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AN EXPLORATORY STUDY OF EGAN'S FOUR STAGES OF EDUCATIONAL DEVELOPMENT AND THEIR APPLICATION TO CURRICULUM DESIGN IN PHYSICAL EDUCATION

by

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ABSTRACT

This study explored the possibility of structuring physical education curriculum utilizing Kieran Egan's educational development theory. It began with the premise that too often eclectic or non-theoretical approaches to curriculum design have resulted in fragmentary, inconsistent, activity programs. Although recent approaches to program planning at both the elementary secondary level are characterized by a great deal of diversity, they seem to lack an educational developmental perspective.

The study examines the role developmental theories have played in physical education curriculum design and in particular that of Piaget's theory of cognitive development. Research is cited to indicate the limitations of Piaget's developmental theory in terms of designing physical education curricula. Egan's theory of educational development is articulated and a comparison is drawn between a psychological theory such as Piaget's and an educational theory such as Egan's.

Egan's original and comprehensive educational theory outlines four developmental stages: mythic, romantic, philosophic, and ironic. The stages span the years from 4 to maturity. Educational aspects of development such as learning and motivation are dealt with through the characteristics of different stages which in turn lead directly to principles for organizing curriculum. With its educational orientation, the theory focuses upon four questions to which educators are interested in finding answers: What should our end-product be like? What should

we teach? When should we teach? How should we teach? His theory is pervaded with the question of the appropriateness of structuring subject matter to each developmental stage and with making connections from stage to stage to provide optimal growth through the entire educational process.

Utilizing the principles derived from each of the four stages, the study explores ways of structuring physical education curriculum. Application of the theory at each stage is discussed in terms of three broad activity areas: dance, gymnastics, and games. Egan's theory provides us with guidelines as to how best we might go about structuring activities and which particular activities might be most educationally suitable at each stage.

In summary, the study suggests that Egan's theory of educational development can offer the physical education curriculum planner a more meaningful educational-oriented paradigm from which to plan programs from kindergarten to grade twelve. Utilizing the main principles of Egan's theory will help structure more coherent developmental programs in the three domains of: affective development, cognitive development, and psychomotor development. Egan's theory appears to open new doors for designing physical education curricula.

TABLE OF CONTENTS

CHAPTER I

INTRODUCTION

Rationale

In 1980, the finding of the Physical Education Assessment in British Columbia suggested that physical education programs, at both the elementary and secondary level, are woefully inadequate. The assessment measured the psychomotor and cognitive achievement of approximately 3000 school students in grades 3, 7, and 11. The report indicated that: ". . . the motor ability and fitness results of the secondary females and of all elementary students generally received 'Weak' ratings . . .[1]

The results of the written test measuring knowledge and understanding of concepts in physical education indicated that improvement is needed at all grade levels, as a large percentage of questions received rating of 'less than Satisfactory'.[2] Another major finding of the assessment was that: "There is a disturbingly high incidence of overweight students, both male and female, at the three levels assessed."[3]

As a result of these findings, one of the major recommendations stated by the report was:

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[1]British Columbia Assessment of Physical Education, Summary Report, December 1979, p. 1.

[2]Ibid., p. 33.

[3]Ibid., p. 1.

> That the Ministry of Education, local School Boards, administrators, and teachers of Physical Education ensure that Physical Education programs provide an increased emphasis on student learning outcomes in the areas of physical fitness, motor ability, and knowledge and understanding of Physical Education. Particular emphasis should be placed on body fat reduction, cardio-vascular endurance, development of fundamental motor skills, and knowledge basic to Physical Education.[4]

The report summarizes the present status of physical education in the province and reveals the many problems that exist in the field. Manifested in this report, then, is the need for planners of physical education curriculum to seriously examine past approaches to curriculum development and explore future directions in curricula development.

Until about 1965, physical education curriculum planning concerns in Canada centered mainly around debates about which activities should be included in the program and which activities should be eliminated from the existing syllabus. Dimensions of program choices were based upon a somewhat limited variety of team games, gymnastics, and calisthenics. In 1965, Van Vliet, writing about 'the curriculum today' stated: "To a restricted program of calisthenics have been added other activities . . ."[5] Curriculum changes, according to him had taken place, not as a result of an expanding theoretical base, but rather as a result of new trends or movements such as Swedish gymnastics, or due to the availability of new facilities for games such as tennis or swimming. An holistic approach to curriculum design was rarely apparent, programs being little more than a potpourri of activities.

In 1974, Willgoose, writing about curriculum planning in physical

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[4] Ibid., p. 47.

[5] Van Vliet, M. L., Physical Education in Canada, (Scarborough: Prentice-Hall, 1965), p. 134.

education had this to say. "Although there are many better programs today than there used to be, there is a strong tendency to simply repeat each year what went on the year before."[6]

Today, the difficulties of designing a sound physical education curriculum have been acknowledged by most physical education teachers, co-ordinators, and planners at the ministry level. A particular difficulty in trying to deal with recommendations such as those mentioned in the Summary Report, is the general lack of agreement as to what constitutes a 'good' physical education curriculum or a physically educated person.

Recent approaches to program planning at the secondary level are characterized by a great deal of diversity. Some programs emphasize physical fitness. These types of programs stress those activities which provide vigorous exercise and improve the health and fitness parameters of: cardio-vascular endurance, flexibility, muscular endurance and strength. Such programs stress good health, the relationships between physical fitness and nutrition, body structure, and function and physiology. The criteria for making judgments about what should be included in such programs are based upon information from physiology, motor theory, medical reports and advice from fitness experts such as Cooper.[7]

Other programs emphasize life time sports and may, at the high school level, offer multi-activity programs. Students may choose from a

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[6] Willgoose, Carl E., The Curriculum in Physical Education, (Englewood Cliffs: Prentice-Hall Inc., 1974), p. 84.

[7] Cooper, Kenneth H., Aerobics, (New York: Bantam Books Inc., 1968).

wide variety of sport or recreation areas. These smorgasborg-type of programs often emphasize the 'play' aspect, the intrinsic experience, and the socializing objective. The theoretical bases of such programs are varied, drawing support from a variety of sources. However, at times, the conceptual framework is not at all clear. Siedentop states: "Some programs are so confusing that it is difficult to sort out a coherent set of ideas which might undergird the conduct of the program, and occasionally one finds that several contradictory ideas are present in the same program."[8]

Another contemporary approach, which at times overlaps with the 'play' approach, is the humanistic or person-oriented program. Hellison in his book, Beyond Balls and Bats, describes such a program.

> The humanistic approach to physical education emphasizes the search for personal identity that each of us must struggle with to the extent that culture permits and our self-awareness demands.[9]

Humanistic based curricula tend to emphasize the affective domain making it difficult for planners to precisely outline objectives and goals and therefore are often subject to the kind of criticism stated above by Siedentop.

A recent development that has gained popularity is termed the systems approach. Planners such as Singer and Dick[10] argue that this approach is based on the most recent technological, scientific, and educational developments. The systems approach focuses upon the type of

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[8]Siedentop, Daryl, Physical Education: Introductory Analysis, (Dubuque: Wm. C. Brown Company Publishers, 1976), p. 245.

[9]Hellison, Don, Beyond Bats and Balls, (Washington: AAPHER Publications, 1978), p. 2.

[10]Singer, Robert N., and Walter Dick, Teaching Physical Education: A Systems Approach, (Boston: Houghton Mifflin Co., 1974).

instructional strategy which enables students to achieve specific objectives, in a defined manner. "Meticulous organization and sequencing of physical education content by the teacher means that the student can proceed through the content at his own pace, with reinforcement built into the program each time he/she masters a particular skill or strategy."[11]

At the elementary level, curriculum concerns are colored by a diversity of ideas. Many programs have been influenced by Laban's theory of movement. These movement education programs organize activities around such concepts as body awareness, space, shape, and effort qualities. Other programs reflect the research and theory of people such as Delacato and Kephart[12] in the area of perceptual-motor experiences and their relationship to academic growth. Still others are based upon the perceived health needs of children. Topics such as body structure and function, nutrition, safety and disease, comprise a major portion of the curriculum. Current pressures to implement daily physical education at the elementary level are also affecting programs. As a result some programs are expanding the scope of activities to include aquatics, outdoor pursuits, and more, becoming almost multi-activity kinds of programs, whereas in some schools daily physical education has actually restricted the scope. A daily jogging route or disco fitness becomes the entire activity program.

Designers of curricula, whether concerned with 'movement' theory or 'play' theory, believe that their programs represent a 'Good' physical

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[11]Vertinsky, Patricia, Alternative Curriculum/Teaching Models and Their Utility in Implementing Secondary Physical Education Programs, mimeographed paper, U.B.C., 1979, pp. 8-9.

[12]Kephart, N. C., The Slow Learner in the Classroom, (Columbus: Charles E. Merrill Publishing Company), 1960.

education curriculum. As a result programs tend to differ greatly from province to province, district to district, and even school to school, in some areas. Difficulties in obtaining agreement as to what constitutes a 'good' curriculum are further compounded when one evaluates what takes place at the practical level. Administrators can influence programs by supporting decisions made concerning amount of time and money given to programs. Equipment and facilities available will also curb program decisions. Teacher biases have, in the past, and will in the future, affect curriculum programs. As Daughtrey has pointed out, "When the individual teacher selects activities for instruction, the resulting program usually consists of activities which he likes and which he feels sufficiently knowledgeable to teach."[13] Thus, if the teacher was experienced in the area of traditional games or sports, a year's program could include rugby, basketball, and track and field, supplemented by calisthenics.

