditioners only for areas where the student can't achieve the minimum standard on the previous fitness test. The kids seem to feel this is reasonable, and we can live with the tactic as a temporary measure until we have worked out the specifics of a fully individualized program. We will work carefully on this because several times I have spoiled good ideas by trying to introduce them too quickly, before working out the details involved.

January

My class recording style once again has changed, this time to something with which I now feel comfortable. I have condensed all the recording to one sheet per class with a small space for daily information about each child. I have developed my own codes for recording information and that has made the process much more efficient. I simply require that something be included in each entry about the actual performance of each child. Each sheet covers three class periods which gives me some sense of continuity when I review the records. In addition, my lesson planning sheets have an evaluation space for recording my overall impressions of the class, my effectiveness and the overall learning that took place. I continue to keep a separate skill sheet on each child, but make entries only when they have reached a new level of performance in a particular skill. The recording can be completed for each class in less than 15 minutes and provides a modest record of significant information about learning for each student, as well as for the whole class. I am now using this system to cover four of my classes instead of the original two.

A number of interesting progressions have occurred in the classes. The children in first grade now take turns leading the four-minute open warm-up period. They are much more demanding of each other than I ever was, and select for practice almost every movement we have ever attempted. The skill progress in this class has been encouraging. *All* of my first grade students can perform a large repertoire of locomotor patterns including skipping backwards and running backwards, activities which some of the older children still have trouble performing. The practice periods have become more effective, with almost all the children using the time to really work on their skill.

The third grade still is having some trouble with the idea of learning and practice, but we have instituted two elementary rules which seem to be producing positive results. "You must practice the activity yourself, and you may not interrupt anyone else's practice." Violations are punished by the enforced segregation of sitting on the sidelines for a prescribed period. At first we were afraid that some of the children might prefer the penalty of sitting out to the privilege of practicing, but after one or two experiences watching everyone enjoying practice, even the lazy and inhibited students preferred practice to sitting.

Skills have begun to improve in the third grade and at last the connection between practice and learning is beginning to form in the students' minds. Most of the

time, however, the activity must be specified and suggestions still are made for methods of practice for those who want them. "You have three minutes to practice catching and throwing either against the wall or with a partner."

In the fourth grade we have incorporated a unit on street games played in the local city area. These sports of urban kid culture are excellent for practicing ball skills and encouraging individual practice. Most kids have learned the skill of selecting appropriate opponents to challenge by matching their skill level with others in the class. Peer teaching also has proved successful with this group (this is the double class which has been divided into two homogeneous skill groups for co-teaching). At the end of the first unit for the divided groups (street games for one and soccer for the other), each group spent two periods teaching the other group the skills they had been learning. All the teaching was on a one-to-one basis and almost without exception was done quite well. Peer teaching put the kids from the lower skilled group in an especially nice position. For once they knew the material better than their classmates. Having just been through an intensive unit they actually could teach the others something.

All the games used during our classes have undergone interesting changes. It had always distressed me that games tended to provide a lot of practice for skilled performers and very little practice for the poor performers. Unskilled kids either were put out early, shied away from the action in fear of performing poorly, or were dominated by the higher skilled performers. As in most things in life, the rich got richer and the poor got poorer. This seemed to go against all the values we professed as teachers. So we made some changes.

One of the main criteria for selecting games used in class is the amount of activity and practice provided for each player. Games where most stand around while a few perform are rejected. Students never remain out in our games. The rules are changed slightly so that in games like elimination or team dodgeball

(where the object is to put people out by hitting them with the ball) any player who is put out must pay a service charge, either a skill practice (20 throws and catches) or a fitness conditioner to get back into the game.

To increase further the amount of practice obtained by the less skilled players, different colored balls are added which only selected players can use. This means that the better players cannot monopolize the play. If they end up with one of the special balls they must turn it over to one of its "owners." Sometimes we make it obvious that the special balls are for players who have not competed very actively and at other times the selections are disguised.

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Another interesting adaptation used to increase the amount of skill practice during games involved changing the rules to reinforce attempts at the desired skill. For instance, in bombardment or elimination if the player is put out attempting to catch the ball, his service charge to get back in is less than if he is put out running away from the ball. The kids seem to think that this is reasonable and almost all of them will, in this situation, attempt to catch the ball rather than run.

I frequently have been bothered by the ideas for individualizing which popped into my head at inconveniently busy times. Too often I found myself forcing the idea into premature and inadequately planned use just to insure that it would not be forgotten. I have solved that problem to some extent by keeping a sheet on my desk for new ideas. That way I don't forget the inspiration and yet don't feel compelled to use the idea immediately. As soon as my present innovation is running smoothly I look at the list and pick out a new project, plan it, introduce it gradually and then let it operate for a time while I work on the next idea.

One of the most successful projects so far came directly from the need of students to learn how to recognize their opponents' strengths and weaknesses in competitive game situations. After discussing this problem one day with our fifth and sixth grade basketball team, we asked them to write down all the players on the team and list their particular strengths and weaknesses. When the results were tabulated, they reflected surprisingly accurate information. Aside from the value of learning how to analyze the abilities of other players, the boys used this information to work on their weaker skills during practice time.

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Conclusion

My feelings about our modest attempts to individualize portions of the program are generally positive. Although I am frustrated at times and still have long lists of yet untried ideas, I feel that we are making real progress. Probably the best indication of this for me is the feedback from the kids. I can tell that they are thinking of themselves as individuals by comments they make about themselves. The sharpened sense of self also is evident in such things as the admission charges offered for the drinking fountain and in the negative feedback they give me when I require a group activity which doesn't make sense for them as individuals. Their feedback, both positive about the things we are introducing and negative about irrelevant tasks, is probably my greatest reinforcement for future improvement. Their skill progress is a source of constant satisfaction.

The most satisfying aspect of all is the attitude which the kids have toward our classes. Discipline problems are not prominent probably because learning is the desired objective and the pressure of performing to some external standard is absent. I cannot think of one child who actually dislikes coming to class. The first grade classes are filled with comments like "I'm really getting better at dribbling, I'm going to keep practicing." It's almost too much, listening to them expound on the virtues of practice. Although there still are problems and certainly some students who have very low skills, all the kids seem to think that there is something here for them to learn and that they can learn it. If that simple conclusion has been encouraged by my attempts to individualize instruction (and the evidence suggests that it has), then I know the kind of instructional skills I want to master and the kind of teacher I want to become.

INDIVIDUALIZED INSTRUCTIONAL MATERIALS

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Introduction

Societal changes demand that educators periodically evaluate not only curricular content but also the transmission of knowledge. Education, as a process and as a product, is constantly in a state of fermentation. The seeking of new knowledge and methods of transmitting this knowledge is a never-ending responsibility.

Educators have always been confronted with two major problems: (1) to provide a teaching-learning environment that will allow the learner a degree of independence with an outlet for creativity, and (2) to compensate for the wide range of physiological, psychological and sociological variances that may exist in every class situation.

These problems become more acute for the physical educator. The traditional methodology of physical education provides limited opportunities for independence, self-retiance, individual responsibility and creativity. It is too restrictive in nature. Then, since very little consideration is given for the selection and inclusion of students in physical education classes, wide variances of abilities exist in every teaching-learning situation.

Solutions to these problems are being approached mainly through three educational avenues; revising curricular content, restructuring organizational patterns and devising innovative methodology.

In the first approach, curriculum designers attempt to diffuse the problems by a "scattergun" technique. In designing curricula, they select a wide range of diversified activities distributed vertically and horizontally for various school grade levels. The criteria for this procedure are the learner's maturational stages of development, existing facilities and equipment, school organizational patterns, and the qualifications of teaching personnel. The validity of this procedure is highly questionable. There is little or no research available on the selection, progression and duration of activities for a specific grade level or individual learner that can totally justify this procedure.

A second approach to the problems is changing school organizational patterns. Flexible and modular scheduling patterns are being more extensively used. The nongraded and open classroom concepts, though controversial, are being implemented, particularly in the elementary schools. Economic pressures are causing schools to consider seriously extending the school year. Tri-semester and quinmester plans are being adopted. What long-range effects these new organizational patterns will have on the problems remains to be seen. It is too early to determine any definitive conclusions.

A third avenue for minimizing the problems is through the development and implementation of innovative methodology and materials. To date these

include team teaching; teacher assistance by paraprofessionals, teacher aides and technicians; teaching machines; videotape recordings; audio-tutorial programs, instructional television; contracting; and individualized independent learning and/or instructional packages. Even though research in these areas is in the infancy stage, the available results indicate that innovative methodology shows the most promise for attacking the stated problems. Therefore, this chapter will focus specifically on individualization through the use of individualized learning materials.

Individualized Instruction

The present trend of individualizing instruction is not new. Its basic concepts and tenets were widely used in the old one-room country schoolhouse. The teacher was forced to modify traditional teaching methods due to environmental expediency. Learning was accomplished primarily by independent study, and instructional materials were, in most cases, verbal instructions by the teacher.

The term *Individualized Instruction* is a broad one. It can be implemented through the design or utilization of many types of instructional materials or techniques that can be verbal or written, or can employ various types of mechanical or electrical machines and appliances.

One form of Individualized Instruction is through the use of self-instructive materials. Jarvis (1967) defined these as materials written on the student's level of understanding and instructing him how to learn skills, stunts and exercises. They are designed for use by the student without teacher or parental assistance.

Another widely used form of Individualized Instruction is programmed instruction. DeCecco (1968) defined programmed instruction as materials or programs regimented into small progressive steps or learning increments. They require frequent responses from the student and offer immediate confirmation of right responses or correction of wrong responses.

Various other forms of individualized instructional materials have been designed and implemented. Shrader (1971) describes the Phy-pak used by the Omaha Public Schools as a prescription instrument for the educational task to be learned. It is in reality a student contract that provides cognitive and psychomotor tasks to be achieved by the learner.

The Teacher Learning Unit (TLU) designed and used by the physical education staff of C.F. Simmons Junior High School, Aurora, Illinois (1973) consists of a simply-phrased performance objective, a column describing what to use, and a column describing what to do.

Individualized Instructional Programs (IIPs). Annarino et al. (1973), are complete activity units consisting of a systematic and progressive series of tasks and problems requiring written, verbal and motor responses by the student. They are designed for use by an individual student and to supplement teacher instruction.

Research studies in the use of individualized instructional materials for physical education are limited. However, some insight into their potential may be gained from the results of investigations that have been conducted.

Veach (1967) compared the use of programmed materials with the use of a conventional textbook for learning football rules. A high school football team was divided into two equal groups on the basis of a pretest. One group used programmed materials while the other group learned the rules from a traditional book. Results obtained from posttest scores indicated that although both groups made significant gains in learning, the programmed group was significantly superior in performance to the textbook group. The coaches also noted a reduction in major penalties during the season for the programmed group.

Another study by Johnson (1968) involved 67 male college students enrolled in two sections of a basic gymnastics course. One section received instruction by the conventional teacher-directed method. The other section was instructed by programmed materials. After 13 weeks of instruction, the results indicated that the programmed section achieved higher mean levels of gymnastic skill in terms of the number of routines the students had completed and the sum of scores on routines as awarded by experienced judges.

Adler (1967) compared two methods of instruction in teaching elementary golf classes to university students. One group within each class used a scrambled book form of an intrinsic program for the iron swing in golf, while a second group received conventional lecture-demonstration-practice instruction for the same skill. Both groups were pretested on the Benson Iron and Shot Test, worked on the skill for six weeks and retested. Final results indicated that the programmed group had made significant improvement while the control group had not.

Similar findings were reported by Holinski (1965). He compared two equated groups of male college students for instruction in the shuttle offense for basketball. One group was instructed by the traditional method of demonstration, practice and written instructions. The other group was instructed by computer-assisted instruction, 35mm slides and practice. Results based on the four written knowledge tests and a filmed performance evaluation indicated that the computer-assisted group had significantly fewer errors on the knowledge test. No significant difference on floor performance mean scores was revealed.

Farrell (1970) instructed the tennis forehand and backhand drive to two classes by a progressive task-solving program and another two classes by a teacher-directed program. The posttest scores indicated all groups made significant gains in the performance of the skills and that both types of instructional programs were equally effective.

Otto (1971) compared the effectiveness of the command method and programmed task method of teaching beginning basketball to eighth grade girls. Even though both groups improved in basketball skill and knowledge, no significant statistical differences were found between the two groups in posttest scores. She concluded that basketball skill and knowledge may be taught with equal effectiveness either by the command or programmed task method. However, observations revealed a preference by the students for the programmed method.

Locke and Jensen (1971) in reviewing selected research in prepackaged reports skills instruction concluded that for some purposes programmed instruction and traditional methods were equally effective. They further concluded that conventional instruction was not significantly superior to the programmed instructional methods used in the reviewed studies.

Jarvis (1967) investigated the effectiveness of utilizing self-instructional materials for fourth grade children in learning seven tumbling-gymnastic stunts. The experimental group was given self-instructional materials to use, the control group did not use the materials. An analysis of posttest scores indicated that the experimental group gained significantly in ability to learn stunts and skills using self-instructive materials while the control group experienced no significant gain.

Calder (1970) investigated the effectiveness of four selected instructional methods. He compared self-instruction, classroom lecture-demonstration, television lecture-demonstration, and minimal instruction methods of teaching psychomotor activities to children from three socioeconomic levels. Subjects learning a manipulative task by self-instruction were given no verbal procedural instruction but were provided written procedural steps on how to perform an assigned task. Subjects in the minimal instruction group did not receive any verbal or written procedural instructions other than a problem sheet and/or a working drawing. They performed the manipulative task by trial and error. The results indicated significant differences among the instructional methods. A comparison of mean performance scores ranked the effectiveness of the methods in the following order: (1) self-instruction, (2) classroom lecture-demonstration, (3) television lecture-demonstration and (4) minimal instruction. Furthermore, subjects from all three socioeconomic levels learned best from the self-instruction methods.

A basis for the inclusion of instructional variations and use of individualized materials could be Carroll's (1970) conceptual model of school learning. His model proposes that if students are normally distributed with respect to aptitude but the kind and quality of instruction and the amount of time available for learning are made appropriate to each student's characteristics and needs, the majority of students may be expected to achieve mastery of the subject.

Bloom's (1971) Mastery Learning Strategy elaborates on Carroll's model by indicating that it is not the sheer amount of time spent on learning that matters but rather that each student should be allowed the time needed to learn a subject. This time is likely to be affected by individual aptitudes, verbal ability, the quality of class instruction and quality of help outside of class. Thus, the task of a mastery learning strategy is to discover ways of altering the time individual students need for learning as well as ways of providing whatever time is needed by each.

In summary, the results from these limited investigations and proposed models indicate that Individualized Instruction methods and materials are as effective as traditional methods for learning specific skills and knowledges. However, the evidence is still inconclusive. Research as to the total effects and relative values of innovative methodology in physical education is still in the primary stage of development.

The quality and quantity of existing investigations make it difficult to draw definitive conclusions. Further investigations need to seek answers to the following complex questions:

1. Does the increase of time proportionally increase the learning and retention performance for the individual?
2. Is there a difference between learning individual and dual sports as compared to team sports?
3. What effect does learning isolated skills have on an individual's total team performance?
4. Is the student qualified to determine qualitative standards of performance for each learned skill?
5. Can more precise tools of measurement be devised to determine the effectiveness of instructional methods and materials?
6. Can every student or teacher adjust to these innovative methods and materials?
7. What effect does class size have on this type of program?
8. Can Individualized Instruction materials be used effectively in a group-based instructional situation?
9. Can this type of instruction be adapted to the traditional school organizational patterns?

10. Is this type of instruction more effective for cognitive or motor development?
11. What are the effects in the affective domain?

The answers to these and other questions need to be sought. Theoretical propositions can be formulated as to the benefits of using Individualized Instruction materials but scientific investigations are needed to provide more meaningful and valid conclusions.

However, for discussion purposes, theoretical propositions can be formulated as to the relative value of using Individualized Instruction materials. These propositions are based upon the precise definitions and interpretations previously stated.

Propositions as to the uniqueness and value of using Individualized Instructional materials are:

1. A student is permitted to progress at his own rate.
2. Individualized Instruction materials provide opportunities for in-depth learning by each individual student.
3. They permit maximum utilization of instructional resources.
4. Each student is personally involved and constantly active.
5. Learning is not restricted to the regularly scheduled class hour but can be accomplished during noon hours, after school or hours designated as study time.
6. The development of Individualized Instruction materials forces the teacher to develop a well-structured, carefully planned progressive physical education program.

Further consideration must be given to the role of the teacher. Individual initiative, cultural background, biases and personal limitations, and personality variations affect any method of instruction and thus cannot be disregarded.

Individualized Instruction Materials

Many factors have impeded the widespread adoption of Individualized Instruction materials in physical education. Colleges and universities have been remiss in training potential teachers, not only in techniques of design, but also in procedural usage. Teacher training philosophies and curriculums must change to meet these new challenges, in practice as well as in theory. How to transmit knowledge is best taught by example.

The development and preparation of Individualized Instruction materials present many problems. They require in-depth preparation by the teacher. Materials must be subjected to extensive implementation for evaluation and refinement. The designer must have the ability to thoroughly analyze and direct skills, structure cognitive problems, and present the subject matter in a concise, systematic, progressive form. It is a tedious and time-consuming task.

However, some teachers and schools are making progress toward these ends. Varying approaches are being explored and implemented in the development of innovative materials and methods which allow students more independence.

An example of innovation is the computer monitored, staff-developed physical education program at Simmons Junior High, Aurora, Illinois (1973). Students progress at their own rate through self-directed activities based on Teaching Learning Units (TLU).

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Teaching Learning Unit
Bowling
Approach and Stance

Performance Objective

To demonstrate proper form for the approach. Select the most comfortable footwork for you.

Use	Do
1. *P.E. Handbook*	1. Read pages 125-126
2. *Basic Skills in Sports for Men and Women*	2. Read pages 76-77
3. Sound page	3. Listen and view-approach
4. Sound page	4. Listen and view-stance
5. Bowling alley, ball, shoes	5. Practice
6. Teacher	6 Demonstrate

Implementation of this type of program is based upon teacher preparation of materials, student orientation and acceptance; a facility analysis, quipment manipulation; budget concern; and, a sophisticated monitoring system to record student progress and achievement. However, the key ingredient in the Aurora program is a teacher concept-commitment to Individualized Instruction. It also has total psychological and financial administrative support.

Another highly innovative program has been developed and implemented in the public schools of Omaha, Nebraska (1971). It utilizes a Phy-Pak that is a student contract or prescription instrument that provides cognitive and psychomotor tasks to be achieved by the learner.

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Phy-Pak 8
Girls Tumbling

I. Content Classification
Head Stand
II. Purpose
To provide learning activities that will enable you to perform the headstand
III. Learning Objective
Given a tumbling mat, you will be able to perform a headstand for 3 seconds
IV. Diagnostic Test
Same as learning objective
V. Taxonomy Category
Psycho-Motor 3 and 4
VI. Learning Activities
A. View the cartridge film.
B. Read *Feminine Gymnastics*, p. 14, Fig. 23.
C. Listen to the listening tape.
D. Ask your teacher for assistance.
E. Practice with a spotter.
F. View the transparency, then practice.
G. Look at the wall chart, then imitate the example.
VII. Self-test
Ask two classmates to watch you perform the headstand for three seconds. If you pass, go to the instructor for the final test.
VIII. Final Test
Ask your teacher for the final test.
IX. Challenge Activities
A. Teach a classmate the headstand.
B. Judge a friend's self-test.
C. Try variation of the headstand such as stag, split and straddle.

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Application of the Omaha learning model includes the following procedural steps:

1. Diagnosis
2. Prescription
3. Self-direction learning
4. Self-appraisal
5. Peer assessment
6. Teacher evaluation
7. New learning task or alternative instruction
8. Challenge activities

The Omaha program is the outgrowth of a group of highly dedicated, creative and resourceful teachers and administrators. It recognizes the uniqueness of each individual and aims to provide a meaningful physical education experience for each student based on need.

A multimedia approach to teaching elementary school gymnastics was initiated at Cumberland Elementary School, West Lafayette, Indiana (1972). Loop films and correlated descriptive cassette tapes were produced. Mini-IIPs (Individualized Instructional Packets) were designed to include both cognitive and psychomotor learnings to accompany each loop film and tape.

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Mini-Gymnastics IIP
Backward Roll

After looking at the loop film and listening to the tapes, answer the questions in your IIP.

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A. Independent Written Assignment (example):

1. In doing the backward roll, where must the chin be placed?
   a. Pointing upward as far as possible
   b. It doesn't matter.
   c. On the chest.

After checking your answers, go to the next section of your IIP and practice your skills.

B. Independent Skill Assignment:

Skill	*Repetitions*	*Check Off*
1. Take a squat position on a mat, put chin on chest, place hands on mat with fingers pointing forward.	2	
2. Take a squat position on a mat, put chin on chest, place hands on mat, push off with hands, sit and roll to shoulders and neck, tuck tightly, move hands to mat near head.	2	
3. Do a backward roll: Repeat all steps in #2, then push with hands and land on feet.	3	
4. Do two backward rolls, one right after the other.	2	
5. Do a backward straddle roll. Start out doing a backward roll. When weight is on shoulders and neck, extend feed outward to land in a straddle position.	3	
6. Do a backward roll with an extension to a handstand. When weight is on shoulders and neck, thrust legs into air and push with arms.	2	
7. One right after the other, do a backward roll, a backward straddle roll, a backward roll, a backward roll with extension to a handstand.	2	

Evaluation:

Please see your teacher for a skill evaluation.

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Limitations imposed on an elementary physical education program by the teacher, students' abilities, or facilities can be minimized by this new and creative approach.

Individualized activity units are being developed and used at the University of Wisconsin, LaCrosse. An Individualized Basketball Unit designed by Glasshoff and his colleagues (1974) consists of 12 contracts with three to five activities in each contract to be completed by the student.

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Individualized Basketball Unit
(Sample Contract)

Activity — Chest Pass

Behavioral Objective

The student will demonstrate correct chest pass form and accuracy by performing the activities connected with the contract.

View loop film on chest passing. Watch for the following points:

1. Transfer the weight by stepping forward with the pass.
2. Elbows will be pointed out to the side.
3. Fingers should be spread evenly on both sides of the ball.
4. Eyes should be on the target.
5. Aim just below the chest of the receiver.
6. Follow through so that the fingers of your hand are pointing out.

