

The Integration of a Style of Teaching  
With the Structure of the Subject Matter

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Indeed, there is ferment in physical education. Across the continent and in many other countries our colleagues are seeking answers to questions of content, direction, meaning - structure!

It has become rather meaningless and, at times, futile to conduct programs in teacher preparation which are based on merely traditional, idiosyncratic beliefs or even on sub-cultural needs, conditions, or goals. Broader knowledge needs to be organized and identified into a discipline with characteristics and structure defined as universally as possible. Similarly culturally preferred sub-structures which are only subsidiary to a larger and more all-embracing arrangement, need to be classified.

The considerable surge of proposals, theories, terminology, and interdisciplinary attempts, reflect the need for a more comprehensive statement about the nature of physical education and the nature of its teaching. An excellent delineation of the present status of this issue was offered in Locke's "The Movement Movement(11).

The ever present questions of what to teach and how to teach permeate most if not all works dealing with physical education.

These works seem to fall into at least two major categories:

- A. Those which investigate the essence of the field, its components, and the existing and potential relationships of the components. Perhaps this can be identified as the attempt to create and develop an academic discipline of human movement as proposed by Fraleigh (6), Smith (21), Henry (7), Stish (22), Abernathy and Waltz (1), Methony (13), Mosston (14), and others
- B. Those concerned with the transmission and acquisition of knowledge and its interpretation in behavior, (Hunt (1), Walters (23), Lockhart (12), Lawther (10), Ryan (20), Brackenbury (3), Jokl (19), Cratty (5), Mosston (16), and others seem to point in that direction.

The writers in the first category focus on describing and interpreting human movement. They describe the existence of the matter of the field and interpret its purposes and uses.

Those in the second category mainly focus on the manner in which the matter is perceived, understood, taught, and learned.

Sometimes the two categories appear to reflect a dichotomy between the what and the how although members of each group seem to have touched upon the focus of the other. So possibly a third group of writers emerges: those attempting to understand and clarify the relationship between the very structure of subject matter and the ways it can be taught and learned. This address concerns itself with this very issue of integration of a teaching style with the structure of subject matter.

A style of teaching as defined by Mosston (16) is a set of decisions made during the teaching act. Decision variables have been identified in an Anatomy of A Style and the variety of styles have been arranged in a construct called the Spectrum of Teaching Styles (16). The mobility along the spectrum is characterized by a shift in decision making from teacher to learner. Another major tenet of the spectrum is the involvement of continuous - gradual decisions which call for more cognitive operations prior, during, and after the movement-task.

Structure of subject matter (and let us remain, presently, within the traditional view of subject matter in physical education, namely: the identified activities) is understood as the unique arrangement of the movements which must exist in order for a given activity to be identified as such. The structure is held together by relationships peculiar to itself; it contains concepts which outline its very existence as a unique activity. These concepts in turn suggest an order and a sequence of events within the activity. It dictates preference of inclusion and exclusion of movements as an integral part of the activity. It determines the limits of the activity.

These have been arranged and described in From Command to Discovery (16) as the hierarchy of the structure of subject matter. "This concept relates the given conditions which must exist as a premise of an activity to the product, to result - in the activity itself as we know it. It involves manipulative levels of the body and its possibilities through any matrix of movement which produce categories of facts (or instances) relationships, preferences, limits, concepts and variations." All these are inherent in the structure of an activity and proclaim its uniqueness.

Now - we have brief descriptions of two separate entities: one, the structure of subject matter (it is assumed here that the proposed Hierarchy can serve as a universal point of view concerning an activity).

The other - the Spectrum of Styles: a structure of teaching behavior. The proposal that the Spectrum of Styles exists as a behavioral structure independent of specific subject matter stands in contrast to some who suggest that the what of the discipline - its content and conceptual structure - can be interpreted only in light of the how, the method and the level of inquiry. The latter, in turn, must be appropriate to the content and concepts under investigation. When we take this view of the disciplines, we emphasize the method of inquiry as an integral part of a field of knowledge (17).

It is proposed, then, that it might be worthwhile to investigate the possibilities, feasibility and efficiency of the existing relationship between any style of teaching and any subject matter (activity). The following diagram may clarify this condition of possible relationships. (fig. 1 and 2).

Theoretically, each activity can be taught by each style. Empirically, the entire spectrum of styles has been tested by our department at Rutgers in elementary and secondary schools for the last 6 years in a great variety of activities.