Until the mid 60's, therefore, curriculum decisions were very much based on teachers' past experiences in sports and their personal activity preferences, even though textbooks did outline need and characteristics of children at different ages. Mostly, however, curricula planning was characterized by diversity of thought at both the elementary and the secondary level.

More recently, physical educators have begun to discuss in greater detail a K-12 approach toward physical education based upon an increased understanding of educational and psychological research. They have

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[13]Daughtrey, Greyson, Effective Teaching in Physical Education, for Secondary Schools, (Philadelphia: W. B. Saunders, 1973), p. 146.

begun to draw implication for designing curriculum from a variety of theories: psychology, learning, sociology, movement, growth and maturation, motor learning, and cognitive developmental theories. It is hoped that these theories can help organize curriculum more scientifically, moving it away from a mere smorgasborg of activities and advancing physical education to a place of importance in the school curriculum. Psychological theories were imported into education and implications for curriculum planning were often listed in order to keep up with other subject areas where theories were perceived to have an even greater impact. For example, Lenel states in her introduction to Games in the Primary School: "Education today is so much concerned with child psychology and development that there is an urgent need for their application to games teaching in line with other subjects."[14] The translation of these theories into physical education practices was meant to give curriculum designers more substantial focus in their quest for deciding upon which activities should be included and how best they should be teaching them.

Developmental and learning theories, it is hoped, may offer the curriculum designer a set of tools from which to make more rational program decisions. Oberteufer et al., suggest that:

> Physical education, . . requires the guidance of carefully formulated principles, without which it is easy to lose sight of what the program is attempting to do, and there is the danger of establishing a program which has no concern for the end result.[15]

Oberteufer goes on to say, "Physical education has suffered from being

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[14]Lenel, R. M., Games in the Primary School, (London: University of London Press, 1969), p. 7.

[15]Oberteufer, Delbert, and Celeste Ulich, Physical Education, (New York: Harper & Row, 1970), p. 318.

inundated with too many practitioners; not enough attention has been given to theory and reason."[16]

Today many new curricula are based upon developmental theories. There is a strong thrust toward the concept of scope and sequence in planning physical education programs. Willgoose defines these concepts. ". . . Scope refers to the breadth of the physical education curriculum--what should be taught at all grade levels. Sequence, . . . refers to the when of the curriculum"[17]--the skill levels in each activity. The new B.C. Secondary Physical Education Curriculum, for example, has utilized the scope and sequence idea for organizing the entire program. It emphasizes "progressive development" stating that: "To provide a developmental framework which will assist in accomplishing the goal and learning outcomes of the curriculum, the course content is divided into seven major activity categories."[18] This represents the scope of the program. For each activity it gives a sequence chart indicating four levels. "Each Activity Sequence Chart emphasizes a progression from foundational to more sophisticated movement patterns. Generally the movement patterns are categorized according to basic or individual skills followed by team or group activities . . ."[19] In essence, the activity charts themselves reflect a developmental focus in the psychomotor domain. This kind of levels approach is also being utilized

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[16]Ibid., p. 319.

[17]Willgoose, Carl E., The Curriculum in Physical Education, (Englewood Cliffs: Prentice-Hall, Inc., 1974), p. 136.

[18]Ministry of Education, Secondary Physical Curriculum and Resource Guides, Victoria, 1980, p. 6.

[19]Ibid., p. 15.

in organizing K-12 programs.

Jean Piaget's well defined theory of cognitive development has also had a tremendous impact upon current educational, including physical education practices. General principles from his theory have led educators into making instructional recommendations particularly in the areas of curriculum sequencing, curriculum content, and teaching methodology. Although there is no evidence of a strictly designed Piagetian physical education program, there are many aspects of programs that draw from Piaget's developmental theory, and consequently Piaget's theory will be used as a major example throughout this thesis.

Considerable attention has been given to Piaget's developmental theory by British writers dealing with physical education curriculum. James makes frequent reference to Piaget throughout her book.[20] She emphasizes three points of Piaget's theory. First, that children, especially at the early stages, begin to learn about the world around them through movements and that this learning occurs as a result of the child interacting with the environment. Physical education can aid in this development by providing a stimulating and varied environment. This is a conclusion whose desirability is readily agreed to without need to refer to a complex psychological theory.

Secondly, she emphasizes aspects of Piaget's theory which suggest that children should perform skills with an understanding of that skill as opposed to mechanical mastery of a skill. Her third point is that later learning builds upon movements learned at earlier stages. In other words, sequential learning or development is important.

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[20]James, J. Myrle, Education and Physical Education, (London: G. Bell and Sons, 1967).

Movement tasks or problems presented must therefore be appropriate to the child's developmental level. James recognizes the problem inherent in attempting to assess the child's stage of thought development. She emphasizes the importance of teachers being familiar with Piaget's stage theory, yet hesitates to provide direct implications. In fact, she warns that more investigation is needed. "It should be possible, through carefully controlled experiments, to find out whether physical movement of the kind expected of children adds to, or in any way affects, a child's concept of shape, size, time, measure, whole or part, amongst others, and at which stages of a child's development."[21]

Piaget's stage construct, the idea of sequencing skills is perhaps the most attractive feature of his theory for physical educators, yet it provides only vague guidelines for practice. James admits that "a great deal more about the relationship between physical activity and mental development should be known so that physical education can play a full part, with proper understanding, in the stages of the unfolding of the child's thought and intelligence."[22]

Arnold also suggests that physical education should draw from a variety of theories to help explain why we do certain things the way we do. He extracts from Piaget's theory the importance of providing the learner with a stimulating environment. The learner interacts with his immediate environment and, therefore, he learns through doing or as Arnold puts it: "The rich and stimulating variety of play activity, as Piaget acknowledges, is a basic source of intellectual growth."[23]

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[21]Ibid., p. 18. [22]Ibid., p. 21.

[23]Arnold, P. J., Education, Physical Education and Personality Development, (London: Heinemann, 1968), p. 54.

Again, direct implications for curriculum are not mentioned by Arnold. However, indirectly this latter concept of Piaget has had an important impact on educational dance and gymnastics as it developed in Britain.

Morison, in her book, A Movement Approach to Educational Gymnastics, reiterates Piaget's idea that, "Children's full and proper development depends on activity . . ." and that, "Movement is a child's first mode of expression and the first means of investigating its environment."[24] While no direct reference to Piaget is given, one might assume that his theory has shaped programs in movement education where there is an emphasis on abilities and interests of children at different stages of development and on learning through doing. Accompanying this movement approach was the exploratory method. It is clear that Piaget's theory has influenced the 'movement' thrust and many authors, such as Lenel, make a direct connection between Piaget's theory and physical education practice.

In her book, Lenel very carefully sets forth stages or progressions in games teaching for the primary school. Implications are drawn from Piaget's four stages of development. She suggests that it is the teacher's task to help move students from one stage onto the next through posing the right kinds of problems. For example, at the 'Intuitive' stage where children are only able to grasp one relation at a time and are unable to reverse actions, the teacher is to provide those kinds of activities which might move the child from throwing the ball in only one direction to exploring various ways of throwing the ball. During the 'Concrete Operations' stage, children begin to reverse their actions and

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[24]Morison, Ruth, A Movement Approach to Educational Gymnastics, (London: J. M. Dent and Sons, 1969), p. 1.

begin to make sense of more than one factor at a time. Lenel formulates implications for games and particularly rule making and strategy planning. Simple sequences or formations (1v1, 2v2, 3v3) are prerequisites to more complicated situations in order for the child to derive a meaningful experience from game situations. Lenel concludes that, "It is quite useless to attempt to teach children beyond their mental age and it is a crime not to teach up to it."[25]

The idea of children passing from one stage onto a more mature stage of development, appears the most advocated implication. Skills and movements should be appropriate for each stage; too difficult tasks would be a waste of time. The concept of the learner interacting with the environment, or learning through discovery appears to be another prominent implication drawn from Piaget's theory and adapted to movement and games, especially at the elementary school level. Specific concepts as reversibility have also been used as constraints in teaching games and gymnastics.

Typical American published textbooks of physical education seldom mention Piaget's theory, let alone elaborate and draw implications for curriculum planning. Take for example, Willgoose's up-to-date (1979) edition of The Curriculum in Physical Education, where Piaget's theory is only briefly mentioned without any attempt to relate it to physical education practice. The most comprehensive list of implications drawn from Piaget's theory can be found in Van Slooten's article. Here he devotes one page to describing the stages and concludes:

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[25]Lenel, R. M., Games in the Primary School, (London: Hodder and Stoughton, 1969), p. 29.

Piaget's theory applies mainly to the cognitive realm. However, much of what has been outlined for the adolescent by Piaget has implications for the field of physical education.