Activity 1

Each student will get a partner and work on the chest pass emphasizing the points above. Work on accuracy by aiming for the various limbs of the body.

Activity 2

Students will get into groups of four. Three members will form a triangle and the fourth player will get in the middle. The outside players will pass the ball to each other, trying to keep the ball away from the player in the middle. The students should try to get 10 straight passes with ut an interception.

Activity 3

Each student will complete a wall test which will be chest passing the ball at the student's own rate until he/she is able to hit the target 7 out of 10 times.

Activity 4

With a partner, each student will run from one end of the court to the other, passing the ball back and forth until he/she can go the full length of the court without a mistake. Dribbling and traveling are not allowed.

Self-evaluation	*Yes*	*No*
1. Did I transfer the weight by stepping forward with the pass?		
2. Were my fingers spread evenly on the ball?		
3. Did I aim at the lower chest?		
4. In cocking to throw the pass, did I have my elbows pointing out to the side?		
5. Did I follow through so that my fingertips were pointing at the chest of the receiver?		

After completion of the self-evaluation, check yourself off at the Mast :r Wall Chart.

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The implementation procedures used for these materials minimize the problems encountered in individualizing team sports. Stations are set up around the gymnasium to correlate with the activities in the contracts. Contracts must be completed in progressive order. Visual materials are used to aid the student. A 45-minute activity period is structured so that the first 5 minutes consists of a warm-up exercise, 30 minutes for contract work, and 10 minutes for some form of group competition related to specific contract skills.

The individualized materials and procedures used in this program represent a combining of innovative and traditional instruction. This approach has great merit because it not only minimizes the team play problem but provides an easy transition for the student to independence and self-reliance.

Individualized Instructional Programs (IIPs) for golf, tennis, badminton, archery, and bowling have been designed and implemented by the author (1973). These IIPs are complete activity units consisting of a systematic and progressive series of open and closed skill tasks and problems requiring written, verbal and motor responses by the students.

Each IIP includes the following information:

Part One: Student Information
1. Introduction to program
2. Behavioral objectives
3. Practice procedures
4. Use of equipment
5. Time element
6. Safety factors
7. Information related to:
   a. Independent skill assignments
   b. Independent written assignments
8. Suggested resource materials

Part two: Evaluation
1. Written knowledge pretest
2. Skill pretest

Part Three: Individualized Instructional Care
1. Pre-program independent written assignment
2. Lessons (see sample lesson)

Part Four: Final Evaluation
1. Written knowledge and skill final tests

Part Five: Student Progress Record

Part Six: Sports Theory Concepts

The following sample instructional core is extracted from the Golf IIP.

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IIP Golf Instructional Core

Skills: Long and Mid-irons

Student Information

The irons can be used for a variety of situations, distances and ball flight trajectories. Iron skills require a great deal of practice.

Purpose

You should learn how far you can hit and the purpose of each iron.

Independent Written Assignment

Resource Materials

Text _____ *Pages* _____

Completion. Complete the following:

1.

Club Irons	*Yardage* *Men*	*Women*	*Uses*
2			
3			
4			
5			
6			

Independent Skill Assignment

Instructional Cues (for right-handed golfers)

1. For mid-irons, play the ball left of the center of your stance.
2. For long irons, play the ball two to three inches to the center from the left heel.
3. Hit slightly down with all clubs.
4. Keep the same tempo for all swings.

Skills	Repetitions	Yardage	Date Completed
1. Use the following irons and indicate the yardage for each hit. Try to cluster your shots.			
a. 2 iron	1		
	2		
	3		
	4		
	5		
	6		
	7		
	Average		
b. 3 iron	1		
	2		
	3		
	4		
	5		
	6		
	7		
	Average		
c. 4 iron	1		
	2		
	3		
	4		
	5		
	6		
	7		
	Average		

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d. 5 iron	1
	2
	3
	4
	5
	6
	7
	Average
e. 6 iron	1
	2
	3
	4
	5
	6
	7
	Average

2. Mark a target area for each iron yardage. Hit and score only balls within 10 yards of the target area.

	Level One	*Level Two*	*Level Three*	*Date Completed*
a. 2 iron	3 of 7	5 of 10	7 of 12	
b. 3 iron	3 of 7	5 of 10	7 of 12	
c. 4 iron	3 of 7	5 of 10	7 of 12	
d. 5 iron	3 of 7	5 of 10	7 of 12	
e. 6 iron	3 of 7	5 of 10	7 of 12	

• • •

The independent skill assignments are designed for progressive minimal through maximal competency achievement. They also include open and closed skill tasks for each fundamental. Tests are provided at the beginning of the packet for determining starting competency levels and at the end of the packet for summative evaluation. However, formative evaluation is used during the instructional phase to provide immediate feedback to the instructor and student.

The IIPs can be used as instructional material for designing mini-course high school, college and university programs. They are designed for use by the high school and college individual student as guides for directed learnings and to supplement teacher instruction.

Carlson (1972) designed a programmed instructional guide for volleyball. He combined self-instructional loop films and sequential demonstration pictures with the instructional guide for teaching individual skills in a university professional preparation power volleyball program.

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Underhand Serve
Volleyball

Instructional Objective

At the end of this instructional sequence, the student should be able to serve the ball, scoring a minimum of 30 points based on the serving test described at the end of this sequence.

Instruction Tasks

1. Read pages 23-25 in text. *Study film loop and still picture sequence.*
2. Assume "ready" position — partner critiques position.
3. Walk through and mimic complete serving action without ball (5 repetitions); partner critiques.
4. Serve ball to partner standing 15 feet away (10 repetitions) so ball is received in a downward flight at shoulder height.
5. Serve ball to rebound wall standing 15 feet away (20 repetitions) so ball rebounds in a straight line back to you at any height. If less than half, do not rebound in a straight direction back to you; go back to Task No. 2 and start over after studying

material at media console. Check with partner if you are tossing ball or hitting on an angle across face of ball.

6. Serve ball to red 3-foot square target on wall standing 15 feet away. Practice serving ball into red target until you can serve ball *5-consecutive times* into target. Again, have partner check to see if you are hitting ball out of hand and not swinging hand across the *face* of ball.
7. Serve ball to partner standing 30 feet away (10 repetitions) so ball is received in a downward flight.
8. Standing behind the service line, serve ball over net to partner who is standing in middle of receiving court (15 repetitions).
9. Standing behind the service line, serve ball over net to partner who is standing in the back one-third of the receiving court.

   Serve ball to partner in back one-third of receiving court until you can serve the ball *5 consecutive times* to this area.
10. After reviewing the final skill test procedures and scoring at the end of the sequence, serve the ball for 20 trials. If you did not score 30 points or more in the 20 trials, go back to Task No. 7 and start over after studying the material at the media console.
11. Repeat Task No. 10. If you scored 30 points or more again, inform instructor when you would like to take *final skill exam.*

If you did not score 30 points, Go back to Task No. 9 and start over.

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The type of programming technique used in this program is called "branching" or "looping." It allows the student to make mistakes and take a remedial sequence back through the sequence until the desired performance is executed.

A programmed gymnastics text designed by Johnson (1968) allows the student to learn basic gymnastic skills independently at his/her own rate with minimal explanation and help from the instructor. Two Super-8 movie films were also developed to be used with the text.

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Parallel Bars
A 3
One Straddle Seat Travel

Description

From straddle seat, place the hands on the bars in front of thighs. Swing the legs to the rear and off the bars. Swing them forward between the bars to another straddle seat in front of hands.

Analysis

The arms are straight ———	throughout
Are the legs lifted or swung to the rear and off the bars? ———	swung
Are the legs lifted or swung to the straddle seat? ———	swung
Are the legs straight or bent throughout the stunt? ———	straight

Safety

No spotter is required, but the amplitude of the swing should be developed gradually under ———	control

Performance Checks	*No*	*Yes*
Were the legs straddled on and off the bars through the use of momentum from the swing and not by lifting the legs off the bars?		
Were the arms straight throughout the stunt?		
Did the element of swing, not strength, predominate in the movement?		

Form Checks	*No*	*Yes*
Good posture throughout		
No sag of the shoulders		
Legs straight		
Toes pointed		
Arms straight		

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The procedures used with the text are.

1. Read the description and study the diagram (not shown in sample lesson).
2. Answer the questions under the analysis and safety sections.
3. Read the items under the performance checks.
4. Execute the stunt.
5. Use peer evaluation for performance and form checks.

Although the materials can be used in a variety of ways, they were originally developed as a means of teaching basic gymnastic skills for college service and major programs. The materials have been thoroughly tested and proven to be effective when properly used.

Conclusion

Society is ever-changing and dynamic. Student interests and needs change with each generation. Life styles change. Value interpretations change. What about physical education? Is there a need for change? If so, what should be the focus and in what direction?

Individualization, through the use of innovative materials and teaching strategies, has great potential for producing instructional, curriculum and organizational changes in physical education. However, a word of caution. Not every student or teacher can function in the freedom provided by an Individualized Instruction environment. The transitional process from interdependency, on the part of the student and teacher, to self-imposed freedom through the use of Individualized Instruction materials may be a slow and frustrating process. Education has been dominated by group principles, group values, group averages and group discipline. The individual has, in too many situations, been secondary to the group. It is difficult to accept becoming rather than just performing, flexibility rather than just rigidity, and change rather than adherence to dogmatism.

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TASK CARDS

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Understanding the Role of the Strategy

Teaching with task cards is a strategy teachers can use to communicate a specific learning experience. It affords the learner a higher degree of individualization and greater independence from the teacher. Task card strategy communicates what the teacher wants the learner to do, but the learner has a degree of self-determination regarding the process/production phases of the teaching/learning transaction. The exact amount of self-determination and independence is not intrinsic in the task card strategy but is dependent on the relationship established by the teacher's choice of teaching style.

The task card always communicates a learned subject matter relationship but the teacher/learner relationship takes on some variations. The teacher/learner relationship usually gets its form through teacher intuition or at least a less conscious deliberation than the learner/subject matter relationship. The form it takes is influenced by a number of existing personal professional factors or traits. Yet, the teacher/learner relationship is as important to learning as the learner/subject matter relationship and deserves a more conscious determination. In fact, many times it may be the most important part of the educative process. This realization means that the task card strategy should also communicate a teacher/learner relationship as well as a learner/subject matter relationship.

At this point it may be necessary to clarify the difference between the teaching strategy of using task cards and the teaching style known as teaching by task as described by Muska Mosston.[1] Teaching by task is a behavioral relationship model which describes one possible behavioral arrangement between the teacher and the learner. It establishes a set of specific criteria for acceptable and valued behaviors during a task teaching/learning transaction. Task style is part of a larger construct known as the spectrum of teaching styles.[2] The spectrum communicates the idea that teaching by task is only one behavioral arrangement available to teachers and each style has its own set of criteria and its own intrinsic strengths and liabilities that make that style uniquely different from any other. The spectrum also recognizes that each teaching style promotes the concept of "mobility ability," that is, the ability to choose a teaching style for its strengths in a particular situation.

As previously indicated, teaching by task card has been primarily a method of communicating a learner/subject matter relationship and the teacher/learner relationship has been contingent upon the personal makeup of the teacher. A person using the task card strategy must be aware of and consciously select the

[1]Muska Mosston, *Teaching. From Command to Discovery* (Belmont, CA: Wadsworth, 1972).

[2]Ibid.

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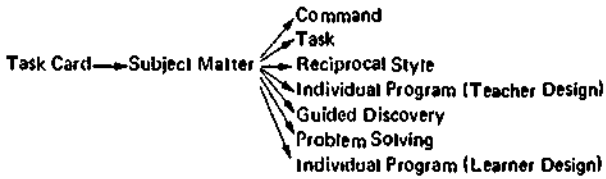
behavioral relationship between the teacher and learner. So in designing a task card, the teacher must be conscious not only of the desired outcomes of the learner/subject matter relationship but also of the intrinsic strengths and liabilities of the specific teaching style selected for that transaction. With this knowledge, the designer can design task cards not only in all subject matters but in all teaching styles.

SPECTRUM OF TEACHING STYLES



Designing the Task Card

There are essentially two formats for task cards. The first is primarily designed to activate the learner in utilizing a previous knowledge input. The learner has experienced some information processing and now the task card is asking the learner to apply or practice that knowledge under certain conditions as delineated by the teacher. This formal task card will be called *action-oriented task card*.

The second format is not only an activating mechanism (strategy) but its structure communicates a student responsibility for obtaining the information about the subject matter. The information processing, part of the task card, is concurrent with the activation or past activation. This format of the task card will be called *information/action task card*.

The following task cards show several examples of the two formats. Each of the task cards attempts to communicate all the necessary information to the learner to insure his/her continued independence. It may be desirable to test your task cards and record the learner's comments and questions in order to improve them. Remember the idea of task card strategy is to communicate clearly so that the learner can understand and behaviorally execute them. Hazy communication not only confuses but quickly demotivates learners from using task cards.

In the action-oriented task card, I have found the following categories of information important: Task card identification number, subject matter specific, description of the task, hints to the learner, evaluative/feedback criteria and teachers' comments. If the task card becomes part of the record keeping concerning a learner, you will need a place for a name, date and a place for your signature which indicates your quality approval. Some teachers like to put an objective on the task card.

ACTION–ORIENTED TASK CARD #1
Volleyball – Two-hand set (Read entire card before beginning the task.)

Description of Task: Take a volleyball and select one of the wall stations. Now, standing behind the line, throw the ball over your head. Using the two-hand set technique, make the ball travel 10-15 ft. in the air toward the wall. It should take an arch (flight) so that it just skims or lightly touches the wall above the 8-ft. line. You have 25 repetitions.

Hints to Learner. 1) Ball must be hit with fingertips (not palm of hand).
2) You are practicing a setup for your net player.

Evaluation/Feedback Criteria: 1) The teacher will be moving around if you are having difficulty. 2) After every turn, record in the appropriate box either O.K. for skimmed wall or (S) for too strong a rebound. Think about what you did before you go again.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

16	17	18	19	20	21	22	23	24	25

Teacher APProval:

Teacher Comment. Select an information/action task card for volleyball and get started after you've read the entire card.

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INFORMATION ACTION–ORIENTED TASK CARD #1

Volleyball – Two-hand Set (Read entire card before beginning task.)

Information on Two-hand Set: See Loop film #3 (or one could use a written explanation, books, series of photos, videotape, film). After you do part of the task, return to source for additional information or insight, then return to task.

Description of Task: Take a volleyball and select one of the wall stations. Now standing behind the line, throw the ball over your head. Using the two-hand set technique, make the ball travel 10-15 ft. in the air toward the wall. It should take an arch (flight) so that it just skims or touches the wall above the 8-ft. line. You have 25 repetitions.

Hints to Learners: If you have any doubts or questions, go back to source before asking teacher's assistance.

Evaluation/Feedback: 1) The teacher will be moving around if you're having difficulty. 2) After every turn, record in the appropriate box either O.K. for skimmed wall or (S) for too strong a rebound. Think about what you did before you go again.

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

16	17	18	19	20	21	22	23	24	25

Teacher Approval:

Teacher Comments: If you are finished with Task Card 1A #1, you may move onto another task card.

In designing either task card format, one must remember who the users will be. The cards gain their worth only in use. They may be well written or illustrated and esthetically pleasing, but they're only helpful if students use them. Decoding words has its own degree of difficulty for each reader and consequently the essence of the task card should be communication, and not a lesson in vocabulary comprehension unless the subject matter content is vocabulary.

Behavioral Expectations of Teacher and Learner in Task Style Task Cards

Both sample task cards were designed to be congruent with the task style of teaching. The learners are given the task cards. After they read them, they may ask questions and then go to work. They make self-determining decisions about starting, stopping, pace (including pauses), geography and posture. The learner is also asked to observe and record each repetition to assist the teacher in making the final quality decisions.

The teacher, after designing the cards and making them available to the learner, needs to clear up any confusion by letting the students ask questions. During the execution of the task the teacher is a facilitator and observer who gives evaluative feedback to the learner based on the teacher's observations. In the final part of the transaction the teacher gives quality approval to the learner before the learner moves on to the next task.

To facilitate space and equipment, it may be necessary to have the class work on various tasks instead of the same one. It might be impossible for each learner to find wall stations or even a round ball to practice the two-hand set. With a number of different tasks in volleyball or in different activities, one would alleviate the problem of space and equipment. In some of the other teaching styles this becomes less of a problem.

COMMAND STYLE

Design of Task Cards

It may seem to be incongruent to think of task cards designed in the command style. It can be done to a certain degree, but in part it does depend on the structure of the subject matter instances. If the movements are not controlled by an external rhythm, then the activity will resemble the task style during the actual execution of the activity. Yet it still could have enough additional restrictive and dependency factors that it resembles command style more than the task style.

In my opinion, a person who designs task cards with more controls than the task style, hasn't learned a

most important factor in human relations, trust. Trusting people will give them an opportunity to demonstrate that they can be trusted, and in a trusting climate they will do things more congruent with their thoughts and feelings. They will not have to be totally immersed in the educational game of "What does teacher want so he/she thinks I'm O.K.?" It seems to me that the more independence and self-determination we give learners, the more we're likely to find out what they're really about. Consequently, we can openly relate to and encounter each one based on our perceptions of what they're like in a trusting, independent and self-determining climate.

Behavioral Expectations in Command Style Task Cards

Both sample #2 cards were designed to be congruent with the command style of teaching. The learner's role is to conform to the teacher's wants and there is little opportunity to be independent or to make many self-determining decisions. A teacher might decide to use task cards in a command teaching/learning transaction to set the scene (climate) for the class or to facilitate recall.

In command style, the teacher is the prime mover, controller and evaluator of the entire transaction. The command teacher makes all the decisions and expects all the learners to behave in the prescribed manner. The valued behavior is to obey the teacher's decisions.

ACTION–ORIENTED TASK CARD #2 (COMMAND STYLE)

Dance. Irish Jig (Read entire task card before beginning.)

Description: I'll put on the record and you practice each step we learned in the last two classes in the appropriate sequence. If you forget a step or sequence, stop and watch someone else. Pick it up when we start again. I'll flash cards for the next step and I'll count over the mike. We'll go through the entire dance each time. After each time, I'll give you a little time to rest and catch your breath.

Hints to Learner: 1) Remember your hand positions are important also.
2) If you lose yourself in the dance, stop — look — think.
3) Don't restart until next second.

Evaluation/Feedback Criteria: I'll be watching and making corrections over the mike.

Teacher Approval

Teacher Comments:

INFORMATION ACTION–ORIENTED TASK CARD #2 (COMMAND STYLE)

Dance. Irish Jig (Read entire card before we start.)

Information on Irish Jig: We will look at 4 loop films (one at a time) to see how each step is done.

Description of Task. After each loop all of us will do the step together. I'll use a drum for the beat and talk to you over the mike as you practice. If you should make an error or lose your place, stand and watch because I'll stop and start the group frequently. We'll concentrate on the steps first and put together the hand movements and the sequence later.

Hints to Learner: 1) If you make an error or become confused, stop and watch. Don't begin again until the whole group is stopped; then we'll begin together.
2) Concentrate on the steps for now.

Evaluation/Feedback: I'll give you some corrective comments over the mike during the practice and some during the breaks.

Teacher Approval

Teacher Comment: Move on to the next task card.

RECIPROCAL STYLE

Design of Task Cards

The essence of reciprocal style of teaching is to provide a learner with peer feedback about his/her involvement with the learning experience. The learner getting the feedback will then reciprocate by giving the peer feedback while he/she is involved in the learning experience. An example of a task card in reciprocal style might look like the following:

ACTION–ORIENTED TASK CARD #3 (RECIPROCAL STYLE)

Soccer: Instep Kick

Description of the Task: Select a partner you would like to work with during the next learning experience. The two of you get a soccer ball and select one of the wall stations. Decide who is the doer and who will observe first. The doer will place the ball on the designated spot and, taking one step, will kick the ball using the *instep kick*. The observer will watch and make corrections regarding what the doer did well or not well. After each kick the observer will tell the doer what he did correctly and incorrectly. You will also record the accuracy of the kick, but wait until you get your feedback from the observer. Each of you will take 20 repetitions.

Hints to Learner: Observer: You are to look for:
1) non-kicking foot placed alongside of ball,
2) Toe of non-kicking foot pointed toward target,
3) Head down until moment of contact, 4) Contact with instep (toe pointed down and slightly toward non-kicking foot).

Doer: 1) Listen to feedback and try to concentrate on the phase causing you the most difficulty.
2) Don't forget to record accuracy (after each kick).

Evaluation/Feedback: 1) I'll be moving around to assist the observer. If you have any questions, ask the observer first; if he/she can't help, let the observer contact me.
2) Record the target hits (X) per appropriate trial blank.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

Teacher Approval:

Teacher Comment: Select a new task card in some phase of soccer techniques other than kicking.

INFORMATION ACTION–ORIENTED TASK CARD #3 (RECIPROCAL STYLE)

Soccer: Technique used to put the ball in play after it goes out-of-bounds over the sideline

Information on the Technique: Determine what technique(s) are available to a player under the above conditions.

Task Description: Get into groups of four. The first part of the task is to select a source and determine what are the major factors one would stress in doing the technique(s) correctly. The group will then list them and they'll become your "things to look for" and will be used by the observer to give a learner feedback. Once you have the list, set up an activity where one of you is the doer, one is the observer, one receives the ball, and one stands about 10 ft. from the doer facing him/her. The receiver remains stationary during the action. Establish a rotation system so that all of you get a chance in each role. Each doer gets 20 repetitions and after each repetition the observer will give feedback to the doer.

Hints to Learner: 1) Doer: Listen to feedback and concentrate on the activity causing you the most difficulty.
2) Observer – Give the doer positive feedback rather than just negative criticism.
3) Other two – Get the ball back quickly so there is as little dead time as possible.

Evaluation/Feedback: Things to look for: (To be filled in by each of you in the group)

	Technique #1	Technique #2
1.		1.
2.		2.
3.		3.
4.		4.
5.		5.

I'll be going around and helping the observer.

Teacher Approval:

Teacher Comment: Go on to Action-Oriented Task Card #5.

