

PROBLEM SOLVING - A PROBLEM FOR  
PHYSICAL EDUCATORS

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At the risk of appearing sentimental I would like to thank you for inviting me to address this meeting. For me it is not like any other professional gathering. All of you work in the city I most admire, the city I first feared the most and the city that gave me the most. Here I learned the meaning of liberal education; here I realized the impact of free education; and here I fathomed the loneliness and uniqueness of the individual.

This is the city that opened my eyes to the glories of diversity. The sights, the sounds and the smells -- the beat, the restlessness, the aspirations, the decay and the rebirth--all make that Gestalt we know as New York City.

Thank you for the opportunity to speak with you.

At first I thought I would talk about urban problems and the roles physical education could play in the enormous task of educational reconstruction. But I was spared the agony of suggesting improvements to the city. A topic was assigned to me: "Problem Solving - A Teaching Technique in Physical Education." You may have noticed that the title of this paper has been somewhat altered. The cause is human, not technical. The cause is rooted in the fallibility of man, in the inertia of man, in man's resistance to change.

The ideas in this paper, with the aid of the spot demonstrations with the children presented here will try to raise several questions that might confront the teacher of physical education who wants to employ problem-solving as an educational device.

Indeed, I have erred already, problem solving is not a device (Let us describe for a moment: what IT IS NOT). It is not a technique. It is not a gimmick. It is not terminal. It is not temporary. It is not a unit in the course of study.

Problem solving does not stand alone. It is organically connected to its' antecedents and consequences in both learning styles and teaching styles. Reference is made here to Gagne (9); Anderson (1); Bruner, Goodnow, and Austin (3);

Inhelder and Piaget (14); Bruner, Olver and Greenfield (5); and many others have studied problem solving strategies. Andrews (3); Halsey (11); Morrison (15); Cratty (7); and other like physical educators who make references, discuss and describe problem solving in teaching water trials.

Thorson (17) analyzes problem solving as a style of teaching and ascribes to it an integral element part the cognitive learner in his pedagogical construct: "The Spectrum of Learning Styles."

This construct states that problem solving is a PROCESS of teaching behavior, a process of learning to make decisions and choices and a product. The product is the very ability to solve problems although Gagne (9, p. 168) says that as "a method rich in reinforcement value, the solving of problems within structures of knowledge to be learned may create a love of learning." He continues: "But except as a method for acquiring prerequisite knowledge, 'practicing discovery' seems an unlikely choice of antecedent variable to be involved in the production of a genius." But who is talking about genius? All people at one time or another solve small or large problems. A counter statement to that of Gagne's is made by Bruner in his "Act of Discovery" (6), where he discusses the small discoveries, the small solutions found by a student with an educational setting. Bruner states that discoveries are not only those in the frontier of knowledge. It is what one discovers for oneself.

Now, what kinds of adjustments must a teacher make in order to facilitate those small discoveries?

The first adjustment is philosophical: The teacher must answer the following questions: "Am I ready to transfer decisions to my students?" "What kinds of decisions can my students make?" "Have I prepared my students to make decisions?" "Am I ready to confront the consequences of my students' decisions?"

Fundamentally, it is a decision concerning the role of the teacher

and the role of the student in the teaching-learning act.

In the case of problem solving behavior it is a commitment to accept decisions made by your students. By definition, there is no compromise. If we say that problem solving behavior is a way of learning by seeking a solution or solutions to a recognized problem than the teaching behavior (Teaching style) which is designed to promote that kind of learning CAN NOT be involved in the solution. In a "pure and perfect" form of a problem-solving situation the teacher NEVER offers a solution. The minute you do so--you have stopped the process of solving which ~~was~~ initiated by the student. The very minute your behavior intervenes with the problem solving behavior of the student another style of teaching and another style of learning emerges. (See: Hosston (17) the discussion The Shift from Style to Style). Can you view yourself in a new role of one who DOES NOT TELL? (A short demonstration of students in decision making and teacher in "Not telling")

There is, also, another aspect to the philosophical adjustment. Problem solving is an intellectual activity. The motor response is a result of a conscious cognitive activity. That means that the physical educator must involve himself various studies in addition to the physiology of motor performance. More precisely he needs to be in the mainstream of psychology of cognition.

The second kind of adjustment is emotional. Since the very core of problem solving behavior is seeking beyond, inquiring into the existence of alternatives and making choices among the available alternatives the following may arise and confront the teacher:

- a) "How will I feel if my students reach beyond my own boundaries of knowledge?"
- b) "How will I feel if my students discover alternatives unknown to me?"
- c) "How will I feel if my students make choices which conflict with my value system? My experience? My belief in a given set of standards?"

Answering these questions may evoke emotional responses. The adjustments that must be made are within the affective domain.

To reiterate a statement made earlier in the paper: Problem solving is not just a technique. It is not a gimmick. It is perhaps closer to a total commitment to a different image of man. The implications are far reaching and irreversible.

Another aspect of the emotional adjustment results from Linguistic change. A change from the exclamatory mode of communication to a questioning one. The exclamation mark at the end of a sentence is replaced by a question. Questions are intrinsic to the structure of any problem solving behavior--a teaching style or a learning style. (See Hosston (17) chapter of Problem Solving).

The implications of continuous questioning are rather clear. They poke holes into the known and comfortable, they induce doubt.

The third kind of adjustment is cognitive. Developing a commitment to problem solving behavior requires new decisions about WHAT the teacher must know. Let us examine but a few areas:

1. New Subject-Matter. The subject matter which contains knowledge about the working of the intellect: The cognitive process itself. Works by Bruner (5), Elkind (3), Hutchinson (13), Guilford (10), shed light on this issue.
2. Structure of Subject-Matter. New insights are needed into the making of a given subject matter, its components, the internal relationships that exist among these components and assumptions must be made about future extensions of the subject matter.
3. Theory of instruction. Again, problem solving does not stand alone. As a teaching style it is one of several. One must know all of them and the relationship among them. Bruner (4) calls for a needed theory of instruction

which will alleviate the hazards of random teaching. Mosston's "Spectrum of Teaching Styles" (17,18) is one proposal in that direction (As New York City residents you may observe these styles of teaching on WCBS-TV weekly program Shape-Up; designed and conducted by Mosston every Saturday, 7:30 a.m.

It seems that only when a teacher can reach harmony among all these adjustments he will be able to include problem solving in his teaching repertoire. This new state of teaching can reach closer to the objection of including all people. Inclusion not of merely physical participation in activity but a more Significant inclusion--that of conscious decision making.

Let me close with a quotation from a recent paper by Mosston (19) called "Inclusion and Exclusion in Physical Education", a paper that analyzes the structure of movement programs, equipment design and teaching behavior in light of Inclusion and Exclusion.

"Perhaps the time has come for teachers to include themselves in the process of progress and change. Time has come for teachers to fortify themselves and be less threatened by a questioning student, by the introduction of a different thought; be more accepting and certainly be more willing to examine a proposal which has the flare of innovation and the unexpected. It is the role of both teachers and students to participate not only in the repetition of knowledge but also to be involved in the evolvment of ideas."

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