Implications of Piaget's Theory for Physical Education:

1. Play should be used for understanding the physical and social world.
2. There is an interest in rules and regulations.
3. Curiosity finds expression in intellectual experimentation rather than active play.
4. Childhood ends during this phase and the children are interested in adult activities.
5. Team games should play an important role.
6. As many new experiences as possible should be introduced.
7. The opportunity for cognition must be available and may be applied in a more intellectual approach to physical education.
8. An understanding about adolescent growth and development should be discussed and presented.
9. Creative activity such as gymnastics and dance would be beneficial.
10. Structure is very important in organization. Structured teaching would be important.[26]

Although this list of implications appears rather impressive, upon closer examination it becomes clear that Van Slooten fails to make connections between what Piaget actually says and the implications he has formulated. That is, are they what Van Slooten reads from Piaget's work, or are they mere extrapolations based in part on what Piaget says and in part, on common sense?

Another author who has recently attempted to draw implications for physical education from Piaget's theory is Burton. Her focus is elementary education. After a description of Piaget's four stages and his theory of play, she presents three educational implications.

1. The child must be developmentally ready to assimilate the kind of information being presented;
2. certain kinds of experiences are essential to optimal development of the child during each developmental period; and

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[26]Van Slooten, Philip H., "Four Theories of Development and Their Implications for the Physical Education of Adolescents," The Physical Educator, (December 1974): pp. 182-183.

3. the child's ability to learn in each successive stage is partially determined by the adequacy of his or her experience.[27]

Here again we see the emphasis on the 'readiness' aspect of Piaget's theory. In the second implication, she does not specify which 'kinds of experiences' are best suited for each stage other than suggesting that "children be exposed to a variety of action patterns they can imitate,"[28] and that "group activities and free interchange between children are essential aspects of the elementary-school learning environment."[29] The latter recommendation is to help the children become less ego-centric. Without elaborating any further, one would still remain in doubt as to exactly which kinds of learning experiences are necessary for each stage. This kind of vagueness and generality seems to be prevalent among Piagetian writers. They all seem to agree that Piaget's theory has tremendous importance for physical education, but fail to establish precise guidelines for structuring lessons or units.

David Elkind who has spent many years studying Piaget's work and teaching children subjects from a Piagetian perspective has this to say about movement curriculum.

> In these domains (movement and gymnastics) as in others, . . . children can really do graceful, appealing work if their natural spontaneity can be encouraged. But this encouragement is more than putting on a record and telling the children to dance, it involves setting a mood and a theme for which the music and the movement are a natural accompaniment.[30]

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[27]Burton, Elsie Carter, The New Physical Education for Elementary School Children, (Boston: Houghton Mifflin Co., 1976), pp. 30-31.

[28]Ibid., p. 27. [29]Ibid., p. 30.

[30]Elkind, David, Child Development and Education--A Piagetian Perspective, (New York: Oxford University Press, 1977), p. 217.

Once again we see the emphasis on the 'natural'-spontaneous type of learning. He clearly suggests the children should be allowed to move freely and creatively, rather than being told how to perform certain movements.

Those writers who mention Piaget's theory seem to accept it uncritically, except for James, and assume that it has relevance for the field of physical education. Frequently mentioned implications are for: 1) Curriculum sequencing and readiness-- Children pass through stages and, therefore, skills must be appropriately arranged and sequenced (as in games skills). Children should be taught to their level of readiness and not beyond. 2) Teaching methodology--Children learn by interacting with the environment and, therefore need to be exposed to a variety of situations for optimal growth. Learning by doing or discovery learning is often advocated.

The available literature seems to indicate, that thus far, Piaget's developmental theory has had relatively little direct application to physical education curriculum. Authors referring to Piaget's theory have failed to articulate precise guidance concerning educational development in physical education. Furthermore, current research suggests that it is premature to translate his theory into educational practice as the main constructs of his theory are being seriously questioned.[31] Chapter two will discuss the limitations of Piaget's developmental theory in more detail, and suggest that developmental theories such as Piaget's or the developmental scheme of scope and sequence, are insufficient to provide a solid theoretical base for curricula planning in physical education. Since Piaget's theory may be considered a psychological rather

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[31] See: Brainerd, Kuhn, Lawton, and Hooper, Donaldson et al. For a detailed discussion of this point see pp. 25-35.

than an educational theory, it may contribute less to curriculum design in education than has hitherto been claimed. Egan, for example, makes a clear distinction between psychological and educational theory. According to Egan, curriculum development or ". . . educational development involves a dialectical interaction between intellectual or psychological development and a logical sequencing of some discipline area."[32] Thus, if we could utilize an educational theory that encompasses the above aspects, it would seem to allow for a more rational approach to curriculum planning.

Historically, at least four major developmental theories focusing upon the educational aspects of child development have been formulated. Plato in the Republic, and Rousseau in his Emile provide us with detailed theories of educational development. Whitehead, in his book, Aims of Education, presents his three-phase stage theory of educational development. However, this outline which he calls the rhythms of education, is only sketched out very briefly. The fourth theory is that explicated by Egan in Educational Development. Drawing from a wide variety of sources, Egan has formulated what he considers to be a comprehensive educational theory of development. As an educational theory it outlines characteristics of four developmental stages. Its aim is education oriented and, therefore, focuses upon those questions and problems to which educators are interested in finding answers. Four basic questions concerning education are answered: What should our end-product be like? What should we teach? When should we teach particular things? How should we teach things? His theory is pervaded with the question

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[32]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 152.

of the appropriateness of structuring subject matter to each developmental stage and with making connections from stage to stage to provide optimal growth through the entire educational process. Unlike psychological developmental theories which may occasionally have implications for curriculum design, Egan's educational developmental theory guides us directly in making practical and reasonable decisions in curriculum planning. Although Egan applies his ideas mainly to social studies, his approach appears to have much to offer to the area of physical education.

This study will investigate the role developmental theories play in physical education curriculum design and explore the premise that Egan's theory of educational development can offer a more appropriate perspective from which to organize a physical education curriculum by utilizing the main principles of his theory to structure a new kind of physical education curriculum.

Chapter two will describe Piaget's theory and the limitations of his theory for designing physical education curricula. It will also discuss how an educational developmental theory such as Egan's differs from a psychological theory. Chapter three will explicate Egan's four stages of educational development. Chapter four will explore some possibilities for organizing physical education curriculum using principles derived from the characteristics of each stage.

Purpose of the Study

The purpose of this study is:

1. To examine Piaget's theory of cognitive development and discuss the limitations of his theory for designing physical education curricula.

2. To describe what constitutes an educational developmental theory and how it differs from a psychological developmental theory such as Piaget's.
3. To articulate the four stages of Kieran Egan's educational developmental theory. From the characteristics of each stage, principles for organizing physical education curricula will be discussed and appropriate activities will be identified.

CHAPTER II

DEVELOPMENTAL THEORIES AND PHYSICAL EDUCATION CURRICULUM DESIGN

Piaget's Theory of Cognitive Development

In recent years education has relied heavily on theories from related disciplines such as psychology, sociology, and others, to help explain educational phenomena. Much extrapolation has taken place from developmental psychology and in particular, from Piaget's cognitive development theory. Through his prolific writings, Piaget has become by far the most prominent of the developmental theorists and has had the most profound effect on both theory and practice of instruction.

Jean Piaget confesses that he is not an educator and that his focus is genetic epistomology. Nonetheless, educators have been most enthusiastic about translating his theory into recommendations for education and currently his theory is gaining popularity for developing curricula at the elementary and pre-school level. The first part of this chapter will give a general outline of his description of intellectual development and the second part will discuss the limitations of its possible applications for developing curricula.

As Piaget's first interest and research was in the field of zoology, it was quite natural that he viewed mental development as being essentially a process of adaptation to the environment. He was concerned

with uncovering the developmental changes in the individual (ontogenetic), in cognitive functioning from birth to adolescence. "Piaget wants to discover--and explain--the normal course of development. For he believes that there is a normal course: a sequence which we all follow, though we go at varying speeds and some go further than others."[1] Intelligence is then seen as the process of adaptation and organization.

Four concepts help explain how mental development occurs: schema, assimilation, accommodation, and equilibrium. Schemas are the cognitive structures by which individuals intellectually adopt to and organize the environment. They can be thought of as the concepts, categories, or strategies from which behavior flows when interacting with the environment. Adaptation to the environment involves two processes called assimilation and accommodation. Assimilation is when the environment fits into the already existing schemata. When the intellectual structures or schemas can not adjust to the environment then a change or creation of new schemata takes place. This is called accommodation. Equilibrium is the balance reached between assimilation and accommodation. According to Piaget, cognitive development takes place by a series of equilibrium and disequilibrium states.

Piaget noted that at various stages of development identifiable patterns of behavior could be observed. As a result of his studies, he formulated four main stages, each stage sharing common developments or structures. Progress through the stages is dependent on the development of the earlier stages. The order is the same for all children but the rate at which they proceed through stages can vary. Age spans for

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[1]Donaldson, Margaret, Children's Minds, (Glasgow: William Collins, 1978), p. 130.

stages are normative.