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INFORMATION ACTION–ORIENTED TASK CARD #4
(INDIVIDUAL PROGRAM–TEACHER DESIGN STYLE)

Basketball: Jump Shot

Information on the Jump Shot You are to select one of the following to gain information on the jump shot.

1. live demonstration and explanation
2. reading about jump shot
3. silent loop film – analyze the movement. You may trust the movements to memory or write them down. Regardless, after 10 shots and 15 shots, return to the source and review your insights.

Description of the Task: After you attain the information, select a basketball and a basket and choose one of the distance arcs marked on the floor. On this paper mark your selected arc before you start. You will take 20 shots from your selected distance.

Hints to the Learner:

1) Stay with your selected distance, don't change it; take all 20 shots. 2) If you are having problems, think about the techniques (go back to the source if necessary). 3) Remember that you are responsible for your own self-evaluation. 4) You are to return to the source after the 10th and 15th shots.

Evaluation/Feedback:

Mark by crossing out.

3'	5'	7'	9'	11'	15'	17'	18'	19'	20'
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

(X out made shots.)

Your Evaluation Comments.

What was your result?
What was your most consistent factor (right-wrong)?
What did you change?
Were you more successful or less as a result of your change?
What changes would you make now if you had 20 more shots?
Are you ready to move on?

Teacher Approval:

Teacher Comment. agreed on by teacher and learner for next task.

Behavioral Expectations in Reciprocal Style Task Cards

In both examples, the students are expected to work in a cooperative manner toward a mutual learning goal by giving the peer performer feedback about the quality of his/her actions. The learners make decisions about starting, stopping, pace, geography, posture and type of feedback. The learners are usually very happy and enjoy this relationship and there is considerable evidence that people learn well when interacting with their peers in a cooperating climate.

The teacher's role is to view the performance of the observer in relationship to his/her role. The teacher's objective is to make the observer a better seeing/feedback agent. One would never use the observer to transmit a message to the doer, but instead, would ask questions which would help the observer become better in his/her role, such as: "Is the doer releasing the ball in the right place?" "What could you say to the doer that would improve his accuracy?" "Did your group talk about the rules that govern the technique you are using?" Questions like these not only induce better involvement by the observer, but also reinforce the observer as to how significant he/she is to the whole process. I've found reciprocal task cards to have a high acceptability in classes.

Even though the teacher is operating in an indirect manner with the doer, if the group demonstrates inappropriate behaviors which interfere with the attainment of the learning goals, the group may need a direct intervention by the teacher — an intervention which alleviates the friction and gets the group operating cooperatively again.

An additional concern in group work is the "stigmatized child" and the trauma he/she may suffer if not chosen or if rejected in some other manner. Teachers planning to use reciprocal style or any group cooperative work must be concerned with the stigmatized child. There may be a need to sensitize the group to individual differences and/or to establish some sys-

tems which reduce or eliminate the risk to the different child. This needs to be done without destroying the idea that it's o.k. to choose someone you would like to work with during the next learning task.

There are some risk areas in reciprocal style, but the process and the concomitant learnings are well worth the additional risk taking.

INDIVIDUAL PROGRAM (TEACHER DESIGN) STYLE

Design of Task Cards

The essence of individual program (teacher design) style is to take a given task and offer levels of possible engagement in the task. Upon viewing the task in levels, the student will go through a pre-task assessment of him/herself regarding the task levels. After its execution, the learner determines how accurate he/she was in the self-assessment. The task levels should provide levels for successful participation by those with lesser and better ability and at the same time offer a challenge for all students to seek a higher level of performance.

An example of a task card in individual program (teache design) might look like the task card on page 82 and the task card that follows:

ACTION–ORIENTED TASK CARD #4
(INDIVIDUAL PROGRAM TEACHER DESIGN STYLE)

Basketball: Jump Shot

Description of Task: Select a basketball and a basket and choose one of the distance arcs marked on the floor. On this paper mark your selected arc before you start. You will take 20 shots from your selected distance.

Hints to the Learner: 1) Stay with your selected distance, don't change it; take all 20 shots. 2) If you are having problems, think about the technique (go back to the source if necessary). 3) Remember that you are responsible for your own self-evaluation.

Evaluation/Feedback:

Mark by crossing out.

3'	5'	7'	9'	11'	15'	17'	18'	19'	20'
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20

(X out made shots.)

Your Evaluation Comments:
What was your result?
What was your most consistent factor (right-wrong)?
What did you change?
Were you more successful or less as a result of your change?
What changes would you make now if you had 20 more shots?
Are you ready to move on?

Teacher Approval:

Teacher Comment: agreed on by teacher and learner for next task.

Behavioral Expectations in Individual Program (Teacher Design) Task Cards

In individual program (teacher design) style of teaching, the learner is expected to work by him/herself. He/she would make decisions about starting, stopping, pace, geography, posture, self-assessment pre-involvement, and self-evaluation post-involvement. The decision to move on to the next task could be left to the student or be mutually decided by the teacher and the learner. The learner's behavior should be task goal-oriented during the entire transaction.

The teacher is a facilitator and indirect evaluator during the entire process. It is most important to ask questions to stimulate analytical and evaluative thoughts.

The teacher's role as a teller is diminished to an "almost never" status in this style. Yet, the bigger problem for the teacher is not to become too uninvolved; for when you see learners actively engaged in independent learning, it becomes all too tempting to become less involved. The teacher needs to see his/her different role emphasis, of inducing self-evaluation, as an important aspect of the learner's development toward independence.

GUIDED DISCOVERY STYLE

Design of Task Cards

Guided discovery is a style of teaching which promotes cognitive activation for information processing. The idea is for the teacher to design a series of questions which would lead the learner to discover what the teacher wants him to discover. Since guided discovery doesn't usually demand a physical activation, one must use either command, task, reciprocal style or

INFORMATION ACTION–ORIENTED TASK CARD #5 (GUIDED DISCOVERY)

Basketball: Maneuvers during Dribbling

Information on the Task: Use a strip of paper to cover answers on right side of paper. After you answer the question, move the paper down to check your response. If you are right, go on; if not, see if you can understand the logic of the given response.

Setting the Scene: A player is dribbling the ball up the right side of the court (near the right sideline). He encounters a defensive player as he crosses into front court.

Write your answer:

1. What are his options?
   a.
   b.
   c.
   d.
   e.

1. a. Stop dribbling.
   b. Pass the ball.
   c. Shoot.
   d. Give the ball to the other team.
   e. Keep dribbling.

2. He chooses to go (a). In what direction would he go to reduce the risk?
   a.

2. a. To the left

3. What could happen if he retreated?
   a.

3. a. Risks backcourt violation

4. What could happen if he went to his right?
   a.

4. a. Risks out-of bounds

5. What could happen if he went straight ahead?
   a.

5. a. Risks charging the defensive man

6. So, choosing to go left, the dribbler wants to afford maximum protection to the

individual program (teacher design) task cards to get the learners to move. Therefore, guided discovery task cards are usually information action-oriented task cards.

When the teacher uses guided discovery he/she must provide the learner with some retrievable system for ascertaining the appropriateness of his/her response. An example of a task card in guided discovery might look like task card #5, pages 84-85.

Behavioral Expectations in Guided Discovery Task Cards

The learner is expected to reach the same conclusion (discovery) as the teacher intended. This experience is primarily a cognitive one with frequent feedback from some retrievable system. Therefore, the student answers the questions and verifies his responses. If the goal is something which needs physical movement to produce competency, then the learner needs to engage in some physical practice.

The teacher during the process needs to prevent confusion. A well designed guided discovery sequence usually needs little clarifying, but until the guided discovery sequence has been tested and changed, there may be some confusing elements.

During the physical practice, the teacher assumes the role he/she used to physically activate the learner.

ball. 1) He wants to keep his body between the defensive player and the ball at all times; 2) He doesn't want to turn his back to the player; 3) He wants to get the ball to his left hand without losing too much time; and 4) He wants to maintain 100% eye contact. How will he cross the ball?

a.

6 a. He must execute the back crossover by bringing the ball behind his back with the right hand and picking it up on the left side with the left hand.

Task Description: (Task Style)
Get a basketball and practice the back crossover. Simulate the situation described above. By going straight up the court and crossing the ball behind the back with a slight change of direction to the side, you will be receiving the ball. You have at least 10 minutes to practice — more if you like.

Hints: 1) Try working to increase the speed at which you can execute the back crossover.
2) Don't forget to change direction on the back crossover.
3) You may wish to seek out a source of information on the back crossover.

Evaluation/Feedback: I'll be around to assist you if you're having difficulty.

Teacher APProval:

Teacher Comments: Move to next task card on maneuvers during the dribble.

PROBLEM-SOLVING STYLE

Design of Task Card

The essence of problem-solving style of teaching is to promote divergent thinking in the learner. This is just the opposite of guided discovery which promotes convergent thinking. In problem solving, the learner is given a stimulus which causes him to think of various responses. Each of the responses is correct and has the same value if it resolves the problem.

Problem solving is also a cognitive style which doesn't necessarily guarantee physical involvement; so one may have to resort to one of the other formats if the teacher is seeking a physical output or allows the learner to choose the subject matter instance he/she will be doing.

An information action-oriented task card in problem solving might look like the following:

INFORMATION ACTION–ORIENTED TASK CARD #6

Baseball: Sliding

Information on Sliding. You are sliding into second base. How many different slides can you think of and do? Identify under what conditions you would use each of the slides.

	SLIDE (no limit)	WHEN TO USE
1.		
2.		
3.		
4.		
5.		
•		
•		
•		

Description of Task: Select one of the slides you feel you would like to be able to do and practice it for the next 15 minutes.

Hints. 1) You may want to start about 3-5 steps away from the bag; you can always increase the distance later. 2) Be sure you are safe (proper equipment, and keeping bag loose until you have the slide near perfection). 3) You may wish to check your selected slide with some other source.

Evaluation/Feedback: Your evaluative comments about your progress:

Teacher Approval:

Teacher Comments: Progress to be mutually decided on.

Behavioral Expectations in Problem-Solving Task Cards

In problem solving task cards, the learner is expected to seek and test out a variety of responses to a teacher determined stimulus. The learner should decide such things as the specific responses, quantity of responses, starting, stopping, pace, geography, posture and self-evaluation.

If one wanted to remain consistent with the problem-solving style during the physical involvement for competency development, the learner would be allowed to select the subject matter instances to be developed. If the teacher wanted to determine the specific subject matter instance, he/she would use one of the other styles and the action-oriented format.

During the process of discovering various answers, the teacher needs to exercise a passive involvement, for most cognitive acts need time and to be uninterrupted to emerge as a learner's idea and response.

One aspect of the teacher's involvement is to be available and to act as a motivator of learners who seem to need some additional input. A major role is to help the thinking process of the "stuck child" by getting the child to verbalize how he/she is operating or attacking the problem, and then to help each find alternative methods of problem solving or to see the situation in a different way.

INDIVIDUAL PROGRAM (LEARNER DESIGN) STYLE

Design of Task Cards

The essence of this style of teaching is to turn over all the decision making to the learner in a teacher given subject matter focus. The learner formulates a plan of action and presents it to the teacher for mutual discussion. The acceptance of the plan of action becomes a contract between teacher and learner.

The content of the task card is slightly different to assist the learner in developing a volatile plan of action. The card on the next column might be an example of a task card in individual program (learner design):

Behavioral Expectations in Individual Program (Learner Design) Task Cards

The learner is expected to construct a plan of action to attain a specific goal. Then he/she executes that plan to produce the product described. Evaluation of the product is determined by criteria described in the plan of action.

Because this teaching style affords the learner a high degree of independence and self-determination, the teacher must have a high level of trust and faith in the learners. The teacher's role is to give a learning focus, scrutinize the plan for its feasibility and act as an accountability agent. Any changes in the plan of action, including the process and product, must be by total agreement between the learner and teacher. The teacher seeks verified evaluative feedback, but the actual evaluation may be done by others. The teacher doesn't relinquish quality controls, only transfers them to an equally concerned agent (parents, teacher, experts, group of peers or the learner). If there is a discrepancy between stated criteria and the product, the teacher may send the plan back for additional work. For example, if a person indicated a distance of 100 yards of backstroke with no stopping and within a prescribed time limit but did not comply with the time factor, the teacher could ask him/her to do what is necessary to attain the stated criteria. Quality should never become the sacrificial lamb for self-determination or independence.

INFORMATION ACTION–ORIENTED TASK CARD #6

Subject Matter (teacher determined): Swimming stroke

Specific subject matter instance (learner design)

How will you get information on the stroke(s)?

When will you practice?

How often (long) will you practice?

How will you analyze and evaluate each session?

How will you get feedback about your performance?

How will you communicate your involvement and progress to the teacher?

What criteria will you use to measure competency in the stroke(s)?

Who will judge your competency?

How are you going to give final competency feedback to the teacher?

How long are you estimating it will take you to complete this plan?

Any other comments:

Teacher Comments:

Teacher Approval:

Learner:

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SUMMARY

I wish to stress the assets of the task card strategy:

1. Gives the learner a clear idea about the learner/subject matter relationship
2. Gives the learner a set of behavioral expectations so there is no or little confusion as to who is responsible for what decisions
3. Reduces the need for the learner to play the game of "what does the teacher really want"
4. Permits the learner to exercise various degrees of independence and self-determination
5. Demonstrates a trusting and "you have worth" climate for learners
6. Allows learners to be more open and sharing about their feelings and thoughts concerning the learning task
7. Frees the teacher so he/she may interact, one to one, with students based on their problems or pleasures in the learning experience
8. Increases the opportunities for a higher frequency rate of personalized feedback to each learner
9. May reveal, if various styles are used, the learner's learning style and/or life style itself in one or more of the teaching/learning transactions
10.
11.
12.

I am sure there are more, so I'll leave it open for your additions.

The major liabiilities that I see are:

1. Involves an immense amount of pre-class preparation
2. Necessitates emotional adjustments when teachers discover that a learner can be less dependent on them than they thought possible
3. Entails a reduction in the quality of performance, which though not intrinsic, seems to be a risk because teachers must develop new techniques for quality control
4. Requires the teacher to be responsive to the individual learning or life style of learners who need more contact with teachers than the task card strategy allows until the learners are ready for more independence
5. Risks the danger of giving up on the task card strategy too soon because it causes some problems alien to the familiar class climate. Because it a different approach, teachers need to seek solutions rather than retrenching. Different techniques and behavioral relationships always cause different problems and frictions but they need resolution, not surrender.
6.
7.
8.

Again, I'll leave the other liabilities open to you. May I wish you good fortune in your attempts at the task card strategy.

STUDENT-TEACHER CONTRACTS

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A contract between a student and teacher is a written agreement of what the student is to do to earn a certain grade. The specification of the grade before the student starts learning is a distinguishing feature of contracting. Therefore, a necessity is to identify the quantity and quality of work very specifically before the student begins.

Several assumptions underlie contracting. One is to shift the responsibility for learning from the teacher to the student. Another is to prevent failure. If the work does not meet the standards s/he student is allowed to redo the work until he/she meets the predetermined standard. Other assumptions are that the student is allowed to: vary the time period for completion of work; work at own ability level; choose learning activities according to interests; and work independently.

Contracting enables the teacher and student to select many and varied learning experiences. Rather than specifying a particular way of learning, it permits students to choose ways suited to them.

For the teacher, contracting can help in the management of instruction. The contract provides a record of who's doing what, how much, how well, where and when. It also eliminates any grading problems that may arise at the end of a course.

Contracts in current use seem to fall into three categories. One of the differentiating factors among the three types is the amount of student-teacher interaction. Another is the amount of student responsibility assumed. These two factors can be viewed on a continuum. The three types of contracts are shown in Figure 1.

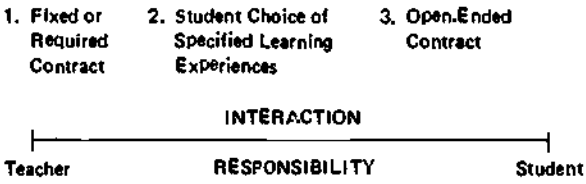

Figure 1. Types of Student-Teacher Contracts.[1]

Student-teacher interaction is not an integral part of the first two types of contracts but is essential in the third type. Many writers (Barlow 1974; Bockman & Bockman 1973; Harvey 1972; Parchman 1974) have indicated that the discussion involved in negotiating a contract between teacher and student is the most important phase and that this process of goal setting is as important as the product.

Fixed or Required Contract

The fixed or required contract ensures that basic or essential information is learned by all students and

[1]Murray (25), in his article, "Learning Contracts: Better Than Assignments," identifies fixed and open contracts.

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introduces the students to the idea of contracting. It allows the student to work at his/her own pace and to work until the set standards have been met. Within this type of contract the student and teacher could agree upon a deadline for the contract to be completed. Most people using contracts prefer having a deadline because it helps to spread the teacher's work over the semester and helps the student who tends to procrastinate. If a student is having trouble with a contract and his work is not completed by the deadline, the teacher can attend to the student before the end of the course. The following three contracts are examples of fixed contracts.

ARCHERY CONTRACT #1 [2]

I, _____, accept the responsibility of completing this contract.

General Objective: The student will be able to recognize and demonstrate good shooting form.

Specific Objectives: The student will be able to evaluate himself according to a checklist.

The student will be able to evaluate another student using the same checklist.

The student will be able to shoot 4 ends with no more than one error recorded on his checklist by the instructor.

Procedures:
1. Read the material on shooting form in your textbook. _____ date
2. Study the archery rating sheet. _____ date
3. Evaluate yourself on the rating sheet. _____ date
4. Evaluate another student. _____ date
5. Be evaluated by another student. _____ date
6. Be evaluated by the instructor. _____ date

_____ _____
Student's signature date

BASKETBALL CONTRACT #1

Performer _____ worked on these activities in the open gym _____.

1. Free throws. I practiced shooting _____ series of ____ free throws each.
2. Lay-ups. I practiced shooting _____ shots driving from the right side and _____ shots driving from the left side.
3. Jump shot. I practiced my jump shot from _____ different floor locations shooting _____ shots at each spot. Diagram the locations.
4. Tip-ins. I bounced the ball off the backboard and tried to put the rebound in the basket _____ times.

TUMBLING CONTRACT [3]

For the week of _____ _____
is all ready! student's name

Phase 1	Pretest	Beginning tumbling skills identified by instructor	Score on a 5-point rating scale	Now go to Phase 2
Phase 2	If you performed all the skills at the 4 level or better	Watch film loops of new skills.	Practice skills	Now go to Phase 3
	Work on each skill that you scored less than 4.	Get help--Practice.	Retest	
Phase 3	Read instructions developing a for sequence.	Develop a tumbling sequence using the above skills.	Test	Passed GOOD WORK!!

[2] This contract is based on a format by Cote and Gurske (1972).
[3] *Ibid.*

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Student Choice Contract

The second type of contract, student choice, gives the student more responsibility. Besides being able to work at his/her own pace and to redo work until standards are met, he/she can choose from among many learning experiences. Each learning experience can become a contract or part of a contract. The student can choose those experiences which interest him/her the most. Usually each experience has a point value. When the contract is completed according to the standards set, the student receives those points. His point total over the course will determine his grade. Knowing these point values in advance allows the student to choose the grade toward which he wishes to work.

One example of student choice contract is for the student to be able to choose from among several fixed contracts. Another format is to put all the learning experiences on one handout and students choose from among these choices for whatever grade they want to work toward. The following softball contracts are examples.

SOFTBALL CONTRACTS

Contract 1—10 points.
Performs an overarm softball throw at a velocity of at least 60 feet per second.

Contract 2—10 points.
Demonstrate correct batting form as rated by the instructor.

Contract 3—10 points.
Be able to bat 5 out of 10 good pitched balls.

Contract 4—10 points.
Field 20 batted balls successfully — 10 fly balls and 10 ground balls.

Contract 5—10 points.
Successfully pass a written test on rules.

Contract 6—5 points.
Figure out offensive strategy for two different base running situations. Tell the instructor.

Contract 7—5 points.
Determine defensive strategy for two different situations. Report to instructor.

Contract 8—5 points.
Make up base running signals. Coach third base and use these signals for at least two innings. Have two class members verify this.

Contract 9—10 points.
Play one infield and one outfield position for at least five innings each. Have this verified by your team captain.

Contract 10—10 points.
Score officially and correctly one full game. Turn in scoresheet to instructor.

Contract 11—5 points.
Field in a game a minimum of four balls with no errors. Have this verified by two teammates.

Contract 12—5 points.
Bat over 400 for four games. Keep own record and figure percentage. Turn data into instructor.

Grades: A = 75 points or more
B = 65-74 points
C = 50-64 points
D = 40-49 points
F = 39 or below

With this type of student choice contract, deadlines can be set, some contracts can be required, and points can be deducted for late contracts, disruptive behavior, etc., but the teacher must spell out the guidelines in advance. For other examples of this type of contract, see Annarino (1974), Fast (1971), and Parchman (1974).

Another type of student choice contract divides the tasks into sections such as written, skill and oral. The student must select a certain number of tasks to complete from each category. The softball contracts could be arranged in this manner. Duttlinger cited by Annarino (1974) has used this format with a volleyball unit. On the contract the student indicates the task number and the task completion date for each category.

Another student choice format spells out what the student must do to get an A, B or C grade. A golf example by Morgan cited by Annarino (1974) and a tennis example by Parchman (1974) are in the October 1974 issue of *JOHPER*. The following is another example.

The student choice contract can be used with mastery learning materials. The levels of mastery could correspond to a letter grade. The student would contract for the mastery level and grade he/she desired. The following is an example of a mastery learning item.[4]

[4]For more information, see the mastery learning unit in *Golf* by Anderson (1973).

BEGINNING SWIMMING

Read the requirements for each grade. Determine which grade you wish to work for and sign a contract for that grade with the instructor. You may contract for a higher grade later if you wish.

C Work
1. Perform the front crawl for 25 yards.
2. Perform the back crawl for 25 yards.
3. Perform the elementary backstroke for 25 yards.
4. Perform the sidestoke for 25 yards.
5. Float on your back for two minutes.
6. Pass written test.

B Work
1. Perform the front crawl for 50 yards.
2. Perform the back crawl for 50 yards.
3. Perform the elementary backstroke for 50 yards.
4. Perform the sidestroke for 50 yards.
5. Perform the breastroke for 25 yards.
6. Perform a standing dive.
7. Demonstrate elementary lifesaving techniques.
8. Pass written test.