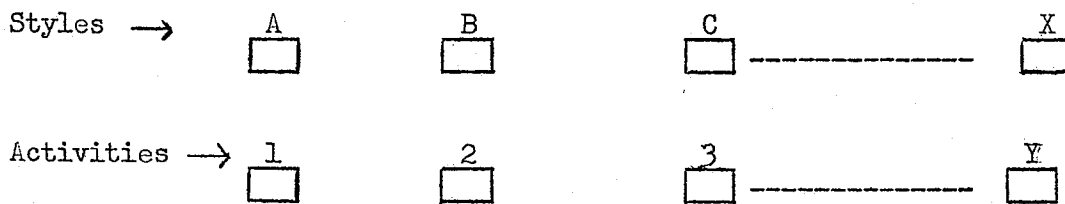


Fig 1. Two existing entities

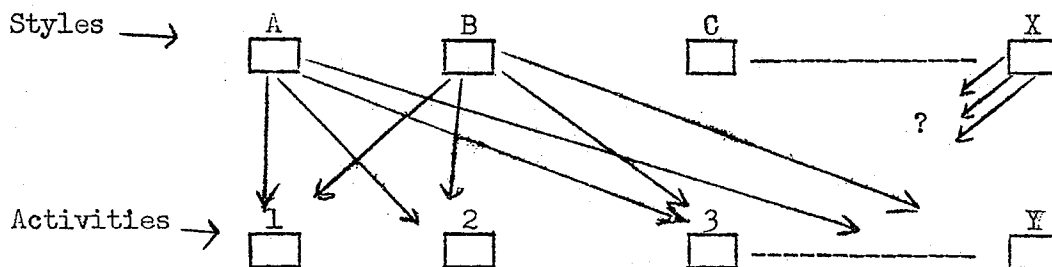


Fig. 2. Possible Relationships Between Styles and Activities

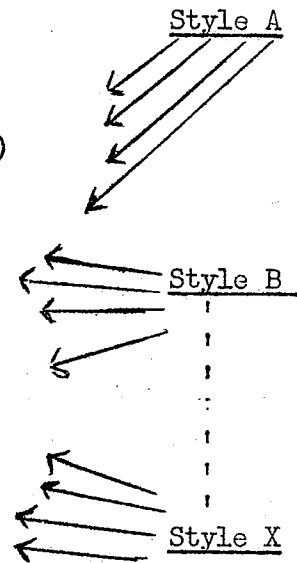
Observations indicate that it is possible to superimpose the use of any style in teaching any activity.

Furthermore, it is possible to use any style in teaching any component of the structure of the activity. For example: If "screening" represents a concept which is common to a family of games (not a specific screening in a specific game) then it can certainly be taught by "command" style. You just tell the student whatever has to be told about screening prior to the physical execution of the screening task.

Reciprocal teaching (the use of the small group) can be used during the execution of the task. Likewise, Guided Discovery can be used prior, during and after the execution of the task. (Prior to the execution - for comprehension purposes. During the execution for enhancing perception and after for assessing the information received and perceived during the performance).

Activity #1

1. The "Facts" of the activity (isolated instances)
2. Relationships (which make the activity what it is)
3. Preferences (due to roles; other conditions)
4. Concepts
5. Variations
6. Limits



IT IS POSSIBLE TO USE ANY STYLE TO TEACH ANY COMPONENT OF THE STRUCTURE OF AN ACTIVITY

A fundamental question arises - granted the multiplicity of relationships between structure of subject matter and styles of teaching - is there a way of determining preference? Which style would be efficient with which activity? Certainly efficiency here must be defined in terms of a specific purpose and a criterion. If the purpose is to move a class from point A to point B in the gym-

nasium and time is the criterion for efficiency, then you emit the necessary stimuli and elicit the expected response (Command Style). However, if the purpose is to explain to the class the concept of the fast break or the principles of the lever in gymnastics and the criteria for efficiency are comprehension and analytic process, then one of the discovery styles which engage high-power cognitive involvement might be preferred.

Let us examine several examples and look at the S-S.M. (Style-Subject Matter) relationships from different angles and different dimensions in learning.

Research in learning tell us about the importance of knowing results. Immediate feedback is an important principle in learning theories. Now - shooting, as an instance in the structure of basketball, provides the learner immediate knowledge of results. This knowledge is indeed concrete. It is inherent in the task and is quantitative in nature. The very nature of the task, its structure suggests the selection of teaching style. The learner, in this case, can teach himself. The structure of the activity not only offers a measurable result, it also induces learning adjustments for subsequent trials - (if previous trials met with failure) - adjustments in distance, height, direction, power, and so on.

It is, indeed, unnecessary for a teacher to tell (one of the characteristics of the Command Style) the learner to shoot higher after he has shot below the rim. (For further discussion on feedback see Rubb (19)).