1. Sensori-motor Stage (birth to 2 years)

During the first few months after birth the infant is busy discovering the relationship between sensations and motor behavior. At first he is only capable of inborn reflex responses, but by the end of this stage he will have built on to these reflex schemas and will be capable of flexible patterns of behavior. He will be able to act intentionally. For example, he realizes that when he shakes a rattle it will make a noise.

Closely linked with this development is the notion of the child being egocentric. Initially, the child is unable to differentiate himself from the rest of the world around him. Gradually, he becomes more aware and begins to distinguish himself from the objects around him. By age 2, he has constructed a picture of the immediate environment and objects which make up his immediate world.

Another characteristic of this stage is that of learning object concept or object permanence. Up until six months the child will not make any effort to reach out for a toy that has been hidden under a handkerchief. It is not until about 10 months that he will search for the object that was hidden. By the end of the stage he will consistently look for the object and will have acquired the development of object permanence.

2. Preoperational Stage (2 - 7 years)

a) Preconceptual thought

During this stage, intellectual behavior moves from the sensori-motor level to the conceptual level. The rapid language development

that takes place makes it possible to explore the world through words and images. Activities such as imitation and play become important during this stage. By and large, the child is still very much egocentric. The world still revolves around him and he assumes everyone thinks as he does.

b) Intuitive thought, 4 - 7

"Lacking mental operations, the child cannot succeed during this second period in constituting the most elementary notions of conservation, which are the conditions of logical deductibility."[2] Thus two balls of clay appear the same size, but when one is rolled into a long shape the child will say that it has more clay. The child has difficulty with these kinds of conservation experiments (of mass, weight, and volume) because he is relying on visual perceptions. For example, a row of checkers containing the same number as another row but with bigger spaces between each checker, will appear to the child to have a larger number of checkers. Gradually toward the end of this stage the child will have developed the thinking tools to understand the conservation concepts.

During this stage the child also continues to be essentially egocentric. Thought continues to be irreversible suggesting that the child can not follow a series of reasonings and then reverse to the starting point.

3. Concrete Operational (7 - 11 years)

In this stage the child develops the use of logical thought. He is now able to conceive quantity, and recognize that volume is related

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[2]Piaget, Jean, Science of Education and the Psychology of the Child, (New York: Penguin Books, 1977), p. 32.

to shape, (therefore, short fat containers can hold as much tall thin containers, and he can solve conservation of substance problems). Along with these characteristics he is able to classify objects, organize them in a series (i.e., length, pattern) and understand relational terms (A is longer than B). However, his thinking is still 'concrete' as he thinks logically through the use of visible, physical objects.

Piaget has outlined five specific operations that hold the properties of concrete operations which children's thinking in this stage can handle.

1) composition--if you add one number to another number you get a third number. (x + y = z)
2) reversibility--is an operation whereby every logical or mathematical operation can be cancelled by an opposite operation. (4 + 3 = 7, 7 - 4 = 3)
3) associativity--is an operation that combines several classes and where the order is not important. (a + b) + c = a + (b + c)
4) identity--a quantity can be nullified by combining it with its opposite. (A - A = 0)
5) tautology--a class added to a class yields the same class. (A class of dogs added to a class of dogs = a class of dogs)

Although the child has gained greater mental mobility in this stage he is still constrained by having to use objects in thinking about problems. He is also limited in that he is capable of moving from one thing to the next as opposed to other kinds of combinative operations.

4. Formal Operations (11 - 15 years)

In formal operations the cognitive structures become qualitatively 'mature'. In Piaget's own words:

> This period is characterized in general by the conquest of a new mode of reasoning, one that is no longer limited exclusively to dealing with objects or directly representable realities, but also employs 'hypotheses', in other words, propositions from which it is possible to draw logical conclusions without it being necessary to make decisions about their truth or falsity before examining the result of their implications.[3]

The typical test is to discover combinations from five glasses of colorless liquids to obtain a yellow color. The student at this stage goes about finding the answer systematically. Another problem that illustrates formal operational thinking is: "Edith is fairer than Susan. Edith is darker than Lily. Who is the darkest?"

The child that has reached this stage will have no problem in obtaining a quick answer even though the problem is verbal. Thinking is freed from the necessity of seeing the concrete object. As easily as he handles this kind of problem he is capable of constructing arguments, generating hypothesis and theories and dealing with one or more variables at a time (mass and volume). He can also now think in terms of the future, considering alternatives and possibilities beyond their present reality.

Piaget uses the INRC logical group to describe the structures underlying formal operational thinking. These logical skills are performed on operations from the concrete operational stage. The adolescent can now deal with the logical relationships of identity, negation, reciprocity, and correlation.

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[3]Ibid., p. 33.

Limitation of Piaget's Theory for Providing Implications for Curriculum Design in Physical Education

The first limitation has been pin-pointed by those critics who have questioned the essence of his theory.[4] This is, what exactly is Piaget's stage theory describing? Piaget, of course, claims that he is describing a 'natural' process of intellectual development. And for him, development leads and determines learning. The distinction is important to the educator in planning curricula. As Egan states:

> Whether Piaget is describing something necessary about human cognitive development, or something contingent upon educational and socializing procedures of particular times and places, or some mixture of the two, is a question of importance to psychologists as well as educators. . . . If the description is of a developmental process which is contingent upon particular forms of education and socializing then we can change the process by changing methods of educating and socializing. Put at its crudest, if Piaget is describing a process determined by education, then educators can learn nothing from him because he is merely observing the results of what they have taught.[5]

Until this question has been given further attention, the theory offers little assistance to the curriculum planner.

There are others such as Brainerd who refute the stage concept, insisting that no evidence has been found to support it. He has written several articles and books in which he has subjected aspects of Piaget's theory to rigorous scrutiny. In one of his earlier articles, 1973, he reviewed the neo-Piagetian training experiments and stated that there is enough evidence to "conclude that no support for a stage view of cognitive development has been derived from the neo-Piagetian training

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[4]Egan, Kieran, "Further Comments on Piaget and Education," Harvard Educational Review, Summer, 1980.

[5]Egan, Kieran, Education and Psychology, in press, p. 127.

literature."[6] In other words, such Piagetian concepts as reversibility, conservation, and others were evidenced in children at earlier stages than suggested by Piaget. These kinds of experiments cast doubt on Piaget's claim that he is describing a 'natural' process of development. Hence, Lenel's implications for games based on Piaget's notion of reversibility should be carefully reviewed.

Researchers have not only questioned the ordering of the concepts, but have also challenged the very concepts Piaget uses to represent a stage. Margaret Donaldson in a fascinating book on how children's minds develop, has critically examined Piaget's theory of intelligence. She argues in her book ". . . that the evidence now compels us to reject certain features of Jean Piaget's theory of intellectual development."[7] Donaldson has provided evidence from various experiments that illustrate that a) "children are not at any stage as egocentric as Piaget has claimed" and b) "children are not so limited in ability to reason deductively as Piaget--and others--have claimed."[8] It would, therefore, indeed be premature to base curriculum decisions upon Piaget's theory in the light of these new findings. Thus implications drawn from this egocentric notion to physical education, such as Burton's, are not justified, and could have a detrimental effect on curriculum organizing.

Another problem inherent in applying Piaget's theory to education

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[6]Brainerd, Charles J., "Neo-Piagetian training experiments revisited: Is there any support for the cognitive-developmental stage hypothesis?" Cognition 2 (1973): p. 366.

[7]Donaldson, M., Children's Minds, (Glasgow: William Collins, 1978), p. 9.

[8]Ibid., p. 58.

lies in the fact that his work, his descriptions of the various stages are, "almost entirely descriptive," as Egan has noted. Piaget has, as a result of numerous tests and observations, collected data which he has woven together to explain cognitive--stage by stage--development. Educators attempting to assess students' cognitive levels, run into difficulties due to the very precise way Piaget has described particular concepts. Driver makes this point when discussing science curriculum and Piaget's stage theory. He states the problems involved in selecting tasks which are valid for testing formal operations as a whole considering that each test, tests only a very specific skill, therefore, generalizing the students' ability to other tasks would not be valid. She concludes:

> To make predictions on the overall level of performance of pupils in a range of curricular activities appears completely unjustified. Many people working in the area of cognitive development admit that the phenomenon of 'formal thinking' exists, yet like a spectre it eludes capture.[9]

If we cannot capture, or assess, a student's thinking level, let alone a class of students, then it is impossible to structure sound curriculum to match cognitive level.

In 1978, Brainerd critically examined the implications of Piaget's cognitive developmental theory for curriculum sequencing, content, and teaching strategies. His argument is that there does not exist such a thing as a stage of cognitive development but rather that the theory is purely descriptive and attempts to explain specific behaviors. Thus, those authors in physical education, such as Lenel, who recommend that we should not attempt to teach children things that are ahead of their

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[9]Driver, Rosaline, "When is a stage not a stage? A critique of Piaget's theory of cognitive development and its application to science education," Educational Research, 21 (November, 1978), p. 58.

current stage of cognitive development are lacking empirical evidence for suggesting such implications. As Brainerd puts it:

> Since stage and behavior are the same thing, what the recommendations actually say is this: We should avoid teaching children concepts that they do not already possess. If this statement were to be taken seriously, one wonders what the point of instruction would be.[10]

He clearly pinpoints the dilemma that proponents of cognitive developmental curricula confront.