A Work
1. Perform all the strokes included in B Work for 50 yards.
2. Perform a dive with an approach.
3. Perform surface dives.
4. Demonstrate elementary lifesaving techniques.
5. Research one swimming stroke. Write the paper to hand in and include a bibliography.
6. Pass written test.

VOLLEYBALL

I. Perform the overarm serve. Score 1 point for each legal serve that lands in the proper court area. Serve 20 times.

Mastery Level	(ML) I	18	points
	ML II	16	points
	ML III	14	points
	ML IV	12	points

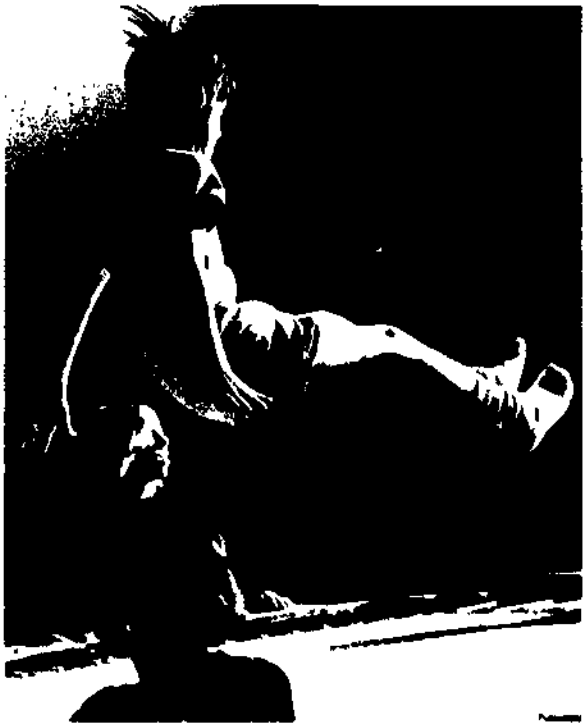
Open-ended Contract

The third type of contract, open-ended, gives the student the most responsibility. He/she can choose learning experiences from a list of alternatives provided by the teacher and can make his/her own suggestions. When learning experiences have been decided upon between the student and teacher, they negotiate the deadline for the contract, the quality and quantity of work to be done, where it will be done, resources to be used, the grade that will be awarded and any other relevant aspects. A period of time is necessary for a student to finalize this commitment. These contracts can be renegotiated. If the student while working on the contract encounters new information or any unforseen circumstance, he can confer with the teacher and rewrite parts of the contract. In using this type of contract, several interactions between student and teacher may be necessary. Therefore, the teacher must be willing to give of his/her time. Most writers using this type of contract agree that the time spent is well worth the reward of seeing the student assume responsibility for his/her self-development.

Some contract formats have a required section and an optional, open-ended section. Michalson (1974) provides an example of this type of contract (golf) with categories in the optional section within which the students may determine what they would like to do. The categories are: 1) learning off the course, 2) golf as a lifetime sport, 3) psychological factors in learning and playing and 4) additional play. A fifth option is left entirely open for the student's selection. Each option earns points which are totaled at the end of the course for a grade.

Foster (1974) describes an open-ended format contract in physical fitness that is designed by the student and approved by the instructor. Data from physical fitness tests taken by the student are used to identify areas of weakness. The student develops a program designed to eliminate his/her weaknesses and sets personal physical fitness goals. The student performs his/her program for seven weeks keeping daily records. At the end of this period, he/she is retested. The student prepares a written report evaluating his/her program. The report contains the program, data collected during training and the student's personal opinion. The student is graded on this report, not on his/her fitness improvement.

Examples of three more open-ended contracts are on pages 94, 95, 96.



TENNIS CONTRACT

By writing a contract, I hope that you will clarify for yourself the goals that you have in regard to tennis. It should enable you to seek appropriate help and provide you with informative feedback. You may revise or change your contract at any time. You do not have to contract for every item. You and I can discuss what would be reasonable for you to achieve in the time available.

The following list contains suggestions for evaluation:

1. Videotape recording
2. Super 8 film
3. Successful games or drills
4. Placement
5. Distance
6. Flight characteristics of the shot—spin, trajectory
7. Consistency

Persons who will evaluate me 1) _____

2) _____

1. I plan to demonstrate a good ready position by _____ (date)

2. State your objectives for the following shots:

   Forehand drive

   Backhand drive

   Serve

   Volley

   Lob

   Overhead

   Chop

   Drop shots

3. Game. I will demonstrate knowledge of rules, scoring and strategy in doubles and singles by _____ (date)

4. Goals I have that are not included above are:

5. I plan to attend _____ class periods. (I expect all!)

6. I plan to assist others in the class by:

7. My particular style of learning in this class will be:

8. I will present evidence to support achievement of each item for which I have contracted. I feel that what I have agreed to do is worth _____ grade.

_____ _____
signature of student date

_____ _____
signature of instructor date

Utilizing Contracts

When using contracts one factor to consider is the length of time the contract is to cover. If the students have never used contracts, it is advisable that the first contracts should be for only a day or two and then increasing periods of time can be used.

Contracts can be used in a variety of ways. A student can contract for everything that is to be done in a course. Or, after the teacher has introduced a subject and taught the basics, the student can contract for what he/she will do in the remainder of the course. A student could contract for a project or independent study within a course. A student could contract for improvement or enrichment activities.

Many students like contracting. They feel free to try and learn things. They like setting their own goals and achieving them. Because of the goal-setting experience, many students set new goals at the end of the course for which they wish to continue working. With this consideration for self-development, students begin saying, "I need to work on this aspect of my game now," instead of "Now what should I do?"

GOLF CONTRACT

By writing a contract, I hope that you will clarify for yourself the goals you have in regard to golf. It should enable you to seek the appropriate help and provide you with informative feedback. You may revise or change your contract at any time. You do not have to contract for all items. You and I can discuss and come to an agreement on what you need to do for a grade.

Some suggested measures (You may use other means as well)

1. Videotape recording
2. Super 8 film
3. Rating scale
4. Distance
5. Accuracy
6. Ball flight characteristics
7. Number of strokes

The persons who will evaluate me are. 1) _____
2) _____

1. My goal for my basic golf swing is:

   I plan to evaluate my basic golf swing by:

2. My goals for my approach shots are:

   I plan to evaluate my approach shots by:

3. I will develop a Putting technique that is comfortable and accurate for me. My goal will be:

4. I will demonstrate my knowledge of rules and etiquette before going on the course by:

5. I would like to work on the following special shots and show mastery of these by:

6. My scoring goals are as follows:

7. I will attend _____ class periods. (I expect all!)

8. I plan to help other students in the class by:

9. My particular style of learning in this course will be:

10. Goals I have which are not included above are:

11. For each item that I have contracted for I will present evidence supporting achievement of that goal. I feel that what I have agreed to accomplish is worth _____ grade.

_____ _____
signature of student date

_____ _____
signature of instructor date

Because there are several types of contracts and ways to use them, there is no one way to develop student-teacher contracts. In designing a contract, remember that the intent is to communicate an expectation level to your students. The following variables should be considered in developing or negotiating any type of contract:

1. Quality of the work to be done
2. Quantity of the work to be done
3. Amount of time allowed for a learning experience (deadlines)
4. Grade or reward (points, stars, etc.) student receives for completing a contract
5. Where the work is to be done
6. Resources to be used
7. Consequences of not completing a contract or meeting deadlines
8. Type of evaluation to be used
9. Work to be done independently, with a partner, in a small group
10. Process for renegotiating a contract

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INDEPENDENT LEARNING CONTRACT[5]

Grade _____ Student _____

Date _____ Teacher _____

What is to be Learned.	How Learning is to be Demonstrated:

Resources to be Used: _____

Learning Steps	Checkpoint Dates

Date for Completion of Contract _____

[5] This contract format is from Morine and Flanders (1974).

11. Process for redoing work that hasn't met standards
12. Amount of time student has to make a commitment to a contract

Just as everyone doesn't learn in the same manner, contracting may not be suited to everyone in your class. For the "contract dropout" other alternatives should be available without stigma or penalty.

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PROBLEM-SOLVING

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INTRODUCTION

In this chapter I hope to provide some bases upon which you can initiate (or improve) your use of the personalized problem-solving approach as the ultimate secondary school physical education learning style.

This chapter is primarily intended to provide practical examples that teachers can actually use in secondary school physical education. But the Problem-Solving style (hereafter identified as P-S) is not a simple one for many reasons. Thus I believe it is absolutely essential that you read the first chapter by Locke and Lambdin which describes not only the concept of personalized learning (and therefore P-S) but its assumptions and problems as well. I will discuss some of the principles and problems specific to P-S before turning to a description of P-S as a strategy and some suggestions concerning implementation.

Problem-Solving Differentiated from Guided Discovery

In the guided discovery style, students are provided with various sequential facts or questions, all of which are intended to *lead* them to an answer or action that has been preconceived by the teacher. See Mosston (1966) for examples.

With the problem-solving style, students are presented with a question or problem by the teacher. (There may be some "givens," such as basic information and limitations.) The student(s) proceed by experimentation or logical thinking or both to develop answers or solutions; there is often no *one* best solution.

Problem-Solving: Some Underlying Principles and Concepts

There is no way that this chapter can provide a package with all you need to utilize the P-S style. To do so is impossible and undesirable. If you truly wish to benefit from and actually use this chapter, there will, of necessity, be more reading, more thinking, more planning, and finally, some positive action required on *your* part. I will recommend various articles and books that I view as essential to a real understanding of the P-S style and its implementation.

Mosston's book *Teaching Physical Education: From Command to Discovery* (1966) contains in great detail much of what I believe in. I will briefly mention his concepts and principles where appropriate and refer you to his book for details. However, I do wish to *extend* his concepts and add those which I believe are

critical to the improvement of secondary school physical education. It is my intent to add to, not detract from, what he has written. I wish to communicate the critical concepts of, for and related to P-S as a valid teaching style that can add much to the personalization of learning in physical education.

Now let us look at some basic underlying principles related to the P-S style.

1. We cannot *teach* another person, we can only *facilitate his*[1] *learning*. This can be accomplished by many means, but because the P-S style, if effective for the learner, can lead to true creativity (1966), it may be considered the ultimate of all the styles available.
2. Your overall aim, your reason for teaching physical education and your *primary* objectives will determine whether you will and can initiate the P-S style. Let us be honest — if you believe physical education is primarily play, exercise or catharsis (a chance for kids to blow off steam), and/or you teach physical education only because you *must* to hold your coaching job or because "it's a job and it feeds me," then forget P-S.

   On the other hand, if you don't fall into these categories and are person-oriented (subject matter has importance only because it has potential value to the learner), P-S could be a fantastic teaching style for you and your students. Using the P-S style (at least initially) requires more time and emotional energy for the teacher. Learning must become intentional, not merely incidental to playing or exercising. Adapting to the P-S style may require a new you. For many reasons, not the least of which are pride in your work and the true learning you see in your students, it should be well worth the change.
3. As you know or would soon find out, you must first solve some problems to even *use* the P-S approach. You cannot rationalize away or run from these problems. They are real but *can* be solved. If you cannot or will not solve them, there is little hope that you can use P-S as a teaching style. You may need to be wary of rationalizations typically used to avoid or retreat from problems. Some classic examples have been described by Diederich (1968) by means of illustrations and a wry sense of humor. Among the 27 he presents are:
   - Claim that no one has *the* answer; that lets you out of having *any* answer.
   - Say that we must not move too rapidly. That avoids the necessity of getting started.
   - Say that the problem cannot be separated from other related problems; that way how can you be responsible since there are so many problems to solve before you can solve yours?
   - Rationalize the status quo — much can be said for it, so why change anything?
   - Put off action until every related or possibly related problem has been definitely settled.
4. Playing sports, exercising and motor skill learning are not synonymous terms; learning may occur during or as a result of playing or exercising. But we must not assume that because one plays or exercises, any specific kinds of learning automatically take place. For example, if youngsters are playing a game of basketball, even if only some very minimal instruction has been provided for several days, all will learn something from the playing. Some will learn more than others about the game. But we cannot be assured (in fact, it is unlikely) that they will learn about "blocking out" in rebounding, setting screens or "picks," beating the defensive switch, etc. Neither can we be assured that they will learn the importance of teamwork, that positive personality growth will occur or that sportsmanship will be developed. Only by setting specific objectives (motor, cognitive and affective) and *designing learning experiences directed at facilitating learning for each objective* can we be

[1] I believe his/her is awkward and unnecessary; therefore I will alternate terms with the understanding that I am referring to *both* sexes in each case.

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said to be teaching. Otherwise we are only providing space, time, equipment (and perhaps some minimal introductory information) so that various kinds of learning quite peculiar to each individual *may* take place; this is not teaching.

Because teaching is the facilitation of learning and because *intended* learning is obviously the desired outcome of the P-S style, it is important to examine the concept of learning more closely.

a. Claiming that we do not really know what learning is begs the issue; we must apply what we do know about it from experience and empirical evidence.

b. Learning occurs in all domains (motor, cognitive, affective) in basically the same manner (described in c and d below). Though we function as whole persons, objectives for learners are often classified according to the *primary focus* of the intended learning. *Cognitive* is primarily *intellectual; motor* overtly involves *movement* of the body or its parts; *affective* is primarily *emotional* (attitudes, values, feelings, etc.).

c. There are basically two kinds of learning, according to Castell (1963). In Sense I learning, we have "learned" when we can acquire, retain, reproduce or repeat. There need be no reference to truth, probability, rationality, consistency, meaning, or understanding in this kind of learning. For example, a youngster could "learn" that a basketball court is round, that the "best" way to throw a softball is stiff-armed, that "it is a sign of weakness to congratulate an opponent for a good move or shot." He can *acquire* this information if it is presented by the teacher (assuming the youngster hasn't already learned better) and "learn" to repeat it by word or action or both.

In Sense II learning, we learn only what is true; we learn only if there is meaning and we know the meaning, and only if we *understand*. Sense I learning is what is often called rote-memory; Sense II learning is what most of us would call *real* learning. In Sense II learning, because the learner would be encouraged or even forced to investigate, strive to *understand*, she could not (and *would* not) learn that a regulation basketball court is round, that the "best" way to throw a softball is always to throw it stiff-armed, that one is "weak" if she congratulates an opponent. Furthermore, Sense I learning is difficult to retain once we become old enough to understand but do not, or are not encouraged or permitted to. For example, if one memorizes a list of muscles, origins and insertions, and muscle actions without understanding, valuing, conceptualizing, etc., retention will be shorter than if Sense II learning had taken place.) Students are less likely merely to acquire, retain, reproduce and repeat when the P-S style is utilized than when the more traditional styles are used. I believe, however, that when one has truly "learned how to learn" (via Sense II learning), learning can subsequently occur more readily and by some of the styles that are less time-consuming than P-S because visual conceptualization is more likely. For example, once a person has learned *how* to learn about the muscles involved in a given movement by palpation before and during resistance to the movement and has *experienced* this kind of learning enough, he could then visually conceptualize the process when he *read* it or heard it described by another person and thus *learn* in the Sense II manner about other movements.

d. A person's emotions "of-the-moment" critically influence learning. In this regard, I think all teachers would do well to understand thoroughly Transactional Analysis (TA) as described by Harris (1969) and James and Jongeward (1973) in order to better utilize and

effectively individualize the P-S style. Though all psychologists do not agree in toto with this approach (nor do they all agree with *any* single approach), it is effective in helping people to understand their behavior and interactions with others in a very straightforward and understandable manner. Thus it can be an important foundation for good teaching because learners do behave in some manner, do interact with each other and with the teacher. TA is not intended only for troubled and emotionally disturbed persons — it can be extremely useful to any person dealing with others or for anyone who needs or wants to modify personal behavior he doesn't like.

e. There is considerable evidence that everybody is not endowed with the same intellectual or motor skill potential. Even if they were, for various reasons the rates for achieving or even approaching full potential are certainly not the same for everybody. Individual differences, then, must be allowed for and this allowance must carefully and in a positive way take into account the learner's emotions that are associated with his individuality.

At two emotional extremes, there are (1) the super athlete whose self-concept is puffed up to an unrealistic level and who may, as a result, never mature in other ways and (2) the very poor sports skills performer who has a very deflated self-concept that can prevent his learning anything positive about exercise and that can carry over in a negative way into his other activities and behavior as well. These emotions are extremely important and the mature, person-centered teacher will deal with them and all other problems of self-concept in a very delicate manner.

5. I have taken the position that teaching is *facilitating* learning. Increasing the facilitation by carefully planned, effective styles and strategies should increase the probability that Sense II learning will occur. Therefore, a teacher sincerely bent on facilitating learning does anything and everything humanly possible to facilitate learning if she truly values the students and what she intends for them to learn. In practical terms, if anything and everything the teacher can do is limited to demonstrating skills, "commanding" students to practice some skills of a sport and conducting a round-robin tournament, she is severely limited as a teacher. Even more limited, perhaps even retarded, is the teacher whose anything and everything is limited to "throwing out the ball."
6. P-S can be difficult and a fruitless waste of time where students have not first developed the capacity to handle "guided discovery" (1966) effectively. In guided discovery, learners reach conclusions on their own but by means of helpful guidance from the teacher. The help should be no less and no more than they actually need.
7. Mosston conceives of P-S as a teaching style (1966) and I certainly concur, but I prefer to add the concept of P-S as "the study of how man solves problems and *what affects his ability to solve them*" (1963). This gets us right back to emotions and Transactional Analysis, to individual genetic limitations and an understanding of what *is known* about learning.
8. In the P-S style, the *process* involved in learning is as important, if not more so, than *what* is learned.
9. The P-S style in Mosston's book is limited to motor skills and motor learning though Mosston clearly recognizes and points out the critical importance of cognition and, at least indirectly, is aware of the importance of the individual's emotions in learning motor skills and concepts related to motor skills. However, I wish to add the cognitive and affective dimensions as equally worthy and extremely important concerns in physical education, not just as concomitant dimensions of motor learning or as *hoped-for* by-products but also as specific, planned objectives

per se (of course, always as related to or as outgrowths of physical activity since that is the central focus of physical education).

PROBLEM-SOLVING IN SECONDARY PHYSICAL EDUCATION

As a teaching style we have defined P-S as a strategy whereby the teacher poses or establishes a problem or question and the student(s) develop a solution or alternative solutions. As contrasted with guided discovery, where the teacher has a definite, preconceived objective or solution toward which the students are led, the students do the thinking, experimenting, testing, etc., and there is no *one* correct solution. High school students should be able to handle P-S but your particular situation will determine at what level of difficulty. I recommend that you very carefully digest Mosston's book (5), especially Chapters 1, 5 and 7; then study carefully the P-S style as described in Chapter 8. Also study Scheerer's article "Problem-Solving" (1963).

Important Principles for the P-S Teaching Style

1. The more real (that is, the less contrived) the problem is, the greater the probability that students will be motivated to try to solve it (relevancy, Mosston (1966, p. 189).
2. Each problem in and of itself has a unique structure that points the way to its solution or alternative solutions (Scheerer 1963). Thus, *certain "givens" may be an essential part of defining the problem so that it can be solved.*
3. After carefully defining the problem and its structure, students must be encouraged to identify any and all fixations that will be counterproductive or may actually render a solution of any kind impossible. With experience, this step should become self-initiated by students.
4. The process involved as students learn to learn via the P-S style is often as important as the product(s) (solution or alternative solutions).
5. Through problem-solving, students can discover:
   a. facts
   b. relationships
   c. preferences
   d. validity
   e. limits
   f. concepts
   g. variations

   For details, see Mosston (1966).
6. A problem must call for either a novel action, thought or feeling or at least a new integration of those already available, otherwise it is simple recall.

7. Fixation is a function of a person's involvement in the situation; the greater the individual's personal involvement, the greater the fixation is likely to be (Scheerer 1963). Therefore, an objective viewpoint is even more helpful when personal involvement is great.
8. Habituation can increase or cause fixation (Scheerer 1963). For example, if a person has always thought of or done something in a certain, very precise way, he is more likely to suffer from fixation when a problem regarding that action or thinking arises.
9. The P-S style is equally applicable to learning in all three dimensions — cognitive, affective and motor, although it is practically impossible for any one to occur independently of the others, objectives can be established primarily in any one dimension.
10. Successful P-S can lead to creativity because students begin to learn that there isn't always *one* answer and that theirs may be different but just as successful.
11. The emotional set of the teacher and student(s) will partially or totally determine the success of the P-S style. Again, I recommend reading Harris (1969) and James and Jongeward (1973) to prepare yourself for embarking in the P-S style.
12. The time factor may be very deceiving. It may appear that you can cover much more material by lecture or demonstration than by using the P-S style. This *seems* to be true. But the ultimate test is to ask: "What have they truly learned (Sense II learning)? Of what value is it to cover more if it is not truly learned?"

Examples of the P-S Style in High School Physical Education

Mosston (1966) provides some examples and many problems in soccer, tumbling-apparatus, football and wrestling. He shows how to structure, organize or design a problem using several full-blown examples. I would like to supplement the list of examples of problems he offers in the above sports; you can use or adapt Mosston's organizational pattern for any of the problems. Obviously the first step is to establish clearly the objective(s) of the unit (and for each specific problem). For example, "our objective today is to learn how to maintain good court position (in badminton)," or "to determine the principles involved in hitting a golf ball from a sand trap," or "to determine the most prudent behavior for minimizing muscular low back disorders." Such objectives may be stated clearly or presented in writing. Some objectives may, because of their nature, be withheld until after they have been achieved (for example, some in the affective domain relating to valuing teamwork, self-concept as related to sports skill, etc.).

There is one key concept related to the P-S style that has not been mentioned: there is a complexity continuum for P-S or a teaching style, running from the very simple concepts and principles to the very complex. But whenever the students (and especially each individual student) can discover the answer(s) rather than being told or shown by the instructor, the P-S style is in operation and learning is likely to be more effective, longer-lasting, more enjoyable and is more likely to bolster the student's self-concept.