How many other activities offer such opportunities for self learning and individual programming? Activities, the structure of which does not offer a quantitative feedback, necessitate the use of another style of teaching. In tumbling, most feedback is qualitative and, therefore, the learner (certainly a beginner) needs "augmented feedback" (2) that comes from someone else. Hence the relationship between the structure of tumbling and the reciprocal-teaching style, in this case, the use of a partner.

The examples thus far showed the S-S.M. relationship in terms of the execution of the physical task and discussed in light of one learning principle; feedback. There are other principles and other educational schema.

Bruner in his recent book Toward a Theory of Instruction (4) states: "To instruct someone in these disciplines is not a matter of getting him to commit results to mind. Rather, it is to teach him to participate in the process that makes possible the establishment of knowledge. We teach a subject not to produce little living libraries on that subject, but rather to get a student to think mathematically for himself, to consider matters as an historian does, to take part in the process of knowledge-getting. Knowing is a process, not a product."

One wonders whether this statement applies to physical education? What would be, then, the product in physical education? Scoring so many points on the playing field? Executing a handstand? Anything else? Then, what would constitute the process and consequently the knowing? Would it be the act of seeking to understanding the laws which govern performance? The logic in the development of an activity? Finding new movements? Regardless of definition - teaching for product or teaching for process requires the selection of different styles of teaching.

Bruner (4) further discusses learning and growth by proposing that "human beings develop three parallel systems for processing information and for representing it - one through manipulation and action, one through perceptual organization and imagery, and one through symbolic apparatus. It is not that these are "stages" in any sense; they are rather emphases in development". He calls the first system "enactive" the second "iconic" and the third "symbolic". Physical Education has certainly emphasized the "enactive" level. This is done through action. Since the structure of all activities provide action the command style (I say - you do!) seems quite appropriate. Historically, the command style has been most common in teaching physical activities. Perhaps it has been so due to great emphasis on product and less on process. (The end-product in physical education entertains the qualities of high-visibility and immediacy. These might have affected the emphasis on product. There must also be other social-psychological reasons for this phenomenon.)

What styles of teaching MUST be used when we identify those parts of the structure of subject matter requiring the iconic level? A level which is "principally

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governed by principles of perceptual organization and by the economical transformation in perceptual organization - techniques for filling in, completing, extrapolating".

Both the iconic and the symbolic system require more than just action. Indeed, the symbolic system calls for a variety of kinds and levels of cognitive operations. Raths in Teaching For Thinking (18) discusses thinking operations such as comparing, summarizing, observing, classifying, interpreting, criticizing, looking for assumptions, imagining, collecting and organizing data, hypothesizing, applying facts and principles in new situations.

Have you ever taught vaulting through the use of these "thinking operations"? Does the structure of vaulting lend itself to such operations? And if so, which style of teaching will invoke, promote and develop these operations?

What about wrestling, fencing, football, swimming, gymnastics, hockey, dance, volleyball and many others - do they offer opportunities beyond the action level?

In order to answer this question, it becomes necessary to analyze these activities not according to their "action-logical-order" but according to the cognitive operation that a given phase of the activity might require and promote. And only then it is possible to select the appropriate style of teaching which is perhaps best suited for this phase of the activity and the sought cognitive operation.

For example: In teaching vaulting one can select any group of vaults, randomly arranged or organized by a given criterion (such as Degree of Difficulty). This can be accomplished by demonstration and explanation of the performance details (both of these behavioral acts are part of the command style).

However, in teaching vaulting conceptually one might select the cognitive operation of comparing as the focus of the session and this affects the content, the order and the limits of the subject matter taught during this vaulting session.

One would have to select vaults that elicit the operation of comparing. These might be a most compact vault vs. a most extended vault. When asked, the student invariably discovers that these vaults represent the concept of variability



in postural arrangements along the minimum to maximum dimensions. He will also discover that there is a variety of alternative vaults that belong to this "family".

Similarly, one proceeds to other concepts and operations which are discovered and understood before, during and after the physical act of vaulting.

The need arises here to engage in a style of teaching that does all these things. Guided Discovery, Problem Solving, and perhaps other discovery styles appear to be most potent here. It is quite obvious that the Command Style will abort most of the operations and will certainly limit both the dimensions of the learning process and the insights into the structure of the subject matter.

To conclude - there is a need to examine the intricacies involved in a systematic search for integration of a style of teaching with subject matter. It is the task of a profession, undergoing a period of self examination, to study the role of teaching styles in shaping and defining the very structure of the discipline itself.

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