If we are to provide the 'right kind of learning experiences' at each stage as Burton suggests we should do in physical education, then we must be able to diagnose each child's stage of cognitive development. Because cognitive stages are merely descriptive stages, we could only examine certain concepts that children have or have not reached. But, if these measures of specific behaviors of various stages are themselves questionable in the light of recent research then, indeed, the theory has little to offer curriculum planners in physical education.

In the light of this evidence, Van Slooten's list of implications, based mostly on the formal operational stage also remains questionable. Those physical education authors that agreed upon the importance of matching movement tasks to developmental stage were rather reticent in articulating how this was to be done. They did not foresee the problems inherent in making recommendations from Piaget's theory to physical education. Furthermore, Piaget's theory gives us this precise detail on various concepts at each stage, but tells us very little about the movement from stage to stage.

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[10]Brainerd, Charles J., "Cognitive Developmental and Instructional Theory," Contemporary Educational Psychology 3, (1978): p. 44.

Piaget's theory is his inability to prescribe a particular type of learning environment. Most Piagetian curriculum planners agree that 'discovery learning' or 'activity learning' is the best method to foster growth in the developmental stages. Proponents of Piaget's theory, and developers of Piagetian curriculum for preschools as Kamii and DeVries have gone so far as to advocate development through 'self-directed activity'. In other words, the teacher merely provides the optimal environment in which development may occur. Kuhn criticizes Kamii and DeVries' program, on the grounds that it is poorly defined and that there is no theoretical justification of the program, especially when prescribing teaching methods.

> Since, by and large, we do not know very much, the recommendations that children be left alone to direct their own learning activity, as intuitively appealing as the notion may be, runs the risk of being found a meaningless educational prescription.[11]

Egan also argues that there is no proof of the superiority of 'discovery-learning' as compared to other methods. "Despite the enthusiasm of the Piagetian innovations, the four major Piagetian programs from which we have evaluation data show no significant differences in children's performance from that in traditional school, . ."[12] Brainerd's research has revealed that the self-discovery method is not superior to the traditional method. He summarizes, "If traditional learning strategies work better than active ones, even with Piaget's own concepts,

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[11]Kuhn, Deanna, "The Application of Piaget's Theory of Cognitive Development to Education," Harvard Educational Review, 3 (August, 1979), p. 351.

[12]Egan, Kieran, "Further Comments on Piaget and Education," Harvard Educational Review, Summer, 1980, p. 9.

why should we seek to replace them with active procedures?"[13] These findings reveal that physical educators who advocate using discovery methods as a result of Piaget's writing, need to review current research. In fact, Burton mentions that, "Piaget's work makes repeated reference to infantile and childhood behaviors that involve movement, and the relevance of his theoretical formulations to the content of this book is unmistakable."[14] It is obvious that children in physical education learn concepts through movement, however, it is questionable whether the discovery approach produces better results than the direct or traditional approach. Research seems to tell us that the discovery approach is not necessarily superior.

The confusion and ambiguity that results for extrapolating such ideas as 'discovery learning' from the theory is evident in the Piagetian curriculum programs where some proponents use the discovery approach while others use the traditional approach. Hence, it seems like the theory has little to contribute to the educator planning teaching strategies as part of the total curriculum.

One frequently mentioned implication of Piaget's theory for education has to do with the notion of readiness. Readiness implies that the child has reached the cognitive level to assimilate certain materials or skills presented to him. Thus the curriculum planner should plan activities say, in physical education that match the developmental stage of the child. As already pointed out, it is difficult enough to assess

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[13]Brainerd, Charles J., "Cognitive Developmental and Instructional Theory," Contemporary Educational Psychology 3 (1978): p. 47.

[14]Burton, Elsie Carter, The New Physical Education for Elementary School Children, (Boston: Houghton Mifflin Co., 1976), p. 26.

one child's thinking level let alone thirty, even if the teacher is thoroughly familiar with Piaget's stages. Even if he were able to pinpoint that one third of a class could solve conservation problems of weight, one third could conserve volume, and one third could conserve quantity, of what value would this information be for planning basketball, dance, or gymnastic lessons? In connection with readiness, it is often stated that we should not expect children to achieve beyond their level of readiness. This could only have a pernicious effect as research has shown that children are capable of learning concepts earlier than prescribed by Piaget in his stage theory. Egan concludes that ". . . Piaget's theory can provide only rather imprecise guidance as a readiness model. Seeing that the data from which the educational implications are derived are themselves very dubious, it would be foolhardy indeed to allow them to guide our teaching and curriculum planning."[15]

One of Piaget's earlier critics, Sullivan, suggests that educators have been too hasty in extrapolating ideas from Piaget's theory and applying them to structure and sequencing of subject matter in a curriculum before examining both the research and theory very critically. This hastiness, he added, would lead to harmful educational practices. He states that using Piaget's stages as indicators of "learning readiness," "seems premature and needs more careful consideration on both the research and theoretical level."[16]

The ambiguities of Piaget's developmental theory are most evident

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[15]Egan, Kieran, Education and Psychology, in press, p. 164.

[16]Sullivan, Edmund V., Piaget and the School Curriculum--A Critical Appraisal, (Toronto: The Ontario Institute for Studies in Education, 1967), p. 33.

to those who have attempted to structure and sequence curricula along such lines. Recently there have been several attempts made to structure preschool curricula using Piaget's stage theory. Four major experimental cognitive-developmentally preschool curricula have been implemented. These are: 1) Lavatelli (1970, 1971)--the Early Childhood Curriculum; 2) Weikart (1973)--the Open Framework Program; 3) Kamii and DeVries (1974)--Piaget for Early Education; 4) Bingham-Newman, Saunders, and Hooper (1976)--the Wisconsin Piaget Preschool Education Program.

Brainerd (1978), Lawton and Hooper (1978), and Kuhn (1979) critically analyze these early childhood programs based on the developmental stages. All three authors point out that there is no evidence--no significant difference between these developmentally based curricula and the traditional curriculum. Brainerd, 1978, concludes that: "While there are some positive findings there does not seem to be any evidence that would convince a prudent reader that the lofty claims made by the developers of Piagetian curricula are true. There appears to be no proof of either short or long-term superiority in Piaget-instructed children."[17] Most recently Kuhn, 1979, reviewed experimental preschool curricula that derive their educational objectives from Piaget's development stage sequences. She argues "that the difficulties encountered in attempting to apply Piaget's theory of cognitive development to education are revealing of the ambiguities that exist within the theory itself."[18] In her summary she states that: "To the extent

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[17]Brainerd, Charles J., Piaget's Theory of Intelligence, (Englewood Cliffs: Prentice-Hall, 1978), p. 295.

[18]Kuhn, Deanna, "The Application of Piaget's Theory of Cognitive Development to Education," Harvard Educational Review, 3 (August, 1979), p. 346.

developmental stages are not fully defined, the recommendation that curriculum be based on them becomes an empty one."[19]

Much of the problem lies in the curriculum goals or objectives. If objectives of many of these pre-schools are to promote the acquisition of concrete operational concepts, and Piaget postulates that these concepts develop naturally, then logically we have a 'serious ambiguity'. Other curricula, particularly in the sciences and mathematics have structured their programs around activities which will develop formal operations. These have been criticized to the extent that they are restricted to Piaget's range of logico-mathematical concepts and to the extent that they utilize activity-based teaching strategies to develop formal thought without questioning whether these strategies would best promote cognitive development.

The above points have focused upon some of the limitations of applying Piaget's developmental theory to curriculum development. The evidence seems to indicate that it does not provide us with secure guidelines for structuring and sequencing content, for developing sound teaching methods or as an indicator of readiness. Current research strongly questions the concepts that Piaget has used to characterize each stage. Therefore, curricula based on such insecure data will surely remain insecure, and problem saturated. Evaluation of pre-school and other Piagetian-based curriculum projects have not shown substantial gains. Brainerd summarizes this way: "On the whole, one is forced to conclude that Piaget-oriented educators have failed to establish a case for restructuring traditional curricula along Piagetian

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[19] Ibid., p. 346.

lines."[20]

Physical education has, for one reason or another, made few attempts in applying Piaget's recommendations to its curriculum. In light of present evidence, it may be unproductive to investigate any further connections between Piaget and physical education curriculum. It may be best, then, that we examine other viable theories that may offer more concrete guidelines.

Proponents of Piaget's theory such as Sigel and Cocking, 1977, admit that many educational issues are not "directly broached" in the theory and that more research is needed to support certain notions. Nevertheless, they, as many other followers, suggest that the problem lies in translating the developmental theory into educational pedagogy. Other educators think that doing more research on such a topic would be unproductive.[21] For example, Egan suggests that psychological theories such as Piaget's have little to offer education. "At present, it seems that educational research is dominated by psychological theories that lead to knowledge of psychological value and interest but offer only occasional 'implications' for education."[22] He claims that what we need is an educational theory of development ". . . which focuses on the educational aspects of development, learning, and motivation and which directly yields principles for engaging children in learning, for unit

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[20]Brainerd, C. J., Piaget's Theory of Intelligence, Englewood Cliffs: Prentice Hall, 1978, p. 298.