Examples of *relatively simple* concepts or principles in each domain of learning are:

1. *Motor:* What technique enables you to jump the highest (vertical jump)?
2. *Cognitive:* What factors determine whether a sport or exercise permits the individual to set his own pace? (Pace may have to be defined.) For whom is it especially important to be able to "set your own pace?" Why?
3. *Affective:* How do you suppose most people feel when they are chosen last for playing a competitive sport?

Examples of *moderately complex* concepts or principles in each domain of learning are:

1. *Cognitive-Motor:* How can you evaluate the relative values of various exercises and/or sports for improving your circulo-respiratory fitness?
2. *Affective:* What factors are involved in determining how a person feels after winning a sports contest? After losing?
3. *Cognitive:* How can we explain an increase in muscle strength when there has been no increase in muscle size?
4. *Motor:* In executing a basketball lay-up while moving at or near full speed, which foot is generally the best take-off foot and why?

Examples of *complex* concepts or principles in each domain of learning are:

1. *Cognitive-Motor:* How can two offensive basketball teammates take advantage of their defensive opponents' "switching" players to score an easy basket?
2. *Affective:* What interacting factors determine how a person feels about himself as a sports participant?
3. *Cognitive:* What accounts for the apparent fact that some persons are highly skilled sports performers while others are very poor?
4. *Affective:* Does it seem appropriate that a gifted athlete should feel superior as a person to the less gifted? That a poor sports performer should feel inferior as a person?
5. *Motor-Cognitive:* To reach a base in baseball, is it best to run all the way, to jump the last 10 feet or to slide into the base? Why?
6. *Motor-Cognitive:* Design a basketball defense that can effectively stop a team with good drivers but poor outside shooters.
7. *Motor-Cognitive:* In tennis singles, what are ideal court positions for you under each possible circumstance and why?
8. *Cognitive:* How is it possible that progressive, regular, controlled exercise can aid in cardiac rehabilitation following a heart attack?
9. *Cognitive:* Can regular exercise cause greater muscle tone and greater muscle relaxation?

It must be obvious just from the examples cited above that planning, equipment, reference materials and progression are necessary ingredients for the P-S style. The more complex problems are not likely to be solved if submitted to students lacking in certain related basic knowledge. As Castell (1963) puts it so aptly, one must know something in order to learn. Students who do not understand what a defensive switch is (in basketball), for example, can hardly present any alternative solutions to the problem "how can two offensive players take advantage of the defensive switch?" Students who do not know that exercise increases the heart rate roughly in proportion to the intensity of the exercise can hardly solve the problem "how can you estimate which of several exercise activities is most likely to improve your circulo-respiratory fitness?" I am sure you can think of many more such examples. In other words, knowledge must be built on knowledge, and motor skills on motor skills.

Problems can be solved in many ways: in school or at home, individually or in groups, experimenting or reading or both, thinking followed by experimentation, trial and error, etc. Alternative solutions should be honored even if discarded. The reasons for discarding should be clearly provided without real or emotional penalties for failure inflicted on the student(s).

The only failure is not to try, not to come up with *some* alternative. And remember, successes in early attempts (not obvious handouts) will make students more willing to risk the possibility of discarded alternatives in subsequent problems.

Sources of Concepts, Principles, Skills for the P-S Style

Most likely you already have many sources of sports skills and basic movement principles. The cognitive and affective objectives that are so important and yet so little attended to probably are not quite as near your reach. The following sources will provide concepts and principles in the cognitive and/or affective domains. Some are directly related to sports and exercise, others are fully adaptable with a little time and effort.

Knowledge and Understanding in Physical Education. Washington, DC: American Association for Health, Physical Education, and Recreation 1969. Activity performance, effects of activity, factors modifying participation and the effects of participation, tests.

Johnson, Perry et al. *Sport, Exercise and You.* New York: Holt, Rinehart & Winston, 1975. Health and fitness, circulation and respiration, neuromuscular function, digestion and metabolism, body temperature regulation, psychological and societal factors, growth and development, special problems, stress and exercise programs. (All topics are related to exercise.) Principles are clearly identified and discussed in the text.

Pennant Education Materials (4680 Alvardo Canyon Road, San Diego, CA 92120) is currently a good source of inexpensive books, audiovisual aids and other resource materials in the general area of values education. These are outlined in their catalog—for example, *Becoming Aware of Values* by Simpson; *Clarifying Values through Subject Matter* by Harmin, Kirschenbaum, and Simon; *The IALAC Story* by Simon, *Why Am I Afraid to Tell You Who I Am* by Powell; and books on group dynamics techniques, reality therapy, self-awareness, values classification, values and teaching.

There are many books and resource materials on values education and related affective learning that can be adapted quite easily to the physical education P-S style.

In addition to the references above, I consider the works cited in this chapter to be on the "must" list for anybody who wishes to embark seriously upon the P-S style in physical education as a means of achieving success in an individual-centered program. To these I would suggest that you add several carefully selected books related to the affective domain. Armed with your books and current knowledge concerning basic movement and sports skills, plus a genuine desire to provide the very best you can in a total, well-rounded program for your students, you will have only some time and effort standing between you and effective utilization of the P-S style to personalize learning in physical education!

IMPLEMENTATION OF THE P-S STYLE IN HIGH SCHOOL

There are several critical problems that can make implementation of a P-S teaching style at the high school less than easy. Among these are:

1. Students' perceptions, usually based on some eight or nine years' school experience, that physical education is supposed to be playtime.
2. Teachers' perceptions, based on more than eight years' experience, that physical education is primarily playtime.
3. High school students who are deficient in one, two or all three dimensions of physical activity (motor, cognitive, affective) because prior experiences have been limited primarily to "play."
4. Many teachers teaching physical education only because they want to coach.

A change of attitude by teachers seems to be a must. This might be accomplished by one- or two-day workshops conducted by visiting P-S advocates. We also must develop stronger college professional degree programs with higher standards and revised experiences that will enhance our future graduates' competencies to utilize the P-S style. We must sensitize school boards, superintendents and principals as to what can and should take place in physical education programs and develop strong in-service programs and certification renewal programs.

Let us now take a look at one short-term solution to the very prevalent problem of students perceiving physical education as playtime.

You can carefully explain the difference between a "catharsis-recreation" period of playtime and Sense II learning in and related to sports and non-sports physical activity. Give examples of the kinds of learning that can be of personal value to *every* student regardless of sports ability in the past, present or future (in all three domains). Provide students with your overall aim and specific objectives that go far beyond playing games. For example:

> The overall aim of this course is for each of you to make an informed, intelligent decision about your current and future exercise behavior, whatever it may turn out to be. This decision can be made according to your own genetic potential and limitations, based upon your personal background, guided by your subjective and objective evaluation of your current status (feelings, knowledge, skills and fitness level), and as determined by your personal needs. Your decision will be respected and honored without penalty of any sort, regardless of what it is, as long as you have clearly demonstrated that you have actually gone through the process just described.

Let the students know that learning need not be difficult or unenjoyable, especially when the beneficiary is, in fact, each individual. Let them see that this kind of learning can be meaningful regardless of genetic and experience limitations regarding games and sports. Emphasize that nobody is in any way an inferior person because he cannot execute certain skilled sports movements nor is anybody a superior person because he can; help them to see that there is, after all, more to life than sports and games. All of this could be accomplished by using the P-S style, or at the very least, guided discovery. Following such a presentation or P-S experience, various alternative directions are possible.

1. You may conduct your entire program at the high school level as a series of progressive planned learning experiences (cognitive, motor and affective) and make ample opportunity for voluntary, elective, extracurricular, intramural or interscholastic use of what they have learned (for those who choose to).
2. You may conduct a given percentage of your allotted class time as described in #1 above (say 20%, 40% or 60%); the remaining time can be devoted to playing the games they have learned about (for those who elect to) or using other exercise or movement principles they have learned (for example, for improving fitness or for esthetic expression). This may work in beautifully as an extension of the P-S style because there is no *one* best answer for everybody.

You might also prepare a brochure explaining the "new" program where learning (cognitive and affective as well as motor) is the primary goal, distribute the brochure to the students, schedule a question and answer demonstration session to which they are invited, then allow those who prefer this approach to elect it as an alternative to the current program. This amounts to an experimental program. If it succeeds, even for some students, it can be offered on a continuing basis as one choice for meeting the physical education requirement (perhaps with more academic credit than a comparable amount of time spent in a games-playing class).

As a long-range solution to the problem of acceptance by the students, a change beginning with the kindergarten "recess" concept may be most effective.

It is not unreasonable or impractical to restructure the K-12 curriculum so that physical education is, from the very beginning, more than playtime, more than game time, with planned emphasis on intended learning that goes beyond sports and games skills. The proportion of time devoted to the various program components would quite obviously need to change in keeping with the children's needs and their level of development. (See Figure 1.)

It may be even more reasonable to restructure the K-12 curriculum so that physical education is a more planned and structured learning experience with a second program devoted entirely to playing. As children become older, this playtime could become optional or students could opt for one of many recreational choices for their "catharsis" period.

CONCLUDING STATEMENT

It should also be obvious that, assuming proper progression (in terms of complexity), *anything* about which or for which you wish to facilitate learning can be adapted to the P-S style. It can be used to deal with team and/or individual sports; to develop the skills and understandings involved in non-sports physical fitness activities; for planned cognitive learning related to sports, exercise and health; and for planned learning related to the individual's feelings, self-concept, values and attitudes as they affect sports and exercise. It is my strong conviction that all of these should be involved in a physical education program where each individual student is held in the highest possible regard (rather than games and sports per se). You cannot help but see that many high school youngsters have very negative feelings about physical education. Individualized programs that take into account individual physical differences and feelings, allowing everyone the opportunity to succeed in his *own* manner, can minimize the number of students graduating from physical education programs with negative feelings about sports and exercise. The P-S style is beautifully suited to such individualization.

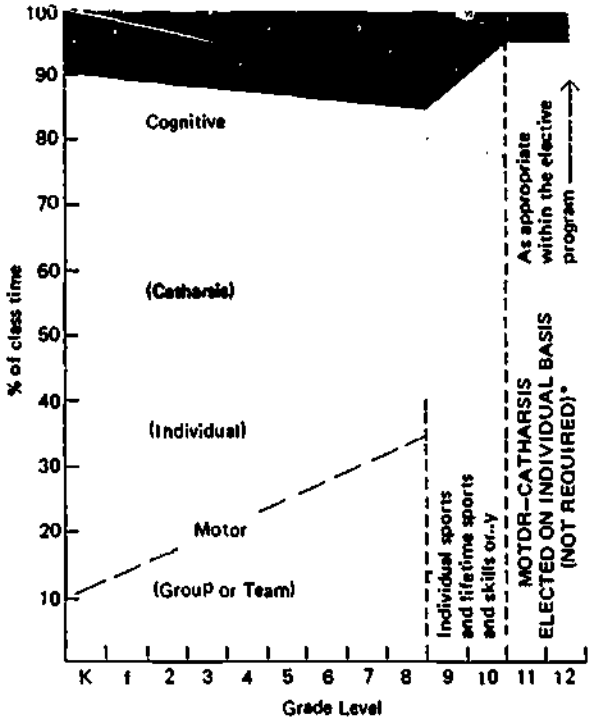

Figure 1. Possible Allocation of Physical Education Class Time To Planned Affective, Cognitive, and Motor Learning Plus Catharsis. Example: Grade 8, 35% in learning team sports, 5% in individual motor learning, 15% actual playing time (catharsis), 30% cognitive learning related to physical activity, 15% affective learning.

*** Elected activity such as intramural or interscholastic sports, elective skills or fitness classes, etc.**

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VALUES CLARIFICATION

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This chapter presents an introduction to a widely used methodology in humanistic education, values clarification. Three commonly asked questions about values and values clarification are posed and answered. In addition, examples of the methodology and a note to teacher educators and teachers are provided.

Why the Concern About Values?

The very existence of a methodology called values clarification is evidence of a social values crisis. The crisis is apparent in a confusion of what we need and what we want. In this confusion we operate on the basis of what has been called the "psychology of more." More salary and wages! More fringe benefits! Increased production! Ever increasing Gross National Product! The measure of success, be it personal, organizational or societal, is M-O-R-E. The result of this confusion of need and want has been and is waste, pollution and the rape of the land.

The values crisis in society is again apparent in a confusion of love. People are used and objects are loved. Thus is perpetuated man's inhumanity toward man and the "psychology of more."

Rising crime statistics, continued violation and breach of political and professional ethics, and increased disorder suggest a crisis of authority. The struggle is between external and internal authority. In a society governed by external authority it is little wonder that there is a burgeoning of regulations to control individuals (and organizations) who have abdicated personal-internal authority.

Student unrest in the 1960s reflected a crisis in external and internal authority. The numbers of youth who have been variously described as bored, restless, goal-less, dissenting, wandering, too unconforming, and unsure grew rapidly. Such student behavior suggested that youth was alienated. Alienated from adults, the environment of things and ideas, the school, and most tragically, themselves.

Out of alienation came the cry for relevance. The cry was voiced by students and compassionate critics of education. It was a cry against long-cherished assumptions in education:

- — that practice makes perfect
- — that feelings and thoughts should be separated
- — that it is more important to answer questions than to ask questions
- — that researching is better than searching
- — that talking about and reading about is better than living
- — that contrived consequences reinforce learning better than natural or logical consequences. (Rogers & Stevens 1967)

Humanistic and affective education has come in response to (1) the cry for relevance, (2) alienated youth, and (3) a societal crisis in values. Values clarification is but one humanistic/affective education methodology.

How is a Value Defined in Values Clarification?

Charles Morris (1956) has identified three types of values, one of which, the operative value, is consistent with the methodology of values clarification. He defines an operative value as a tendency or disposition "... of living beings to prefer one kind of object rather than another" (Morris 1956, p. 10). An operative value must have an overt behavioral component.

Overt behavior is an integral aspect of the definition of a value in values clarification. For example, Hall defines a value as "... the stance that the self takes to the total environment as expressed through its behavior, ideas, body, feelings, and imagination" (Hall 1973, p. 55).

Raths, Harmin and Simon (1966) broadly define values as the relationship between the self and the environment (things, people, ideas, thoughts, emotions and sensations).

Most succinctly, values are defined in response to the question: "What is to be done with one's life and force?" (Raths, Harmin & Simon 1966, p. 11).

What is Values Clarification?

Values clarification is an educational process, as opposed to a set of educational contents. It is a process for at least two reasons: (1) it does not presume to tell or teach anyone *what* to value and (2) a basic assumption in values clarification is that values are acquired through experience. Thus, it is a methodology which provides students and teachers with experiences focused on *How* to clarify existing values and acquire new values.

Raths, Harmin and Simon (1966) have defined values clarification as consisting of three processes: (1) choosing, (2) prizing and (3) acting.

Each of the three processes has subcomponents or subprocesses. Hall has succinctly summarized these in the form of seven questions.

1. Was the value chosen from a range of alternatives that I was aware of?
2. Did I consider the consequences of those alternatives that I was aware of?
3. Is this value evident in my behavior? That is to say, have I acted on it recently?
4. Do I act on this value repeatedly in some fashion through a variety of similar experiences?
5. Am I happy and pleased with the choice?
6. Am I willing to state it publicly?
7. Does the value enhance, and not impede, the development of my emotional and spiritual well-being? (Hall 1973, p. 66)

Seldom does any one values clarification strategy include all seven subprocesses; some focus on only one subprocess. In the examples which follow, it should be apparent to the reader which subprocesses are the focus of the activity.

Examples of Values Clarification Strategies

The following examples of values clarification strategies have been adapted from existing strategies described by Raths, Harmin and Simon (1966), Simon, Howe and Kirschenbaum (1972), and Simon (1972).[1]

Since the readers of this chapter are presumed to be teacher educators and public school teachers in physical education, each strategy has been adapted to that subject matter area. The reader will derive maximum understanding if she/he actually does each strategy.

Listing Enjoyable Physical Activities

Goal. When individuals are asked to list the physical activities they enjoy most, the general purpose is to help teachers and students explore the degree to which they value keeping themselves physically fit. In addition, this activity may help students answer a commonly asked question: "What does taking a physical education class have to do with me and my life?" For the teacher, the students' patterns of codings done in this activity may have implications for curricular re-design.

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[1]Readers interested in a list of materials and workshops available in values clarification may write to the Adirondack Mountain Humanistic Education Center, Upper Jay, NY 12987.

Process. Prepared forms with places for listing the physical activities and coding are passed out to the students. An example of such a form is below.

Twenty Physical Activities I Enjoy Doing

ACTIVITY	C/E/S	T/D/I	S/O	B	X	DATE
1.						
2						
3.						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
•						
20.						

The teacher then asks the students to list 20 activities they like to do that require physical exertion. It is unimportant to define physical exertion because the name for the activity listed typically indicates the degree of exertion. The teacher may wish to give several examples of activities. As the students develop their lists, the teacher works on her/his list also. Students may be assured that it is possible that some will have more than 20 activities, and others will have fewer. When all have finished their lists, the teacher asks the students to code their activities according to the following directions:

1. Place the letter *C*, *E* or *S* beside any activity which you participate in because you enjoy the *C*ompetition, the *E*xercise or the *S*kill involved. (Encourage students to code based on the "primary" source of enjoyment in the activity.)
2. Place the letter *T*, *D* or *I* beside each activity which is a *T*eam sport, a *D*ual sport (those which require one other player) or an *I*ndividual sport.
3. Place an *S* or *O* beside those activities which you learned to like in *S*chool or *O*ut of school.
4. Place a *B* beside any activity for which you would like to *B*etter your skill.
5. Place a check or *X* beside any activity you think will still be on your list five years from now.
6. Record the approximate date you last did the activity.

Suggestions. The number of codes should be kept between four and six. Fewer than four generates insufficient data and more than six tends to create confusion. Some added codings might be:

A. Place the letter *E*, or *N* beside those activities which require *E*quipment, or *N*o equipment.
B. Place a dollar sign ($) beside each activity which requires $3.00 or more to do (exclusive of the initial investment in equipment).
C. Select the five activities you like the most. Rank order these activities from the most liked (*1*), through the least liked (5).
D. Place a C beside any activity you think would be on your coach's or physical education teacher's list.

The teacher may wish to design a follow-up activity for this strategy. Students can form dyads or trios and help each other look for patterns in their codings or help one another set goals based on the meaning they derive from their lists.

One way to help students summarize their learnings from any strategy is to have them complete a series of incomplete sentences. This activity is called the "I learned that I ..." strategy. Some incomplete sentences for use in this strategy follow.

1. I learned that I ...
2. I was surprised that I ...
3. I re-learned that I ...
4. I think that I should ...
5. I wish that I ...
6. I wonder if I ...

Rank Orders

Goal. People are faced with many small decisions each day. This strategy provides an opportunity to examine more thoughtfully any number of issues which are often responded to without consideration. Through this strategy students may discover alternatives to their habitual actions and reactions or clarify the rationale for their actions and reactions.

Process. The teacher explains that a series of questions will be asked. For each question, three or four alternative answers are supplied. The student is to rank order the responses to the questions based on her/his own value preference. Students may place the numbers one (1) through three (3) in the spaces beside each alternative. The teacher asks students to share their rank orders in the group. Students may pass if they choose not to make their rank orders public. They should be reminded that there are no right or wrong ways to rank order and may then be encouraged to discuss their reasons for ordering the alternatives.

The items presented below are examples of this strategy:

1. When you are participating in a sport, what is your goal?[2]
   ____ To beat the other player or team
   ____ To play the game fairly
   ____ To play as well as you can
2. What occupies your thoughts most frequently in physical education class?
   ____ Making friends
   ____ Being the best
   ____ Being myself
3. What is the most important reason for participating in physical activities as far as you are concerned?
   ____ Physical health
   ____ Taking risks
   ____ Fun
   ____ Releasing tensions
   ____ Competition
4. Which of the following words describe your behavior in physical education most accurately?
   ____ Sensitivity
   ____ Competition
   ____ Power
   ____ Pleasure
   ____ Honesty

Suggestions. When students are sharing their rank orders, encourage them to tell not only the rank but also the alternative for each rank. Thus will students take full responsibility for their rankings and further examine their choices.

Some students will want to suggest additional alternatives as students discuss their rationale for their rank orders.

The Pie of Teaching Physical Education

Goal. This strategy is designed to help students inventory how they actually spend their time. The information yielded in this strategy helps them move

[2]Adapted from Webb (1969).

from how they are currently spending time toward how they would like to spend time.

Process. Students are asked to draw a circle. The teacher can draw a circle on the blackboard and demonstrate the process. The following directions are given:

> This pie represents a typical day in your life. Divide the circle into quarters using dotted lines. Each quarter represents a six-hour unit of time. Estimate how many hours you spend doing each of the following activities during a typical day. How many minutes do you spend:
>
> 1. Eating
> 2. Sleeping
> 3. Working
> 4. Going to school
> 5. Watching TV
> 6. Doing physical activities (what kind?)
> 7. Reading
> 8. Other
>
> Although your time estimates will not be exact, make them total 24 hours. Draw slices in your pie in proportion to that part of the day you spend in each of the categories given by the questions.

After everyone has finished drawing her/his pie, the students may find it helpful to consider some of the following questions and activities.

> Ask yourself, "Am I satisfied with the way I am spending my time?" Draw an ideal pie. Now compare your ideal pie with your real pie. Ask yourself, "What categories of my real pie do I want to change?" or, "What could I realistically do to change a category?" or "How and when can I begin to change that category?"

Suggestions. Students should be assured that there is no "best" pie. And no implication that the pie should be changed. Any decision to change the pie is the responsibility of the individual.

Values Continuum

Goal. The purpose of the values continuum strategy is to encourage the seeking of alternatives. Sharing one's position on the values continuum also encourages public affirmation of one's stance.

Process. The teacher and/or students may identify issues for the values continuum. Once an issue has been identified, the teacher draws a line on the blackboard and two opposite or polar positions are identified. For example, suppose a student was confronted with a classmate who threatened to beat him up. The issue is phrased as follows: "What should a student do when threatened by another student in class?" Possible opposite positions on this issue might be: (1) Report the student to the teacher and (2) ignore the student. The positions are placed at the ends of the continuum as follows:

Report Ignore

The teacher then may say: "We have identified two polar responses to the situation. Between these poles are a number of other positions. I am going to go around the room and ask you to tell the class where you would place yourself on the continuum and what you would do in the situation. At this time do not give the reason for your position." Allow ample time for all to declare their position. Remember, some participants may wish to pass.

Suggestions. After the sharing is finished, the teacher can hold a group discussion. It is important during the discussion that students explain themselves and neither try to convince others to see things their own way nor discuss why another's position is "no good."

If students seem very reluctant to voice their positions, they may be encouraged to write their position. These written position statements may later be read by the participants, read anonymously or shared in dyads or triads.

If alternative positions tend to be very similar (everyone seems to take a middle of the road stance), the similar stance may be removed as follows: "Let's assume that that alternative is not possible. Now, where would you place yourself and what would you do?" If this does not stimulate alternative positions,

there is a good chance that the issue is not a "live" one or that it has been poorly delineated.

- Another example of the value continuum follows: What should a student do if an activity is presented that he/she does not desire to participate in?

Complain to the teacher	Not dress down

A Closing Note

There are a few important rules for the use of values clarification strategies. Perhaps the most important one is that the teacher participate in the strategy along with the students. A teacher's willingness to do so demonstrates her/his desire to be known to students and provides an effective model. Any student must always be in the position of choosing the extent to which she/he will participate. Thus, the teacher periodically reminds students of the "pass" rule. Finally, all responses generated by any strategy are "O.K." Teachers who have learned to use values clarification effectively have developed a response mode which clearly recognizes and values student responses without inferring judgment. Guidelines for such a response mode are suggested by Raths, Harmin and Simon (1966).

We close this chapter with a values clarification strategy known as the "I urge telegram."

I URGE-A-GRAM

Date: Everyday

TO: Our readers,

We urge you to continue your efforts in mak ing learning relevant by using some values clarification strategies or other personalized learning ideas found in this book.

FROM:

Barb Passmore

Laurie Passmore

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THE OPEN GYMNASIUM

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One of the manifestations of contemporary emphasis upon individualizing, humanizing education in American schools is a renewed interest in experimentation with a wide variety of educational approaches and alternatives focused upon the development of the whole thinking, feeling, experiencing, moving person.

An alternative that has been extensively described in educational literature and experimented with in elementary schools since the 1960s has come to be known as "informal education" or more popularly, "open education."

OPEN EDUCATION

The basic assumptions underlying open education are rooted in humane beliefs about how persons grow, learn, and what knowledge is of most worth. One of the dangers evident in identifying and describing such beliefs is that open education may be categorized in descriptions of programs and practices as "the way" rather than "a way" identifiable only as continuously changing, flexible and receptive to the new. Open education, thus, may not be perceived as unlimited with open-ended opportunities for students to grow, change and learn, but rather as a complete, packaged, closed product, described explicitly and expertly, reducing student freedoms to detailed explanations of what it is and how it is to be done.

Within the range of existing educational alternatives, open education would fall between what is known as traditional or standard education and "free" schools. Traditional education is associated with fact, skill acquisition, teacher control, competition, grading, group teaching, objective measurement and behavioral accountability. Free schools (educational alternatives existing outside public school systems) provide for the needs and interests of diverse groups ranging from white, communal, Summerhillian, counterculture enterprises to inner-city schools attempting to change and improve dramatically the lives of the have-nots, the disenfranchised, the dispossessed.

Open education, an approach within the scope of public education, is person-centered education. Educational activities and practices provide choices for learners. Learning experiences are viewed as opportunities to encourage and support students in their growth toward increased awareness and development of self-identity, self-acceptance, self-direction, self-esteem and self-realization.

Open Physical Education

An open physical education might be described as a manifestation of open education that uses human movement to provide opportunities for students to experiment, explore, choose, create, grow, learn and change. An open physical education views everything in secondary school physical education as potentiality,

open to change, flexible, in process, receptive to the unknown and untried.

The Open Gymnasium

The concept of an open gymnasium is one of a learning environment within an open physical education comparable to an open classroom as a learning environment within an open education.

An open gymnasium is a place of sharing, providing for, working with, teaching, learning and cooperating in an environment absorbed in activity, free in wide open depth and structure, and limitless in terms of teacher-student achievement.

The *open gymnasium* is only a term. It is not intended to coerce, frighten or create an atmosphere of *total change* in a physical education/athletic department, its people or its program. It offers, instead, an idea for an alternative, an "additive" to existing physical education programming. There need not be anything "wrong" in any specific department; such valuing should come from the people who develop and work with the program. Also, there is no need for negative thinking when it comes to seeking out and trying new, different ideas.

In the process of clarifying and developing the idea of the open gymnasium, we must focus on three fundamental areas. . .the three areas that confront us every day in our teaching — *teachers, students* and *learning opportunities/program experiences.*

The Physical Education Teacher

Opening up physical education will be an adventure into the new and unknown for many teachers. The manner in which teachers approach and value such exploration will be the crucial, critical factor underlying success or failure.

Since schools exist for learners, and teachers are employed to facilitate the growth and learning of students, teaching can be for better or for worse. Teachers who are genuinely interested in students and willing to experiment, explore, risk in their own personal growth as they encourage and support students to do so, will probably be helpers rather than hurters in their work with adolescents. Teachers who aspire to be helpers are humane and treat students as feeling, thinking persons, not as objects to be merely lined up, drilled, disciplined and graded.

Some of us are good with children, some not so good; some play favorites to have favors returned, some are fair. We are "phys. ed." teachers, "gym" teachers, experts in taping, exercise, muscles and punishment. We are "jocks," athletes who know the internal meaning of the word "duh." We are "unacademic" and many times are outcasts of the education profession. We are always called upon to give up

this child or that child to an English teacher for testing, or we take away from English and give to interscholastic sports.

Some of us are good with kids. We even care about our profession's "image." Some of us are willing (and we honestly believe this) to try to convince others of our worth, our sincerity and our "humanness" through a positive, caring and "opening up" program in physical education. We, believing that we speak for a majority of physical educators, do not deserve the gross stereotyping that seems so typical of the past and present.

We've committed ourselves! We've loved teaching, we've hated teaching, we've been drained dry through our giving and still we are called every derogatory name in existence. We've shared and counseled, understood and coached. We've cried and battled with, swatted and hugged, questioned and wondered about, encountered and yet really never known, cradled and punished, and most importantly, *cared for* children.

For the men and women who have ideas, and wish desperately to get them out and working, the open gymnasium concept may seem like a Summerhill approach. No! To us, the open approach implies exactly what each of us wants it to be, and no more. Our concern is that your ideas, as the opening teacher, should at least be given a sounding.

Open gymnasium ideas are developed by teachers who (to an outside observer may appear to have little interest in teaching physical education, but love to coach) are hopeful, actually excited about their involvement in the planning and execution of new ideas in the physical education program.

In thinking about the opening teacher, we need to remember that there is an exciting part to each of us. It comes out when an idea of our own is somewhere initiated, or when we wholeheartedly relate to another's ideas. We came out of college with desires to change the entire world through physical education. If we have not yet totally spent our energy and ideas, we may still have beginnings in us for programs that really count, that are exciting and explosive in nature.

Learners/Students

To know and understand students better is to collect and utilize information about their needs, interests, capabilities and understandings through continuous feedback and evaluation throughout learning experiences in order to reveal and clarify thoughts, feelings, actions, purposes for both learner and teacher.

Among the many tools that may be used for student self-assessment, stock taking and self-evaluation in progress toward learning goals, there are:

1. student's written statements of goals, objectives
2. verbal or non-verbal statements of values, attitudes, feelings about movement activities (poetry, prose, painting, sculpture, collage, photographs, etc.)
3. interest, activity inventories identifying what students can do, can't do, would like to learn, would not like to learn
4. anonymous or signed feedback sheets after lessons expressing feelings and thoughts about the learning experience
5. self-appraisal forms (teacher's objectives and student objectives) constructed, given out at the beginning and completed at the end of experiences so learners may evaluate personal growth, change, learning in skills, knowledge, understanding, feelings, performance in light of where they started and where they finished
6. continuous personal log, diary, autobiography of thoughts, feelings, actions, growth, change, learning in/through movement experiences.[1]

Familiarizing students with experimentation, exploration of new movement freedoms may be facilitated by teachers introducing something new into the instructional program once a month, every two weeks, once a week, every day and encouraging student experimentation with new ways of approaching old experiences. As teachers set aside increasing amounts of

[1]For extensive information about tools that may be used for evaluating student progress toward learning goals, see chapter 9, "Guiding Students," in Cassidy and Caldwell (1974).

time for students to think about new ways of encountering space, people, equipment, objects, things in the environment through movement, the change process is underway.

Young people are very durable. They are often cruel, almost always honest and are extremely "open." We can't fool them. Whether we have 5 or 50 years of education, we can't con or cheat children. Whether we present different directions, varied programs or enriching experiences to students or not will really make little difference. Because they are so open and flexible, secondary school kids will adjust to almost any situation that arises.

Programming the open gymnasium concept is of little or no use unless physical education departments as a whole sit down and consider the real values of program experiences and opportunities for the *students*, not for themselves.

Movement Learning Opportunities and Experiences

Physical education is concerned with the study, understanding, experiencing of moving beings in the school environment through movement learning experiences provided to facilitate the growth and learning of students as healthy, adequate, fully functioning persons in today's society.

Learning opportunities are tools for stimulating student growth and learning. Any activity, idea, piece of equipment, situation, space, person, etc. provides a learning opportunity rich in potential if teachers can understand and accept this. The ability to see, create and value newness and uniqueness in the ordinary is to provide opportunities for students to create in movement in a supportive learning climate valuing new ideas, feelings, actions.

Learning opportunities may be identified and described endlessly, limited essentially by human imagination. Some possibilities may include varied use of such factors as:

space: indoor, outdoor, restricted, open, diminishing, strange, filled with objects/people

people: students, teachers, custodians, other teachers, administrators, teacher aides, parents, alumni, community members, professional sports figures

environments: city, country, mountains, hills, desert, lakes, rivers, ocean

time: morning, daytime, afternoon, evening, weekends; flexible, adjustable, adaptable amounts, units, blocks

media: pictures, books, films, records, cassettes, filmstrips, slides, resource centers, learning centers, media centers

surfaces: blacktop, concrete, grass, dirt, sawdust, wood; smooth, rough, uneven

sounds: musical instruments, people, animals, insects, nature

activities: games, relays, stunts, exercises, sports, dances, skills

facilities: courts, fields, rooms, offices, studios, pools, rinks, centers, tracks, ranges, stables, alleys, gymnasiums

obstacles/challenges: obstacle courses, challenge circuits, follow the leader, etc., utilizing chairs, benches, trash cans, fences, lines, ropes, diving boards, parallel bars, mats, poles, goalposts, hurdles, hoops, towels, people

things (objects, equipment): balls, bats, newspaper, tubes, poles, parachutes, sponges, ropes, bags, boxes, cans, mats, rolled magazines, broom handles, traffic cones, drums, blocks, bars, hoops, rocks, tires, blindfolds, batons, ribbons, lumber ... anything, everything

Physical educators in American elementary schools have, since the 1950s, utilized in many ways the ideas and practices of English movement educators, drawing upon the work of Rudolf Laban, pioneer English movement theoretician. With these approaches, themes, lessons, units, progressions, sequences of movement experiences may be developed for learners around such concerns as:

1. movements (walk, run, leap, jump, gallop, swing, twist, shake, bounce, kick, throw, strike, etc.)

2. the body (body awareness, shapes, parts, relationships, etc.)
3. space (directions, levels, pathways, amount, etc.)
4. time (fast/slow, increase/decrease, rhythm, etc.)
5. force (strong/weak, light/heavy, tension/relaxation, creation/absorption, etc.)
6. weight (taking, transferring weight on body parts: managing, controlling objects, etc.)
7. flow (smooth/jerky, continuous/broken, etc.)
8. objects (throw, catch, kick, etc.)
9. equipment, apparatus (around, over, under, through, etc.)
10. people (self, partner, small groups, large groups, etc.)
11. themes (contrast movements, mirror movements, open-close, follow-lead, pass by, move with, etc.)
12. organic fitness (balance, strength, agility, endurance, coordination, etc.)
13. movement mechanics (leverage, balance, inertia, gravity, etc.)
14. environments (land, water, space)[2]

New emerging, different forms of body, nonverbal movement from other cultures and other disciplines are being discovered and experimentally used to determine their value and interest to secondary school youth.

Physical educators interested in providing new ways of growth and learning for students might include: *aikido* (oriental martial art: moving meditation); *meditation* (passivity: quietness: awareness: relaxation: calmness); *breathing patterns, exercises* (sensory consciousness, awareness); *hatha yoga* (body postures: breathing exercises: stretching); *transcendental meditation* (meditation: mantra/sound); *tai chi chuan* (moving meditation: slowness: flow: calmness: relaxation); *massage* (body awareness: relaxation); *yoga* (meditation: breathing); *zen* (meditation: breathing); *sensory awakening, awareness* (heightened awareness: smell, touch, taste, vision, hearing, movement: relaxation: breathing); *non-verbal communication* (touch: movement: body language); *structural integration* (bodily realignment: muscular release); *biofeedback* (body feedback: bodily function control: willing).[3]

Overcoming Learning Barriers

The challenge facing both teachers and students seeing, hearing, feeling, touching, moving, experiencing and expressing in fresh, untried ways will be to overcome obstacles to personal growth and learning. Learning obstacles may include the following: (1) having a preconceived idea of what something is and being unable, for example, to see how to change balls by altering shape, size, texture, color, use and meaning in situations if one so chooses; (2) personal fear of failing, making a mistake, looking foolish, being ridiculed by others; (3) unwillingness to take a risk in old or new situations where grading prevails; (4) feelings of inferiority, inadequacy, an "I can't do it" attitude of doubting, not trusting one's abilities based on prior experiences; (5) devaluing by society (schools, teachers, parents, peers) of nonconforming, experimental, autonomous ways of functioning with conformity, passivity, ordinariness, sameness valued and reinforced.

Removing student learning blocks is to establish a growth climate welcoming what one truly feels, thinks and does as necessary to approach the world freshly and creatively.

AN EMERGING, EVOLVING PHYSICAL EDUCATION PROGRAM

In today's secondary schools, as in years past, ideas must have impact on and acceptance from a variety of

[2]For detailed information about Movement Education, see Cameron and Pleasance (1964); Gilliom (1970); Kirchner, Cunningham and Warrell (1970).

[3]Information about different paths to personal growth may be found in Lewis and Streitfeld (1970); Otto and Mann (1968); Peterson (1971); Schutz (1967); Stevens (1971).

individuals to be successfully implemented into program. The open gymnasium as an *idea*, a practice, must come from and focus on the physical educator, the athletic coach, the department chairperson, "new" teachers, student teachers, adaptive teachers, handicapped-children teachers, the body conditioning teacher, the self-defense teacher, in fact, *all* who participate in the teaching enterprise.

We wonder what physical education could offer:

IF...each teacher in a secondary school physical education department, (say 5 to 10 men and women), offered just two ideas for program implementation apiece?

IF...ideas were not only talked about but developed and acted upon?

IF...*one* person from *one* department went to one conference and brought back and attempted *one* idea?

IF...we were able to lay our secure, workable, traditional programs aside?

IF...all ideas from each person in a physical education department were thrown into a pot with everyone really hearing what others have to say?

An emerging opening up of the physical education program means opening up *all possibilities* in terms of resources, facilities and program experiences for students. Programming the open gymnasium means looking at current programs and practices and accepting the idea of change. We are not proposing change for the sake of change, which can be too destructive and limiting. Opening the program can mean simply looking at existing values and experimenting with new ideas.

Oh, how many of us are frightened to be honest! Our ideas for a dynamic program often get lost in talk, in fear and in trying to figure out ways of implementation before the whole idea is even out of one's mouth. We become so secure in doing one certain something in one certain way for so long that, change, even though a mere additive, seems to be forever in coming.

Facilitating Change

There are endless ways of changing existing traditional movement experiences in secondary schools. The goal of such change is movement toward personalized, individualized, humanized, noncompetitive (except self), noncomparative, intense, expressive, unique, different learner-centered experiences.

Teachers. To change physical education program experiences and practices is to change physical education teachers. It is possible that mature adults who have grown continuously from infancy to adulthood have forgotten how they grew and became what they are. An awareness of this, with its implications for different kinds of experiences for students, may be truly revolutionary for teachers. Some ways in which teachers and students seem to *change, grow* and *know* themselves are:

- Be you, really you, what you are — not what you should be, could be, ought to be.
- Be alive, stay awake, aware, sensitive to everything — uncondition yourself.
- Love yourself, accept yourself totally, completely, unconditionally with no strings attached.
- Reach out to others, express yourself.
- Be you, not an image, concept, stereotype, role.
- Be in the world as a baby — everything experienced as fresh, new, mysterious.
- Realize that you are enough, you are unique in the world ... comparing kills.
- Realize that happiness is *here*, not THERE.
- Relax, let go of tensions.
- Take responsibility for yourself ... what you think, feel, do.
- Risk being yourself, right here, right now.
- Remember, you grew YOU!

Teachers wishing to grow themselves consciously may plunge *suddenly* into new experiences or move into the unknown more *gradually* and systematically.

To introduce change into one's life gradually and systematically is to deliberately set aside a period of time each day in which something different is done so that one comes to understand and experience change

as excitement and challenge, rather than a threat to one's adequacy. The recording of such growth experiences in a log or diary enables teachers to see and understand themselves in process.

To understand peoples' fear of change is to have been there and to empathize with their perceptions and behaviors.

Learners. Methods used by teachers to facilitate student learning in secondary school physical education is a manifestation of a teacher's philosophy, values and understanding of how students best grow and learn within the concept of an open gymnasium, an open physical education.

It is difficult to visualize fearful, timid teachers using open teaching approaches until they feel safe and secure enough in their own identities to grant students increasing amounts of freedom to make choices and assume increasing responsibility for their own learning

Methods, techniques and processes are simply tools used by teachers to enable students to attain learning goals. If these goals are perceived as primarily student centered then traditional teacher determined learning experiences will not work.

To shift responsibility from teachers telling students what to do to students discovering and understanding their own movement abilities is to shift emphasis from teachers teaching directly to learners learning, where it rightly belongs. To do so requires that teachers understand and apply different methods to reach different goals.

English movement educators have defined three methods of working with students. These approaches are known as the direct, indirect and limitation methods. Teachers unfamiliar or uncomfortable with more student centered learning are using the direct or traditional teacher directed approach.

The direct method of teaching is traditional teaching in which all matters regarding students learning are decided by the teacher. Teachers determine objectives, content, organization and evaluation of pupil learning. Teachers tell and show and students respond. The direct method is exemplified by students organized in lines, doing exercises or calisthenics, all performing the same movement in the same way at the same time, following or reflecting the teacher.

Indirect teaching methodology allows students free choice to experiment in learning situations. Emphasis shifts from teachers teaching directly to learners assuming responsibility for their own learning. The limitations in this method are the learners' desire and ability to explore and the limitations of the activity, object, piece of equipment, etc.

An example of the use of indirect teaching would be the teacher providing jump ropes for each student and asking students to find as many ways as they can of using the ropes within a specified time period.

The limitation method involves teachers imposing limitations upon activities chosen or movements used by learners. Using hula hoops lying on the ground as the task, the teacher might ask students to find different ways of moving in and out of their hoops (different movements), moving in quickly, out slowly, in quickly, out quickly (speed), moving in and out side first, back first, front first (direction), moving in and out taking body weight on one foot, two feet, one hand and one foot, one hand and two feet, etc. (weight).[4]

Students will learn to stretch and extend their abilities as teachers ask more questions and give fewer answers, pose more challenges for students to work through and encourage students to move in their own unique, different ways.

[4]For extensive detailed information about English movement education methodology (direct, indirect, limitation method), see Billbrough and Jones (1963). For extensive, detailed information about problem solving, discovery type learning, see Gilliom (1970); Musston (1966, chaps. 7,8).

Movement Learning Opportunities/Experiences

The move toward the open gymnasium, open physical education concept may be facilitated in the following ways:

(1) organizing or arranging known equipment, people, games, dances, objects, time, obstacles/challenges, time, exercises, etc., in new ways.
(2) using known equipment, people, objects, sports, exercises, etc., in new ways.
(3) changing, redesigning known objects, equipment, dances, sports — creating new, different forms, activities.
(4) organizing, arranging new, created movement forms, activities in new ways.
(5) using new, created movement forms, activities in new ways.
(6) researching, discovering, using experiences (equipment, objects, etc.) from past societies, civilizations.
(7) creating, organizing, using ideas, equipment, games, sports, dances, etc., designed for physical education in the twenty first or twenty fifth century.
(8) designing equipment, games, sports, etc., for unusual, different environments (underwater, outer space, submarines, the moon).

Perspective

The open gymnasium is an idea — an idea to be challenged, questioned, criticized and tried by all who are willing to explore and are interested in change, growth, learning.

In writing about the ideas behind the open gymnasium, we feel that what may be potentially frightening about this idea is not the risk involved in looking at new ideas, but rather the attitude of many that their programs and practices do not need new ideas.

In writing of the open gymnasium, we have not offered "wisdom-from-the-mount"; instead, we are calling for rejuvenation of the idea of physical educators in secondary schools being *open to ideas.*

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MULTIMEDIA APPROACHES

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Both teaching and learning involve communication — the former between teacher and student and the latter between learner and the environment, of which the teacher is a part. *Medium* is that through/by which anything is accomplished. *The media* are, of course, ways of communicating, expressing, learning. There is nothing revolutionary in these statements. I begin this chapter from that point only to indicate the distance we have traveled since my own public school days. Then we knew, when the teacher showed a film, that he or she had nothing planned that day because movies were, innately, a form of entertainment, and school was never entertaining. In retrospect, neither were the films we saw! Certainly, we have progressed from my own first years of teaching when I wastefully operated the filmstrip projector and phonograph so that all of my students could see the marvels of two-hit volleyball, at the same time, in the same place. Now I am both prejudiced and evangelistic — prejudiced because I have an unreasoning predilection for both media and affect (feeling) as undeveloped tools of teaching and learning in physical education; evangelistic because I feel an unswerving need to preach this gospel. So I offer this caveat: beware, I will try to convert you!

Librarians fondly refer to their collections of books as the *original* media. Not so! Physical educators for years have utilized the original media, demonstration and monolog. I became acquainted with the limitations of monolog when, on the first examination I ever gave, several of the students reported about the penalty for the rule infraction of being "out of bounce." So I must agree with the Little Prince, in paraphrase, that words alone are the source of misunderstanding.