[21]Egan, Kieran, "What does Piaget's theory describe?" Harvard Educational Review, Summer, 1980, p. 10.

[22]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 5.

and lesson planning, and for curriculum organizing."[23] Egan has formulated just such a theory.

The following section will describe how an educational theory differs from a psychological theory and why an educational developmental theory such as Egan's is more apt to assist us in making decisions in designing physical education curricula.

What is an Educational Theory of Development?

Recognizing some of the limitations of Piaget's developmental theory, it might be more appropriate for the designer of physical education curriculum to focus his attention in the direction of educational theories instead of psychological theories. This section will examine the nature of an educational theory and how it may provide us with better criteria for constructing physical education curricula than psychological theories.

According to Egan, "the function of an educational theory is to tell us how to design a curriculum which will produce educated people."[24] Such a theory will answer four questions: 1) what content should we teach to produce such people? 2) how should we teach such content? 3) when should we teach particular things? 4) what kind of person will our end-product resemble? Educational theories of development such as Plato's, Rousseau's, and Whitehead's, have focused on these four questions, although the last, only in a brief manner. Egan, in Educational Development, has formulated his own educational theory which encompasses

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[23] Ibid., p. 6.

[24] Egan, Kieran, Education and Psychology, in press, p. 203.

these questions. Further examination of these four questions illustrates how educational theories differ in focus from psychological theories.

1) Educational end-products. An educational theory will be explicit about the way we should design curricula to produce educated people. Hence, its end-product will be a kind of person, rather than a kind of thinking as in Piaget's theory. The end-product of Piaget's theory is a person who can compute the operations of the formal stage. His theory is describing precise limits of cognitive thinking (what is), whereas an education theory is concerned with prescribing the developmental process necessary to produce educated people (what ought to be). Psychological theories aim at precisely characterizing and scientifically isolating certain processes. Educational theories, although referring to psychological aspects, are more general about the processes of the developmental stages but very precise and prescriptive about the kind of person resulting therefrom. The end state of an educational theory is an ideal kind of educated person, which is achieved by hard work and in most cases seldom achieved at all. Whereas, the formal operational stage, being the end product of Piaget's theory, is supposed to be achieved by most people more or less naturally or spontaneously.

If an educational theory is going to prescribe the end-products then it must be value-laden. Value decisions must be made at each stage along this developmental process to reach the stage of educated maturity. Here it differs again from psychological theories. Psychological theories claim to be value-neutral or objective.

Consequently, psychological theories with their distinctively scientific focus have little to offer the curriculum designer in the

way prescribing the nature of the end product. Hence, a sound, sensible educational program can only be constructed utilizing an educational developmental theory.

2) What should we teach? The function of an educational theory is to tell us what content we should teach at each stage to produce a particular kind of educated person. The program will reflect the kind of person we want to create. In this area of content, psychological theories offer us little guidance. Theories like Piaget's are not concerned with content, but rather with a restricted range of concepts. This restricted range of concepts often acts as 'restrictors' limiting what may be taught at certain stages. For example, in history, the topic of religion,[25] which appears to require the capacity of sophisticated formal operations, may be completely dismissed in the elementary curriculum under the justification that younger children are incapable of grasping such sophisticated concepts. An educational theory, however, will show the teacher how these seemingly complicated topics can be broken down and taught so that children gradually can grasp and make sense out of almost any topic presented. In physical education, understanding the functions of heart and the circulatory system and their relation to exercise are usually considered rather complex concepts for a younger child to comprehend. The film, "I am Joe's Heart," is an excellent example of how difficult concepts can be made accessible to children. The film, through humor, personification, and animation presents concepts to the child's level of understanding in much the same way that the television program Sesame Street captures the interest of

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[25]Egan, Kieran, Education and Psychology, in press, pp. 22-27.

children.

Educators and physical educators do want to know what they should be teaching at particular stages. The topic of what content to include is open to much controversy and often abused or neglected. As Daughtrey affirms, "If there is one phase of teaching physical education that stands out as the most important and to which the least attention is given, it is the selection of activities for the program."[26]

It seems that if physical educators want to know what content may best achieve their educational ends, they must develop an educational theory and not draw implications from a psychological theory.

3) When should we teach particular things: Educational development is a process. It is a process of progressing through qualitatively different stages to arrive at maturity. At each stage the child makes sense out of the world around him in a slightly different manner.

That the child's thinking is substantially different from that of an adult's seems obvious enough. However, as Whitehead had noted, this fact has not been given enough attention by curriculum planners. He writes:

> . . . the pupil's progress is often conceived as a uniform steady advance undifferentiated by change of type or alternation in pace; for example, a boy may be conceived as starting Latin at ten years of age and by a uniform progression steadily developing into a classical scholar at the age of eighteen or twenty. I hold that this conception of education is based upon a false psychology of the process of mental development which has gravely hindered the effectiveness of our methods.[27]

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[26]Daughtrey, Greyson, Effective Teaching in Physical Education, for Secondary Schools, (Philadelphia: W. B. Saunders Co., 1973), p. 144.

[27]Whitehead, Alfred North, The Aims of Education, (New York: Mentor Books, 1961), p. 28.

Likewise in physical education, when striving to obtain a certain level of physical fitness we prescribe similar jogging programs for Grade One and each grade thereafter. In each grade until Grade Twelve, students are to get a bit stronger and faster. This method of structuring physical education activities for the young based on adult conceptions happens all too often and can be dangerous. It is dangerous in the sense that children differ from adults anatomically, psychologically, and physiologically and, therefore, from the child's viewpoint he will likely become bored with the activity if it is not organized to suit his level of understanding and maturation. Imposing the adult version of the game as in the case of ice hockey, football, field hockey, or baseball can also be condemned for it may cause physical injury or insecurity which will deprive the child of the joy of movement.

This form of structuring does not take into consideration certain stages or 'rhythmic pulses' of development. Whitehead puts it simply for us: "We must garner our crops each in its due season."[28]

Now if we could describe or indicate these 'seasons' or stages and ascertain certain general principles of each stage, then we could adapt the curriculum to suit these stages. To this end an educational theory will provide us with guidance. Egan states:

> . . . an educational theory will seek to characterize developmental stages in terms of the content, concepts and skills most appropriately mastered during each stage, and in terms of the organization, and forms of presentation, of knowledge that are most meaningful to students at each stage.[29]

Accordingly, if our image "of educational maturity involved certain

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[28]Ibid., p. 32.

[29]Egan, Kieran, Education and Psychology, in press, p. 10.

freedoms of expression" in movement, "then we would expect to know what qualitatively different stages lead to this mature freedom."[30] We can imagine that one stage may emphasize the importance of precision in movement, while another may emphasize more freedom and creativity. Likewise, in this process, certain stages will demand certain prerequisites for achieving mature movement. Mastery of movement, discipline, or a sense of romance may be prerequisites to advance to the next stage or to arrive at the final stage of mature freedom of movement. A curriculum which has failed to focus on these qualitative aspects, and is, therefore, a mere conglomeration of assorted activities, has failed to address itself to one of the most fundamental questions, "When should we teach particular activities and skills in physical education?"

Psychological theories do not provide us with any complete answers to the question When? Although Piaget presents stages of development he is concerned mostly with a restricted range of concepts--logico-mathematical--which develop naturally or spontaneously. He does not distinguish between the logical order of the subject matter and the child's cognitive ability. As pointed out earlier, we are unsure as to exactly what he is describing. Here his theory does not supply us with practical principles from which to structure curriculum in physical education.

4) How should we teach things? Implicit in an educational theory that characterizes developmental stages, is the notion of how we should teach. Appropriate forms of presentation and teaching strategies are drawn from each stage. In physical education then, knowledge and

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[30] Ibid., p. 29.

movement skills must be presented so that they are meaningful, logical, and interesting, at the appropriate stage. In a practical sense then, an educational theory would guide us to how we might go about teaching dance or fitness to very young children.

Psychological theories have little to offer the educator when it comes to methodology for their interest lies in isolating certain processes. Often processes are outlined and tested which have little application to the type of education that takes place in the classroom. Even Piaget's most frequently cited recommendation for education, that of 'self-discovery' or activity methods has not been substantiated by research as pointed out earlier. Neither can this self-discovery method be attributed solely to Piaget's theory, as educators long before Piaget's popularity recommended similar pedagogical techniques. In short, "Piaget's theory has no implication for how we should teach."[31]

In summary, an educational theory will seek to outline characteristics of developmental stages in a general way. Psychological theories have a scientific aim and, therefore, describe precisely abstract processes of development. As a result, they are limited in what they can offer educators planning physical education programs. The most important question seems to be the question of the end product, for it modifies the what, when, and how. Educators today and especially physical educators are reluctant to speak about end-products as it suggests overtones of an authoritarian type of educational system. On the other hand, without an ideal end-product in mind we only flounder about trying this and that, in the hope that our end products will somehow be

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[31] Egan, Kieran, Education and Psychology, in press, p. 188.

educated people. In the following chapters I will show how Egan's educational developmental theory guides us directly in making sensible choices in curriculum planning for various stages of development. It does not have implications for education, instead it is about education and can be applied directly.