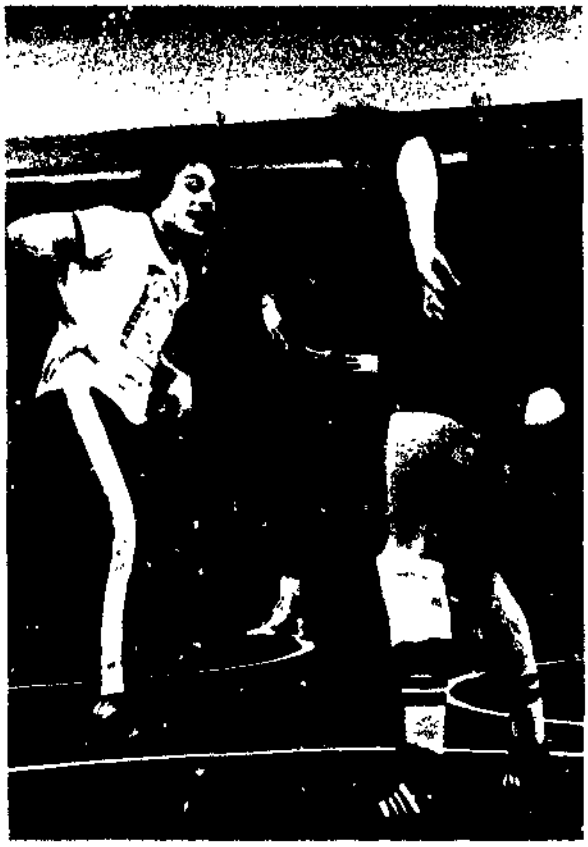
One problem (among others) with demonstration is that once is not enough! A harried secondary school physical educator or a pressured interscholastic gymnastics coach cannot possibly demonstrate the number of skills the number of times required for any given day. The quick solution was always to have a student demonstrate. The main disadvantage of even a good demonstration was that it was usually performed for the group, and not everyone subtended the same visual angle (methods classes not withstanding) or, indeed, was even tuned in to the performance. Now the "newer media," or more precisely, proper utilization of media materials[1] can overcome some of the problems of the "original media" in physical education. Some of the psychological barriers to communicating, such as the verbosity of the sender or the confusion, daydreaming or perceptual limitations of the receiver, can be controlled or eliminated through selection and development of media materials and

Note. The term, multimedia, bothers me. It is redundant (multi = many; media = more than one medium) and not explicit (multi-what?). Perhaps a better term would be multi-sensory media or multi-image media.

[1]"Media materials" is inclusive of the older terms such as audiovisual materials, instructional media and educational media.

knowledge of the capabilities of the hardware or equipment. We always knew we were trying to teach something (someone?); technology has merely provided us with alternative methods for being in more than one place at the same time.

Most school districts are part of the electronic wonderland, loaded with the means of projecting and amplifying media materials. It is time to ask: what have we, as professionals, done to provide the software, and what can we do with it? Although software could refer to everything from films to computer aided instruction (CAI) materials and from recordings and TV tapes to materials from remote-access-retrieval systems, for purposes of this brief discussion I will restrict my examples (with only a glimpse at the Brave New World) to the use of video and audiotapes, film, slides, transparencies and talking paper, for that is where I find most school systems now. The effective use of media in multimedia learning and multimedia instruction involves the strategy of selecting, developing and utilizing these forms in meaningful learning experiences which can expand or reinforce the learner's progress toward some desired goal. That is, the hardware or software is not good in itself; rather, it awaits the strategic arrangement, the interrelationships that can be planned for only by a knowing, feeling teacher or a teacher-student consortium. That fact can lead to feelings of apprehension as many of us realize that we have had inadequate preparation during our professional training and do not truly understand the possibilities within selection and use of the new media.



Advantages of Multimedia Materials

Let us consider the benefits in the selection, development or purchase, and use of multimedia materials to effect learning or progress toward a desired goal. What can multimedia approaches provide to balance the financial and temporal cost of purchase and development, the labor of assembly and responsibility of disassembling the audiovisual equipment, the hazards of maintaining software, the frustrations of blown fuses and burned out lights, and the problems associated with who gets to use the projector that day? To me, the expert use of multimedia offers the teacher the opportunity to be human; that is something only teachers, not machines, can be. Media materials can, through the imagery they evoke, involve the affective as well as the cognitive domain in learning within the psychomotor domain. Among the plus factors, multimedia approaches can offer adaptability, testability, personalization (individualization), opportunities for student responsibility (self-discipline), an attractive learning mode, accountability, avenues for creativity, by-products for public relations (learning should not stop with the school environment), and confluent education. There are probably other advantages, and

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my categories may not be discrete, but this list includes the most functional of the plus factors I could enumerate.

Adaptability. Media materials are adaptable to large groups or individual study. They are the prerogative of the student as well as the instructor. They can be used indoors or outside (if you choose the right equipment) and with all age groups. They can be a planned part of a series of learning experiences or comprise the total series of experiences. They can range from low-cost overhead transparencies with voice or tape added to complex, computer-aided models. In short, there is a price and utility for everyone, and the mode chosen is dependent only upon availability and the planner's (teacher's) ingenuity. The following is a practical example of what I mean by adaptability. Carol Nations[2] developed for me a series of slides with tape, describing the use of the universal gym. This set is a slide synch model, and the student can operate it at his/her convenience. Certain basic slides are maintained in the series, but I substitute current ones (pictures of students now in class) to maintain interest and the personal touch. Further, the tape could be changed to add music or new instructions. Also, I use some of the slides in other presentations, e.g., in classes when I need to emphasize strength or the properties of simple machines that are similar to properties of the machines of the body. One could make the same adaptations with commercial products. Given a super 8mm cartridge film of a sport skill, the teacher could prepare an audiotape and overhead transparencies to augment the film, making it relevant to the individual, group or situation. Message: once you have developed a set of media materials — commercial, your own or a combination — that set can be adapted to many uses.

Testability. Learning experiences with media are directly testable; the visual or audio display can be controlled for amount of information and time of exposure. Thus one can discover almost immediately what type(s) of media are useful to the student and what are of less value. If the concept is attained, the student is free to practice the skill; if the concept has not yet been grasped, the teacher can help the student shift to another learning mode. Using the example of the universal gym series mentioned under "Adaptability" above, one could include a set of 10 questions with 10 slides, asking "What is happening now, what choice should you make here?" The student could check his/her answers with a key, with the teacher or with an assistant, and progress to a workout on the equipment if the test score met the criterion.

Personalization (Individualization.)[3] Media materials can be so arranged that the individual student can operate or replay them any number of times until the student feels confident in the understandings. Some of the more complex hardware is set to extract the correct response; the student cannot progress until the correct response is given. Other media materials can allow for more elaborate responses or for cognitive-affective choices. When the individual learner is free to operate upon the learning environment, the teacher is also free to communicate with other individual students. Thus, there is a twofold personalization from the student's view: (1) my use of the media is a personal relationship, and (2) the teacher is more available to me in a 1:1 relationship because the teacher is not always involved in group instruction.

Student Responsibility (Self-discipline)

The student involved in either multimedia learning or the preparation of multimedia materials can feel responsible for his/her own work (see the Siedentop, chapter). This fact has been shown in many situations which utilize media in individualized instruction in either the gymnasium or the classroom. Personal experience with college students has shown me that the students involved in developing multimedia presentations of their own are highly involved and score higher on objective tests in the subject area than do

[2]Then a graduate student at Washington State University, now an Instructor in the Highland Park system in Illinois.

[3]See the distinction in the Locke-Lambdin chapter.

other students. Either the responsibility for the work encourages better performance or these students are innately better. There is one caution: personal experience has also shown me that the opportunity for self-discipline is not welcome to some students — they request a more direct, "you tell me what to do" approach. But students can learn to be responsible, given exposure to multimedia materials over a period of several learning experiences. Ultimately, teachers are accountable but the responsibility for goal setting can be a student or a student-teacher function

Attractive Learning Mode

That students are exposed to television, movies, tapes and stereo and quadraphonic recordings is well documented by the sales and presumed audiences for which these media materials have been prepared. The evidence that we are becoming a visual culture is strong, at least until one is wakened by the acid rock of a neighborhood adolescent party, acts as chaperone at a junior high dance, or simply hits the stoplight parallel with a high powered car with a high volume radio or tape deck. Kids, preschool through graduate school, are tuned in to the media. And they learn from the media. Try to name that tune, guess the movie plot or identify a series star in contest with a teenager. Why not utilize normal behavior to enhance learning? Some of the commercial media are presented in only one mode; for example, loop films do not carry sound. I think it may be important at times to enhance these materials with the missing mode. We should not hesitate to add music, art, advertising slogans or other material to implant the image of the concept to be developed. Adding to commercial media materials can help to erase some of the "dry educational" stigma from them and make learning as attractive as watching a favorite TV program.

Accountability

One can state competencies (objectives), organize effective multimedia experiences and measure outcomes quite rapidly once the competencies and media materials have been prepared or organized. Competencies or objectives for a media learning experience can also be related to larger goals, such as can the student "design exercise programs which are based upon known principles of training and conditioning" (see the Lawson chapter). To illustrate this point, at our university we have developed competency statements and competency facilitating objectives within the professional preparation program. We are currently developing media materials to help test attainment of the objectives for which we are to be held accountable in the preparation of physical education teachers. We also plan to use these materials to help students exit from those planned learning experiences which lead to competencies they already have and to ascertain whether they are ready for certain other learning experiences. Both formative and summative evaluations can be accomplished through the use of media materials (see the Annarino chapter). We are utilizing super 8mm film, sound and slides, and videotape to test competency to analyze skill and identify teaching strategy. These uses of media help in our accountability and in making the student aware of or responsible for progress toward the competency. We physical educators should be aware of any tendency to accept new ideas as *the* panacea for learning problems. We must be certain to match goals, both teacher-stated and student-stated, with the means. Use of multimedia materials is *one* method of achieving this match.

Avenues for Creativity

Categories are never clear-cut except to the person applying the labels. There is some confounding of this example with both personalization and opportunities for responsibility. But one aspect of multimedia learning that should not be overlooked is the preparation of new media materials by the students themselves. These creations exemplify the old axiom that one understands more completely by doing. I have discovered that college students can, after an experience with media materials, organize a better presentation

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than the one I prepared or offer suggestions for the improved placement of commercial media materials within the learning situation. The Association for Childhood Education International (1973) has documented occasions where younger children can demonstrate creativity through this opportunity. It would seem that the act of creation must indicate deeper understandings than the act of repeating what the teacher said. Therefore, student involvement in media preparation can indicate growth toward the goal of becoming physically educated.

By-products for Public Relations

How did PR get into a discussion of personalized learning? Media materials can be a bonus factor which can operate in the public, as well as the school, domain. The newer definitions of education make the community, rather than the school, the center for learning, and we need to realize that learning about physical education should not terminate with the school years. What better means of advertising your curriculum to students, parents, or voters than to utilize multimedia materials? For example, imagine a multimedia show replacing the traditional talk at the Lions Club school recognition night. Visualize the music, color slides or film, and sounds of activity with the students' voices indicating "This is the way we live activity; this is what activity means to me; this is what I learned about the way in which I can keep myself fit throughout my lifetime, this is what I learned about the way(s) in which my own children will develop and what I can do to help them lead a more active life."

Confluent Education

It seems that, as feeling people, we teachers of physical education fall into a trap. Because we like activity, we assume that everyone will. However, affect is as "learned" as are cognitive concepts. Self-produced media materials are an important and relatively undeveloped source through which one can build confluent learning experiences, that is, experiences in which the cognitive and affective levels of the situation are parallel, or in which the affective aspects are even considered. These materials explore such things as "How do I feel when I move, what are my fears and successes, what is it like to relate to others in movement, how much of the space-time-force-flow model is influenced by feeling at any particular time, what are the emotional dimensions of a sport experience?"

Few of these questions are considered in the commercially prepared media materials, and although we teachers try to be human in our group presentations, we somehow feel gauche in touching the emotional level. The tears-and-for-the-sake-of-the-school speeches are gone from the half-time locker room program. Feeling this lack of phenomenology in our materials and in the learning experiences of our students, Ellen Kreighbaum[4] and I produced a slide-film-stereo tape show for our students in badminton. In the show we explored such things as the feelings of aloneness and togetherness; partnership and competitiveness; the esthetics of movement within the sport; the relationship of sport and the real world; goals of the players; winning and losing; etc. We wanted to help both professional students and those in activity classes to gain an affective concept as well as cognitive understandings of what the sport entailed. We felt that most classes were oriented toward "what to" and "how to" but failed to encourage the students to experience the wholeness of the sport, the integrity of the moment in activity. There is nothing special or magical about the show except perhaps to the producers, but our students like it; they see themselves in both exhilarating and awkward situations. They can recognize that not everybody has the same goals in learning an activity. The imagery of the nonrepresentational slides (such as blurred movement, cartoons) and contemporary music mixed with their own voices and the sounds of badminton seemed to evoke meanings beyond the usual understandings from a course in badminton. Was the experience testable, accounta-

[4]Then a graduate student at Washington State University, now on the faculty of the Department of Physical Education at Montana State University.

ble? We did not utilize evaluation devices, but I do notice a greater ability of the students to describe not only the physical aspects of the moment, but also the emotions of the moment when they have used these multimedia materials.

Hardware and Software

Technology plus materials plus placement or organization of materials will determine outcomes in multimedia approaches. Therefore, we should consider the capabilities of the equipment to display, amplify or give feedback to the user; the kinds of materials; and the organization and arrangement of equipment and materials that will best augment learning. The audio forms replace the monolog in the "original media." The visual forms not only replace but add new dimensions to demonstration. The combinations of these two are the basis of most multimedia approaches. Table 1 contains my assessment of software (hardware inferred).

The following are suggestions for organizing and planning for multimedia approaches in learning. The steps outlined are so similar to the procedures we employ in everyday planning, they are almost automatic.

1. Analyze the need, either the specific competency or the more global goal. The analyzer may be the teacher, the curriculum committee or a teacher-student consortium.
2. Identify media materials, hardware and space available for use.
3. Create or purchase necessary materials and hardware, considering adaptability, ease of operation, etc.
4. Organize the sequence of materials for the learning experience. Try to build in student options along the way.
5. Coincident with Step 4, organize the physical arrangements.
6. Evaluate the learning with both external (teacher evaluation) and internal (student evaluation) means.
7. Reorganize the materials and experiences on the basis of the information from Step 6.

Media for Today and Tomorrow

Today's Media. Multimedia approaches are used today in many schools as individualized learning situations in physical education. These approaches indicate a commitment to personalization but have a somewhat predictable pattern:

1. Media-as-part-of-learning-packet is the most common individual approach (see the Annarino chapter). Usually a commercial loop film and a self-produced audiotape are made available to the individual wishing to learn the skill or strategy. Most materials depict sport skills; I do not know of any commercial software in the dance areas. Commercial loop films are technically excellent, are usually filmed from several angles, and include both regular speed and slow motion. To the individual teacher, the cost of shooting enough film to make a loop film can be high, but placing it in a cartridge costs under two dollars at most photographic shops.

2. Commercial films are still the bread and butter of AV in many schools. Usually 16mm films are shown to an entire class. Some schools do film their own students as a basis for individual skill analysis.

3. Videotape replay (VTR) is commonly used to show the individual how he/she performed or to indicate aspects of team play, such as strategy. The advantage of VTR is the relatively low cost and the almost-instant replay possibility. Most teachers film an entire class before the replay, however. VTR is commonly used with interscholastic teams. TV with special effects is becoming an important aspect of dance productions. As such, TV should probably be classified as a performance, rather than a learning, tool.

4. Slide and sound or transparency and sound combinations are less frequently used in the gymnasium than in the classroom despite the many uses and relatively low cost of these combinations for personalized learning. The example of the universal gym given earlier illustrates one use; explanation of rules is another. Almost anything static can be shown and discussed via these media.

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TABLE I
INFORMATION ON SOFTWARE

Software	Depicts movement in static or dynamic way	Usable by group or individual	Possible use with other media materials	Synchronization problems	Ability to stop, rerun or retain image or sound	Limitations on information	Adaptability	Possibilities for testing purposes	Commercial or self-produced	Cost*
audiotapes	could evoke image	either	best with other	difficulty except with expensive equipment	stop and rerun by individual	length of tape	complete erasure	could be	usually self	nominal
records	same	either	can be	difficult unless with filmstrip	stop and rerun	size and RPM of record	no changes	could be	commer. cial	nominal
sound on paper	same	indiv. only	no	none	stop and rerun; Picture remains	about 4 min.	erasure	could be	self only	nominal
transparencies	static unless a sequence of film frames	either	best with other	can be Problems	retain image long as desired	size of page	change with overlay	could be	self	nominal
slides	static except sequence or blur	either	best with other	can be Problems	can retain unless in synchro	number of slides used	many ways to use	could be	self	nominal; series medium
slide synch	same	either	could be	none	no, must do whole series	usually 30 min. limit	change sound or picture	could be	usually self	medium
sound on slide	same	either	not usually	none	Yes, unless in group	short, but 25 per tray	change sound or picture	could be	self	medium

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(Table 1 cont.)

Software	Depicts movement in static or dynamic way	Usable by group or individual	Possible use with other media materials	Synchronization problems	Ability to stop, rerun or retain image or sound	Limitations on information	Adaptability	Possibilities for testing purposes	Commercial or self-produced	Cost*
filmstrip	same	either	not usually	yes, depends on start	no, whole series or synch problem	length of filmstrip	no changes	not usually	commercial	medium
super 8mm loop	both	indiv./ small group	add audio	Problems	depends on projector	usually short	no change	could be	both	medium to high
super 8mm reel	both	indiv./ medium group	yes	difficult or expensive	depends on projector	usually 200 ft. limit	can splice	could be	usually self	medium to high
16mm film	both	usually group	yes	usually has own sound	depends on projector	usually about 50-min. limit	no—usually rented	not usually	usually commercial	medium to high
videotape	both	either	possible, not usual	has own sound	stop, rerun, retain image	about 30 min.	can erase	could be	usually sell	medium
CAI and other response	both if film used	indiv.	are multi	auto. synch	depends on hardware	usually 30-min. modules	can replace parts	could be	both	high
multi. media "shows"	both if film used	group	are multi	can be problem	usually not	usually 30-min. limit	can replace parts	not the usual function	usually self	medium to high

* Nominal = under $10 each; medium = $11-$100; high = over $100

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5. The last common approach today is the multimedia "show" which is generally self-produced and not a task instructional device but more global and affective in its dimensions. Most designers use popular music mixed with voice or other sound and a variety of slides or film. Complex, computer-aided synchronization is possible, but most producers depend on music cues for hand synchronization. The multimedia show can be public relations material and is excellent for designing confluent educational experiences.

Changing the Xs and Os into People

These cognitive approaches are excellent in terms of integrity of the skills presented, photography, linearity of thinking (progression), etc. But, with the exception of the last category above, their exclusive use in multimedia approaches to learning is, to me, bread alone. Combined with affective materials they can offer Jonathan Livingston Seagull's glory of flight. Cognitive media approaches are basic; they are interesting for a time, but they are clinical and do not touch the heart. The question is: "What do you do when the novelty wears off?' That leads me to a few suggestions for self-produced materials, some of which contain affect or feeling about what it is to be a physically educated person. In a publication devoted to personalized learning, what could be more appropriate than some thought about affect? What is more personal than feelings? The following suggestions should indicate that technology can do more than enrich the lives of technicians. Each should be preceded by a "Did you (or your students) ever ...?"

1. Combine music with a bit of film of your students in some sport to develop concepts about the aesthetics of movement.

2. Run film (with voice or music) backward as a takeoff for discussion of movement styles.

3. Record only the sounds of a volleyball practice, then put the sounds with abstract symbols (e.g., slide of a fist to show power, slide of a feather floating, slide of a Peanuts cartoon) to develop imagery and enhance memory.

4. Record a performer's verbal response in watching the playback of a TV tape of his/her actions. Replay the audio and discuss the player's feelings about movement, self-concept, etc.

5. Film students going to class, moving in the lunch line, leaving and arriving at school. Put film to music. Use as a basis of discussion of movement styles.

6. Use cartoons or advertising slogans to provide comic relief in a multimedia learning packet.

7. Using an X and O diagram on a slide, fade that slide into one of people in the same position as the Xs and Os, then fade to facial expressions of the people.[5] Add monolog or dialog about the emotions and motivations.

8. Make a slide and sound unit on rules, using cartoons, magazine clippings, etc. to indicate the chaotic conditions that would result without rules.

9. Ask students to discuss on tape the personal meaning of certain dance, sport or aquatic experiences and combine the tape with film or videotape of slides of that activity.

10. Use magic markers to make abstract designs or random markings on 16mm or super 8mm film leader. Show this film with sounds of a game, or use as the background for creating a dance or for discussing the properties of movement based on the use of space, time and force.

11. Use sound and slide to test the students' understanding of good and poor timing in a skill that involves exerting force to move one's body or an object.

12. Show a slide of a child who has a low developmental throwing pattern and fade it into one of a high school student who uses the same pattern. Use the series as a way of learning about developmental movement.

13. Use film or slides to show how ridiculous, alone and inadequate one can feel as well as how dominant, team-oriented or successful one can feel.

[5]Fading requires the use of a "dissolve" control unit.

14. Let students make their own sound track, announcing a bit of film or videotape. Use it as a test of their own cognitions of what is happening in the sport event.

15. Film a "Chaplin-like" walk, put it with appropriate music, and contrast it with other movement styles. Use the materials to discuss movement styles or to compose a dance.

16. Experiment with transparencies as the backdrop for dance, for demonstration of a sport skill or to point out the difference between a dance movement and a sports movement.

17. Record the response of the whole group (class or team) while watching a film or silent VTR of what the students have done in class or in competition. Replay the film or VTR with the new sound track. Use for discussion of ethical conduct, expectations, etc.

18. Use recordings from commercial TV, without sound, but put musical sounds with it such as an airplane takeoff with the approach to the pole vault, a Larry Czonka run accompanied by the sound of an approaching train, sounds of breathing or heartbeat with an endurance event. Ask the students which sounds and movement situations go together.

19. Film only the feet and knees to show how important these movements are to body positioning; film facial expressions to show "the thrill of success," etc.

20. Make a TV tape of your team practice to play for a local organization.

21. Do an animated film to explain some concept, cognitive or affective.

22. Use a tape recorder to get crowd reaction at a sports event. Use playback to elicit responses about what kinds of action were taking place on the court or field.

23. Ask your state, district or national association to include displays of media hardware as well as the software usually shown at conventions.

24. Work with your local media specialist who has many ideas, or use any good media text (e.g., Wittich & Schuller 1973).

25. Ask students what current music, folklore and verbalisms are meaningful ways of explaining ideas in movement. Use their responses with VTR, slides, transparencies or film.

26. Inspect some books that may expand your own thoughts on the visual aspects of movement behavior (Arnheim 1969; Metheny 1968).

27. Ask a college or university to do a summer workshop on the uses of media and movement learning.

28. Beam your own class or team practice over closed circuit TV to the community for public relations or to the language arts students (some of whom are also taking a physical education course) to do a written or spoken commentary.

29. Use other multisensory devices to help develop movement concepts (smell, taste of sweat, temperature increases) as successfully demonstrated in the movie *Earthquake*.

30. Adjust the camera you are using to eye view. Use it to look up at a tall basketball center, to look at the landing pit while running down the long jump approach, or to look at the terrain while traversing a small ski hill.

31. Have light, slide, film and transparency backgrounds available for student dancers to use in class.

32. Involve the history teacher in preparing media showing similarities between practical politics and sport.

The preceding suggestions are a small attempt to help us continue to assert that we do deal with the whole learner. Somehow in professional and amateur sport, emotion is accepted as part of the game. Feelings are often excluded from our classes; yet, attitude may be our most important product. We have a responsibility to develop the affective domain, and there are a few commercial media which can help such as the film *Ski the Outer Limits* and the PEPI project films.

Tomorrow's Media. Today is already tomorrow in some schools. Although the scene I am about to describe takes place in the future, some school districts are employing parts of the media materials or

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hardware described. What is novel to some readers will be merely prosaic to others.

1. Student approaches physical educator during assigned counseling time, suggesting that he might like to learn skiing.

2. Teacher punches student number into computer terminal. Together they read retrieval printout that suggests scores on balance, endurance and strength are high enough to predict success. Printout suggests two cautions for student: a) he may need additional strength in the lower extremity and b) his personality profile indicates he prefers to cooperate in groups over individual decision making.

3. Student decides to enter the ski program. He enters a carrel and watches the film *Ski the Outer Limits*. Student decides to discuss feelings about the film with another person. He operates the terminal to get printout of others who have indicated the same desire, selects a name to contact and arranges meeting at a time convenient to both.

4 Student begins a required equipment module, a sound loop film and competency test. Student completes module, fails competency test, reports back to instructor for diagnosis and checks out an alternate sound on slide module which gives information feedback on why an answer is right or wrong. Student takes test in computer-recorded response booth, passes and exits from module.

5. Student advances to simulator room. Room contains holograph 360° view of ski slopes, temperature regulator, simulator of muscular tension and kinesthetic feedback about position and speed. Student fails computer analysis of ankle flexibility and strength. He then advances to the universal gym where he designs and completes an exercise program after an OK from the instructor.

6. Student returns to simulator room where an aide attaches surface electrodes which emit bleep when movement error occurs. Student continues daily practices in this situation until no more than five bleeps occur in a five-minute period

7. Student takes slide synch test on safety techniques and passes. Student returns to instructor and

computer to identify companions for ski experience. Arranges time and group advances to bunny hill.

Basic Assumptions

Because of my emphasis on the affective domain, I realize that multimedia approaches to learning in physical education could be Promethean and give life and fire to the teaching/learning situation. Conversely, they could be a Pandora's box, unleashing complete control of thought and feeling. The following are some basic assumptions upon which I operate in the selection and use of media materials with the foregoing danger constantly in mind:

1. In the subject matter, physical education, teachers and learners are thinking (cognitive), doing (psychomotor), and feeling (affective) beings. Therefore, the acquisition of skill is more than just a psychomotor function; it is a confluence or ideal functioning in all three domains. I call the preceding the

"you better believe teachers and learners are real people" principle.

2. Both teaching strategies and learners' modes of perceiving operate over a broad spectrum. Therefore, the best teaching/learning occurs when the method of teaching and the mode of learner are best matched (Joyce & Weil 1972). This is the "you have to be where they are" principle.

3. Multimedia approaches involve (a) more than one input mode, (b) cognitive-affective possibilities to enhance psychomotor performance and (c) alternative ways to learn. Therefore, they have a high probability of success. This is the "chances are good, but you have to plan ahead" principle.

4. Both software and hardware can involve great expenditures of time and money. Therefore, one should attempt to justify the investment by the return in learning. This is the "you have to *use* it to make it pay" principle.

5. Commercial media materials can be so technically perfect that they become dull. Self-produced media materials can be so effective in producing affect (so beautiful or humorous) that the learner misses the concept being developed. Therefore, one should not be afraid of one's own productions in terms of technical excellence, the commercial materials can provide that aspect. However, one should be chary of one's own zeal to develop affect at all costs! This is the "Aristotle's golden mean is a good balance act" principle.

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DOUBLE I: A SIMULATION GAME FOR PHYSICAL EDUCATORS

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There is a primordial hypothesis behind every attempt to individualize instruction: "If teachers individualize, students will learn more, learn better, or learn particular things of special value." This hoped-for result has yet to receive formal confirmation in physical education. There also is an untested hypothesis which holds that if teachers learn more ways to individualize, they will increase the frequency of such instruction in their daily work.

The Double-I Game is based on yet a third hypothesis: "If all those involved (teachers, student teachers, administrators, supervisors, cooperating teachers, professors and parents) have an opportunity to explore how they feel about Individualized Instruction, they will be more likely to accept and internalize the values which support the process of treating students as individuals in the gymnasium."

Purpose of Playing Double-I

The purpose of playing this simulation game is to help you:

1. become aware of some variables which can be used to individualize instruction in physical education.
2. explore how you feel about using each of these variables.
3. become more sensitive to why some people oppose or are uncomfortable with various ways of individualizing instruction in physical education.
4. become more sensitive to why some people accept and are enthusiastic about various ways of individualizing instruction in physical education.

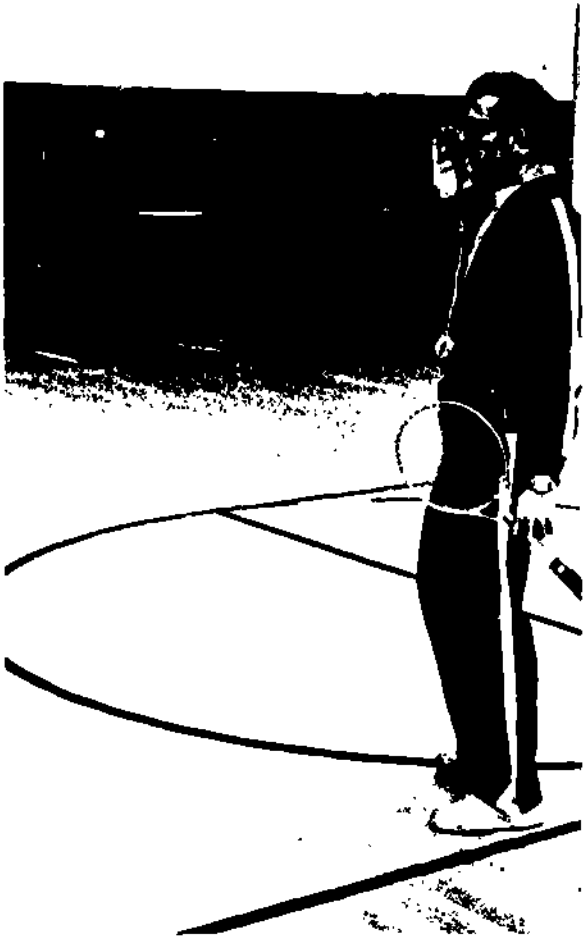
It makes no difference what your initial predisposition concerning Individualized Instruction may be, the contrived experiences contained in Double-I should sharpen your own sense of what matters and increase your capacity to work with other people on problems related to Individualized Instruction in physical education.

Participants

The game may be played by any group of four or more individuals who have some interest in implementing Double-I (Individualized Instruction) in physical education. Such individuals would include:

Teachers
Student Teachers

Note: The physical education version of the Double-I (Individualized Instruction) Game was adapted by the author from a simulation developed for classroom teachers by Donald R. Cruickshank, professor at The Ohio State University. Readers interested in the original classroom game should consult: "Individualization: The Impossible Dream Come True," in *Theory Into Practice*, College of Education, The Ohio State University, Vol. XIII, No. 2, April 1974, pp. 130-135. Appreciation is extended to Professor Cruickshank and the editors of *Theory Into Practice* for their kind permission to revise Double-I for use in this chapter.



Cooperating Teachers
District Supervisors
College Supervisors
School Administrators
Parents
Professors from Preservice Training Programs.

Ideally, players should be drawn from several different professional roles (for example: student teachers, cooperating teachers and college supervisors provide the basis for spirited Double-I play), but the game can work quite well when all players are drawn from a single group (for example: students in a college preservice methods class).

Materials Required for Play

1. Scoresheet (will accommodate four simultaneous games or up to 40 players)
2. Double-I Game Chart (with large numbers of players several copies for each team will be desirable.
3. One set of Power Cards for each team
4. One set of Chance Cards for each game
5. Timing device (clock with large face is ideal)

Play of the Game

1. Divide participants into teams (exactly even sides are not required). Two members per team are the minimum and 5 the maximum. If you have more than 10 participants, simply form additional games, each with two competing teams. As true team competition is possible only when there is more than one simultaneous game (i.e., more than two teams playing) it generally is better to create more games by using teams with fewer members. Three or 4 on a side works particularly well. If players are from different educational roles, *distribute the participants to produce teams of mixed composition.*
2. By lot designate one team in each game as the Pros (who generally will favor individualized instruction and generally dislike cohort instruction). The other team is designated as the Cons (who generally will oppose individualization and favor Cohort Instruction). Each team selects a captain who will serve as moderator for the caucus and spokesperson for negotiations with the other team.
3. Distribute materials as required.
4. Describe the purpose of the Double-I Game as follows:

   Today we are going to play the Individualized Instruction or Double-I Game. The game was developed to make you aware of some ways to individualize instruction in physical education pro-

grams. In addition, the game will cause you to consider how much you believe in individualizing. As a result of knowing some basic elements which can be used to individualize, and of considering how you feel about each, you may come to value some of them to the extent that you will try them or encourage others to try them.

5. Go over the Double-I Game Chart so that all participants have a clear understanding of how it is organized and what it contains.

   Look at your game chart. In the left-hand column you see 13 variables which can be manipulated to increase or decrease the amount of Individualized Instruction (or Double-I) which occurs within a physical education program. The first variable is "Curriculum Content." For that element in a physical education program there is a row, Row 1, which provides a rough continuum along which several positions rest. The position which provides the most Double-I is "Established by individual students" found in Column 1. The position on that row which provides the least Double-I is "Established in the Curriculum Guide" found in Column 4. Intermediate positions are found in Columns 2 and 3. You can see that similarly each of the 13 variables has a row of four possible degrees of Double-I. Do you have any questions?

6. Review the purpose of playing Double-I and explain the play of the game as follows:

   The object of the game is to cause you as a member of the Pros or Cons to consider the 13 Double-I variables — to listen to how other people feel about them and to examine how you feel about them. To accomplish this, the game requires that you take a position on each. Further, you must try to convince your teammates and your opponents of the legitimacy of your position.

   Members of the Pros team are not required to favor every possible strategy for Double-I (choosing in Columns 1 or 2) but *are obligated to approach the question from a generally positive viewpoint on most of the variables.*

   Members of the Cons team are not required to oppose every possible strategy for Double-I (choosing in Columns 3 or 4) *but are obligated to approach the question from a generally negative viewpoint on most variables.*

   Each variable constitutes a round in the game. For example look at variable 4 "Nature of the requirement." Your team has five minutes to caucus and take a position along row 4 with relation to attendance policy. Do you believe that physical education itself should be voluntary (Column 1), required but provided in optional forms, times and places (Column 2), required but with content open to student/teacher negotiation (Column 3), or required with participation in regular class activity mandatory (Column 4)? While the Pros team is caucusing on this question, so is the Cons team. The team captain should take careful note of the arguments which influence the decision.

   At the end of five minutes, teams identify their positions on the variable. If the positions are the same, go on at once to the next round. If the positions differ (as they often will), the teams meet together to negotiate a common acceptable position. Captains present brief arguments favoring their team's position and attempt to sway members of the other team. Any team member may call for a quick team caucus if he feels that the opposing arguments justify a change in his team's position or the offer of a compromise position.

   If a common (consensus) position has not been found at the end of eight minutes, each team must caucus and select a power card to play in an attempt to win its position. Each team has one set of power cards with values from 1 to 13. A given power card can be played only once in each game. The team playing the highest power card wins its position. (Play cards on table face down and turn over simultaneously.)

   In the event of a tie, a chance card is drawn from the game deck (and discarded for the remainder

of the game). The card will indicate which team wins its position.

It is essential that decisions in caucus and negotiation at each round be made independently of decisions of previous rounds. Each round is an entirely separate problem and no position can be deemed impossible because of previous decisions.

Quickly record the result of each round on the scoresheet and move at once to the next round. No one should maintain a running score nor should reference be made to the scoresheet during the course of play.

7. Explain how the game is won.

   The game is divided into rounds, each round consisting of taking and negotiating a position on each of the variables. Thirteen rounds make a standard game, but shorter games are possible by agreement to eliminate some of the rows. Once the position is established (by initial agreement, negotiation, power card or chance card), both Pros and Cons get the score indicated at the head of the column. When simultaneous games are being played (four or more teams) the Pros team with the lowest final total score is the winner. Likewise the Cons team with the highest final total is the winner.

   If only two teams are playing in a single game, the winner can be identified by playing any even number of rounds, calculating the theoretical midpoint of possible scores (that score which assumes that one-half of all final positions are in Column 2 and one-half in Column 3, i.e., for a game of 10 rounds the midpoint would be 25 points) and declaring the Cons winner if the total is above the midpoint or the Pros the winner if the total is below.

8. If the participants seem to be having difficulty in sustaining a generally favorable or unfavorable position on the Double-I variables (as required by their team membership), the game leader should introduce a rule which specifies that Cons teams must not accept negotiated positions on the Game Chart's Columns 1 or 2 for more than once out of every three rounds (two out of six, etc.). Correspondingly, Pros teams must not accept negotiated positions in Columns 3 or 4 on more than once out of each three rounds.

9. Teams may devise any procedure they wish for conduct of their caucus. Captains may be changed for each round, after a specified number of rounds, or may not be used at all.

DOUBLE-I
CHANCE CARDS*

AAHPER publishes new book called *Personalized Learning* and physical education teachers everywhere are inspired. PROS WIN!	Parents visit gym on Parent's Day and are shocked by the "lack of control" in Double-I P.E. classes. Parents complain to the principal. CONS WIN!	Teachers present proposal for Double-I component in the P.E. program at meeting of parents and school administrators. All are attracted by the idea that students can increase their capacity for personal responsibility. PROS WIN!	Vote is taken at P.E. Department meeting to decide whether to start an experimental open gym program. Proponents of Double-I are making up task cards and miss the meeting. CONS WIN!
Union demands 10% pay increase for additional work involved in all Double-I programs. School Board denies raise and lengthy strike ensues. BOTH TEAMS GET 0!	One brave teacher begins to experiment with Double-I. Colleagues stop in to observe. Interest grows slowly. Teachers cooperate to gather ideas and materials, and begin to develop modest plans for some Double-I. PROS WIN!	Large publishing house markets extensive collection of materials for individualized P.E. Board of Education declines to purchase set for district use. Angry teachers share cost and buy their own. PROS WIN!	Review of research on Double-I appears in *Research Quarterly*. No conclusive results. District Director of P.E. circulates his copy to all teachers with article marked in red ink. CONS WIN!
High school football team wins 5 state tournaments in a row. No one is willing to rock the boat by changing the P.E. program. CONS WIN!	District Supervisor of P.E. feels that the program already is too permissive and should be brought back to solid basics such as group calisthenics and fitness testing. CONS WINS!	Teachers take a night course in Individualized Teaching methods at the local university. Teachers are completely confused by all the heavy theory and abstract language. CONS WIN!	District Director of P.E. retires after 50 years as coach and P.E. programs administrator. Young Double-I enthusiast is promoted to the open position. Talks Board into hiring Don Hellison as program consultant. PROS WIN!

*Duplicate one set of Chance Cards for use in each game.

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DOUBLE-I
POWER CARDS FOR PROS

PROS POWER CARD 1	PROS POWER CARD 8
PROS POWER CARD 2	PROS POWER CARD 9
PROS POWER CARD 3	PROS POWER CARD 10
PROS POWER CARD 4	PROS POWER CARD 11
PROS POWER CARD 5	PROS POWER CARD 12
PROS POWER CARD 6	PROS POWER CARD 13
PROS POWER CARD 7	Note: Duplicate enough of these sheets so that each Pros team has one set of Power Cards.

DOUBLE-I
POWER CARDS FOR CONS

CONS POWER CARD 1	CONS POWER CARD 8
CONS POWER CARD 2	CONS POWER CARD 9
CONS POWER CARD 3	CONS POWER CARD 10
CONS POWER CARD 4	CONS POWER CARD 11
CONS POWER CARD 5	CONS POWER CARD 12
CONS POWER CARD 6	CONS POWER CARD 13
CONS POWER CARD 7	Note: Duplicate enough of these sheets so that each Cons team has one set of Power Cards.

THE DOUBLE-I GAME CHART*

		COLUMN 1 (1 PT.)	COLUMN 2 (2 PTS.)	COLUMN 3 (3 PTS.)	COLUMN 4 (4 PTS.)
Row 1	1. Curriculum content (the source of learning objectives)	Established by individual students	Established through student/teacher negotiation (with individuals or groups, as appropriate)	Established by the teacher as appropriate for each class	Established in the Curriculum Guide (program and unit plan) for all classes
Row 2	2. Evaluation of learning (source of criteria and standards)	Students establish their own criteria and standards for evaluating their learning	Criteria and standards established by student/teacher negotiation (with groups or individuals, as appropriate)	Teacher establishes criteria and standards. Evaluation is criterion referenced (students are not compared with each other, but against standard goals for learning)	Teacher establishes criteria and standards. Evaluation is norm referenced (students are compared to each other or to norm groups)
Row 3	3. Scheduling of learning activities	Schedule is established by student/teacher negotiation (with individuals or groups, as appropriate)	Flexible, modular scheduling is used to program all classes (teachers and administrators control schedule)	Some block scheduling is available for selected students (teachers and administrators determine eligibility and control schedule)	Regular, uniform class meeting schedule is applied to all students
Row 4	4. Nature of the requirement	P.E. optional. Students choose to schedule or not each semester (alternative use of time subject to school rules)	P.E. required, but variety of alternatives to regular classes (in class format, content, time and location) may be elected by student	Regular attendance in P.E. classes required, but some aspects of class format and content open to student/teacher negotiation	Regular attendance in P.E. classes required and participation in teacher-directed activities mandatory
Row 5	5. Percentage of P.E. students involved in Double-I	All P.E. students involved in Double-I	Most (at least 75% of students enrolled in P.E.) involved in Double-I	A few (about 25% of the students enrolled in P.E.) involved in Double-I	Limit to a small, select group based on teacher and administrator judgment of student maturity and ability

*This chart was adapted (with great liberties) from Donald Cruickshank (1974) who, in turn, drew his version of the chart from Maurice Gibbons, *Individualizing Instructions: A Descriptive Analysis* (New York: Teachers College Press, 1971), p. 70.

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(Double-I chart cont.)

Row 6	6. Selection of students for participation in Double-I	Double-I learning activities available as an option for all students	Double-I offered as an option for selected students (teachers determine eligibility, but take student interest into account)	Double-I used with selected students (teachers control, no student choice involved)	Double-I used only with students who have approval of teachers, parents and administrators
Row 7	7. Percent of total time devoted to Double-I in regular P.E. classes	As much as students wish (determined by groups or individuals, as appropriate)	Total time determined by student/teacher negotiation (with groups or individuals, as appropriate)	Teachers determine total time used in Double-I activities	Only as much time given to Double-I as teachers, parents and administrators will permit (upper limit set at 50% of total class time)
Row 8	8. Learning environment (place for learning)	Individuals or groups of students select from the resources of the entire community	Place for learning activities is determined by student/teacher negotiation (entire community may be used)	Students have some opportunity to request use of particular locations on school property	Class meets in assigned space (gym or field) with no student options
Row 9	9. Method of instruction (teacher's role in learning)	Selected by students (groups or individuals, as appropriate)	Established by student/teacher negotiation (with groups or individuals, as appropriate)	Established by the teacher through selection from a variety of alternative methods	Method used for most instruction is explanation/demonstration/practice/correction
Row 10	10. Method of practice	Selected by students (groups or individuals, as appropriate)	Established by student/teacher negotiation (with groups or individuals, as appropriate)	Established by the teacher	Established by the Curriculum Guide (unit and lesson plans) for all classes
Row 11	11. Pace of learning (frequency, distribution and intensity of practice)	Selected by students (groups or individuals, as appropriate)	Established by student/teacher negotiation (with groups or individuals, as appropriate)	Established by the teacher	Established by the time schedule for content coverage in the Curriculum Guide (unit and lesson plans) for all classes
Row 12	12. Equipment used for instruction and practice	Selected by students (groups or individuals, as appropriate)	Selected by student/teacher negotiation (with groups or individuals, as appropriate)	Selected by the teacher	Prescribed by the Curriculum Guide for all P.E. classes
Row 13	13. Overall purpose of P.E. in the school curriculum	Students decide	Teachers and students decide through negotiation	Teachers and administrators decide	Board of Education decides

DOUBLE-I GAME

Scoresheet

	GAME 1		GAME 2		GAME 3		GAME 4	
ROUND	P	C	P	C	P	C	P	C
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								