Egan's Theory of Educational Development

Keiran Egan, in his book Educational Development, outlines an original and comprehensive educational theory that begins at age 4/5 and leads to maturity. What makes it an educational theory? Firstly, it answers the four questions of: What should be taught, When during the developmental process things should be taught, How things are best taught and describes the desirable end-product. Thus it has direct implications for designing curriculum.

Secondly, it deals with the complexity of educational concerns unlike psychology which isolated and describes certain phenomena. Egan's theory focuses on the interactive phenomena of direct interest to educators. Educational aspects of development such as learning and motivation are dealt with through the characterizations of different stages which in turn lead directly to organizing curriculum.

Educational development is not only psychological development but encompasses all possible ways in which the child sees the world and derives meaning from the world. Egan has defined characteristics of four developmental stages: mythic, romantic, philosophic, and ironic. The mythic stage begins in the early grades, the romantic at the early secondary level, the philosophic at late secondary, and the ironic follows thereafter. From the characteristics explicated we can derive

principles for organizing subject matter. Egan's main claim ". . . is that at each stage we make sense of the world and experience in significantly different ways and that these differences require that knowledge be organized differently to be most accessible and educationally effective at each stage."[32]

It is the major purpose of this study to articulate the characteristics of each stage (chapter three), and show how principles derived from these characteristics can be utilized in designing physical education curriculum.

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[32]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 7.

CHAPTER III

EGAN'S FOUR STAGES OF EDUCATIONAL DEVELOPMENT

What principles are considered when planning new curricula or revising old curricula in physical education? As has been pointed out, education draws ideas from various disciplines, including psychological development theories. These have in the past provided planners with few and sometimes misleading guidelines. It is evident that curriculum planning in physical education has neglected structuring programs around existing theories and that very little attention has been given to 'principles' in building curricula. As a result, programs, at times, have failed to provide an educationally sound developmental sequence. This chapter will articulate Egan's four stages of educational development and show how each stage provides us with principles for building curriculum.

Egan's theory has been developed from his personal observations, reflections, and experiences in teaching. Along with this educational perspective he has drawn from the areas of anthropology, poetics, and philosophy of history. He also refers to works in other disciplines that support his claims. In particular, he frequently makes reference to the developmental theories of Piaget and Erikson in describing the first two stages of his theory. According to Egan, curriculum development should take into account: a) the logical development of subject matter and b) the development of the child's mind (including such aspects as emotions, morality, conceptual framework, etc.). His theory

illustrates a process which elaborates the different stages of child development and how these can best be matched to appropriate subject matter. Principles derived at each stage guide the organization of curricula. He also illustrates how, in this process, the stages are connected. He argues that in education certain things are prerequisite to others and that simply presenting to children watered-down versions of adult concepts is not only educationally questionable but can also be detrimental to the child's growth. What follows is an explication of the four stages and some general comments pertaining to the stage construct.

Mythic Stage

Characteristics

The first stage of Egan's educational development encompasses children between the ages of 4/5 to 9/10. This stage Egan calls mythic as he views children's thinking to be similar to the kind of thinking evident in myth stories. There are four characteristics of mythic thinking.

1. Myth stories provide users with absolute and fixed accounts of things. In this way they supply the user with intellectual security. Children between the ages 4-10 seem to establish a sense of security in much the same way. They feel comfortable with material that is presented to them in a clear, precise, unambiguous manner. Egan states:

> . . . children need to know how to feel about a thing in order for that thing to be clear and meaningful; they need to establish some personal and effective relationship with what is being learned.[1]

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[1]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 12.

2. Children at this stage lack what is called a sense of otherness. Concepts of historical time, physical regularities, logical relationships, causality, and geographical space are all constructs that the child as yet can not comprehend. Fairy tale stories have much in common with mythic stories as they also lack a sense of otherness. From these simple uncomplicated stories children can derive meaning because these stories are articulated on basic patterns whereby the child thinks.

3. Another characteristic of mythic thinking is the absence of a clear sense of the world as autonomous and objective. Children do not see the world as a separate entity. By and large they show little concern for reality, functioning in their myth-like view of the world. At this stage the child makes sense of the outside world in terms of what it knows best. And what children really know best are the human emotions of: love, hate, fear, joy, good, and bad. With these tools, they project outward and absorb some meaning for themselves.

4. Myth stories are usually arranged and built upon certain binary opposites. For example, the opposites could be between important elements in the life of the users as: nature/culture, life/death. These kinds of basic opposites play an important part in the mental life of the child. From fairy tale stories, children can easily draw meaning from things put in binary terms. At first they can make sense more easily if only a couple of concepts are presented at one time. Later on as they approach the next stage they will learn to mediate between binary opposites. For example, in creative dance, movement sequences could be developed around binary opposites such as anger/peace, storm/calm, sorrow/joy, or death/life. The poem "The Death Dance of the Whirly Gums" is very appropriate as it contains both binary opposites combined

with human emotions. Teaching then becomes more effective when organized around binary structures for children can best absorb and relate to knowledge in this form. What children at the mythic stage know best are the profound human emotions and bases of morality as love, hate, joy, fear, good, and bad. Hence children find fairy tale stories and legends most fascinating as they revolve around these kinds of simple conflicts. Therefore, a unit which is based upon the basic human emotions and moral conflicts will be more engaging for children, enabling them to have easier access to knowledge presented therein.

Taking these characteristics of mythic thinking into consideration, helps us understand just how children learn at this stage. In general, the process of learning at the mythic stage involves making sense of the outside world in terms of the child's known inside world. The intellectual tools and categories that children have available to learn with are the things they know best: love, hate, joy, fear, good, bad. These become their thinking tools from which they can project outward to their world around them and thereby absorb meaning from the world. The closer the connection between the child's categories and the knowledge presented to him, the more successful learning will be. "As children develop through this stage, knowledge about the world expands the initial set of mental categories."[2]

The important point to be stressed here is that this seems to be the way children learn in the mythic stage. Teachers need to be sensitive to these characteristics and help the child develop fully the characteristics of this stage. The way the child perceives the world and

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[2]Ibid., p. 14.

makes sense at this stage of educational development should not be looked upon as immature. Neither should the child be rushed through this stage toward more sophisticated ways of thinking. As Egan states:

> Young children's thinking and learning are in important qualitative ways different from adults'. Children's major intellectual tools and categories are not rational and logical but emotional and moral. This is not a casual nor insignificant difference. It means that access to the world must be provided in the terms of emotion and morality, or knowledge will be simply meaningless. It will always be possible to make children store things in memory and repeat them on request, but such knowledge will remain inert and will contribute nothing toward the development of children's understanding of the world or their place in it. True learning at this stage must involve their being able to absorb the world to the categories of their own vivid mental life and to dialectically use the world to expand the intellectual categories they have available.[3]

Principles for Organizing Knowledge

The characteristics of mythic thinking and understanding how children at this stage learn are important aspects as they provide us with principles for structuring units and lessons. They help us to understand how we can better motivate the child and make different kinds of knowledge more meaningful for them. The main principles for organizing curriculum for this stage are then derived from: binary oppositions; absolute meaning; lack of concepts of otherness and sense of an autonomous, objective world; emotional and moral categories; story form.

While all principles are important, the story form could be considered as a very powerful medium for organizing knowledge that children at the mythic stage can absorb. Most people are aware of how involved and how attentive children can be when reading or listening to fairy tales. This occurs for the very reason that the basic referents of

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[3]Ibid., pp. 15-16.

fairy tale, folk tales, or mythic stories are similar to the characteristics of children's thinking--hence, the intense interest and understanding. The story is not only important because it uses such elements as polar conflicts, absolute meaning, vividness, images, drama, engagement of feelings to involve children, but also that it is a whole and complete unit in that it ultimately fixes meaning. It is the story form and not the content of stories that lies at the essence of making knowledge meaningful to the child. The story that sets up drama and expectations at the beginning, elaborates and complicates them in the middle, and supplies a clear and satisfying ending is an important distinction that Egan draws between the story form and story contents. What needs to be done is to embody knowledge into the story form to make it more accessible to young children at this stage.

Games

Through research and observation, the educator is learning more and more about the importance of games and play in the educational setting. Huizinga, writing some forty years ago on the "Nature and Significance of play" states that ". . . pure play is one of the main bases of civilization."[4] In his book he shows how the play-element is rooted in almost every facet of society. However, he has noted that in today's society and in particular sports, the play-spirit is withering. Huizinga states: "In the case of sport we have an activity nominally known as play but raised to such a pitch of technical organization and scientific thoroughness that the real play-spirit is threatened with extinction."[5]

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[4]Huizinga, J., Homo Ludens: A study of the play element in culture, (London: Temple Smith, 1970), p. 23.

[5]Ibid., p. 225.

Perhaps this phenomena reflects in part the lack of awareness educators have about what Egan calls ". . . the changing characteristics of children's games," and, in addition, an awareness of ". . . the features of the games that are most significant for encouraging learning at different stages of children's educational development."[6] In other words, it would be inappropriate to organize adult-like games for children at the mythic stage. In a comprehensive study of children's games, Iona and Peter Opie point out that:

> When generalizing about children's play it is easy to forget that each child's attitude to each game, and his way of playing it, is constantly changing as he himself matures; his preferences moving from the fanciful to the ritualistic from the ritualistic to the romantic (i.e., the free-ranging games, 'Hide and Seek,' 'Cowboys and Indians'), and from the romantic to the severely competitive.[7]

What then are the characteristics of games at the mythic stage. Not surprisingly, the fundamental underlying features of stories are also fundamental to games. Games, like stories, have definite beginnings, middles, and endings. Games often begin with some kind of rhyme, counting fists as in "one potato, two potato" or through "Paper, Scissors, Stone" form of elimination to determine who is "it" or who starts the game. Almost any game starts with some kind of ritual in order to add suspense and set up expectations. As Iona and Peter Opie state: "They (children between 6-12) like games which move in stages, in which each stage, the choosing of leaders, the picking-up of sides, the determining of which side shall start, are almost games in themselves."[8]

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[6]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 18.

[7]Opie, Iona and Peter, Children's Games in Street and Playground, (Oxford: Clarendon Press, 1969), p. 4.

[8]Ibid., p. 2.

Whether the game is a chasing, duelling, or racing game it contains a middle in which the suspense and uncertainty of the beginning is carried out and an ending which brings the contest to a close.

As with stories, games reduce and limit reality establishing a boundary within which children feel secure. Rules are usually simple but absolute and binding. The game territory is precisely marked out as in hopscotch or crows and cranes. Within this spatial and rule-bound adventure, the mythic child feels secure in a world which seems to him at times chaotic and confused. Binary opposites can be clearly seen in many games such as: cops and robbers, crows and cranes, fairies and witches. Here also the imaginative element becomes an important characteristic. In the game the child seems to be in a magic world where: "It is not a classmate's back he rides upon but a knight's fine charger. It is not a party of other boys his side skirmishes with but Indians, Robbers, 'Men from Mars'."[9]

The basic human emotions of good, bad, fear, security, love, hate, are also very much a part of games. There are games to test courage, to test strength, to test nerve, that require a sense of fortitude, pain, pride, and an element of danger and risk-taking. Adults often marvel how children involved with--what appears to them the simplest games--can play for long periods of time without losing interest.

As educators we need to be aware of characteristics of children's games, at different stages of development. Those elements of the game which assist in learning at different stages of educational development must be recognized by the curriculum expert in planning not only games

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[9]Ibid., p. 4.

activities but other types of physical activities, be it gymnastics, dance, or aquatics. Chapter four will deal with how the main principles, derived from the characteristics of children's thinking, can be translated into organizing curriculum in physical education. To recapitulate, the main principles we have for organizing units at the mythic stage are: 1) the story form, 2) binary oppositions, 3) absolute meaning, 4) lack of concept or otherness, 5) lack of clear sense of an autonomous, objective world, and 6) emotional and moral categories.

The Romantic Stage

Characteristics

Children in the mythic stage derive meaning from the world around them using the tools of what they know best. These tools are basically their emotional and moral categories. The mythic stage could be analogous to a cocoon in which the child is feeling intellectually secure and functions adequately in his myth-like construction of the world. It is during this next stage, the romantic stage, that the child breaks out of this cocoon, as it were, and begins to explore the limits of his perceived reality. The stage spans the years from approximately 8/9 to 14/15.

The first characteristic of the romantic stage is the progress made in developing the concepts of 'otherness' as concepts of historical time, geographical space, physical regularities, logical relationships, and causality. Children on the bridge between the mythic and romantic stage begin to seek other ways to make sense of the world around them. They begin to find that their emotional and moral concepts are inadequate and soon realize that knowledge and experience of the world help provide the growth of the concepts of otherness. "It is in this sense that children

begin to use the world to think with."[10] Through this expansion of the concepts of otherness, the student begins to discover the world as an autonomous entity, different from himself. He thereby loses the security he had established in the mythic stage and has to struggle with and explore the boundaries of this new autonomous world he faces, to find his new security. Two specific tasks to establish a sense of intellectual security in the romantic stage are: "first, they must forge a new relationship and connections with the autonomous world and so achieve some method of dealing with its threatening alienness, and, second, they have to develop a sense of their distinct identity."[11]

One way the romantic student can deal with the alien world he meets is through romantic associations. He looks toward those elements and qualities as bravery, power, nobility, courage, and creativity, which allow him to transcend the threats of this new world around him. Whether it be an association with the courageous explorers that crossed the mighty waters and continents, with the genius and ingenuity of the inventors of machines of the Industrial Revolution, with the courage and determination of the men who first conquered Mount Everest, with the energy of the athlete who ran the first 4-minute mile, or with the harmony, nobility, and beauty of Ancient Greece, students will, through these kinds of romantic associations, feel a sense of identity in this mysterious world. Also through these associations, the student at this stage will be supporting his developing ego. The important point to note with this characteristic is that the student explores the real

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[10]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 28.

[11]Ibid., p. 29.

world from the outside inward. Romantic associations provide direct access to the mysteries of the universe unfolding in front of them.

Egan has called this stage romantic as "it shares with romanticism the tension that comes from the desire to transcend a threatening reality while seeking to secure one's identity within it."[12] As a result of this tension, students during this stage begin to show great interest in the extremes of the real world. They are fascinated by The Guinness Book of World Records, Erich Von Daniken's descriptions of history, and bizarre stories of the Olympic Games. Accounts of the fastest, the slowest, the most powerful, the smallest and the biggest all help the student to locate reality and establish his place, his identity within. Along with this characteristic--the fascination with extremes, it is obvious that knowledge presented to students at this stage should be as 'different' as possible, different in the sense that it presents exotic, fantastic, bizarre accounts, yet with realistic detail that allows complete romantic exploration throughout this period.

Principles for Organizing Knowledge

The story form remains important through the romantic stage. The kinds of stories that the student at this stage finds engaging are those which have complex plots; have realistic detail, although deal with imaginary worlds; present heroes and heroines; and present elements of bravery and boldness. In this sense, it is in the romantic story that the students will find meaning. For example, the film of Canada's great skier, Jim Hunter, would be suitable since the viewer can become involved

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[12]Ibid., pp. 31-32.

as he associates himself with the courageous, even daring and heroic feats of Jim Hunter. He can identify with the struggle to succeed and the glory of winning medals. This kind of story, students will become engrossed in while the same film shown to an older group of students might be less meaningful. This type of romantic story is, in fact, ego-supporting and, therefore, suited for the romantic stage. Knowledge and skills organized in such a manner will prove to be more engaging and hopefully more educationally beneficial.

Another important characteristic of the romantic stage to consider when planning units and lessons is the fascination and fanatic interest in hobbies. Students will give special attention to collecting and memorizing vast amounts of details. A student might be interested in accumulating facts and details of every hockey member in the N.H.L., or collecting photographs of all the gymnastic stars and studying details of their lives. It seems that this appetite for detail enables the student to explore the limits and scale of the world around him. Egan makes reference to the film Star Wars and its success in capturing romantic principles suitable for a certain audience. The detailed, visual portrayal of different worlds and its simple plot where the hero is able to transcend his reality, all appeal to students during the romantic stage and, indeed, the romantic in all people.

This appetite for delving head-long into a specific area and exploring every detail encourages or allows for a great deal of memorizing. When planning the organization of knowledge, this characteristic is of great importance for it is during this period that material presented in a romantic way can be absorbed and great amounts of details can be memorized and retained.

Games

The most important characteristic of games at this stage is that they ought to be realistic. "Games that do not adhere to a realistic or plausible world are rejected contemptuously as 'kids' games. Romantic games involve a context insulated by playfulness."[13] Games played at the mythic stage often involve imagination where the player believes momentarily that he 'rides upon a knight's fine charger' or that the chaser is evil and his touch will 'freeze' the other player. At the romantic stage, students look upon these types of games as childish. They prefer games which are more realistic and enable them to transcend reality. For example, the student:

> . . . can be confident; in particular games, that it is his place to issue commands, to inflict pain, to steal people's possessions, to pretend to be dead, to hurl a ball actually at someone, to pounce on someone, or to kiss someone he has caught. In ordinary life either he never knows these experiences or, by attempting them, makes himself an outcast.[14]

In this sense, the student uses games to transcend his everyday reality and to secure his own identity.

Another characteristic of this stage is the capacity to form romantic associations with the elements of the real world such as bravery, courage, power, beauty, energy. Games which embody these qualities will help the student transcend the problems that the real world poses. A variety of net games, running games, and batting games (i.e., basketball, netball, dodgeball, battleball, hemenway ball), could fulfill the student's desire to associate with a variety of romantic

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[13] Ibid., pp. 34-35.

[14] Opie, Iona and Peter, Children's Games in Street and Playground, (London: Oxford University Press, 1969), p. 3.

qualities. Lead-up games to rugby, soccer, field hockey, or mini-wrestling situations would be suitable. Activities which seem spectacular, challenging, rugged, and contain a certain amount of drama would be appropriate to foster growth through this stage. One 12-year-old Oxford boy wrote about one of his favorite activities:

> The craze at our school is piggy-back fighting. Every playtime all the boys from our school collect on the field and find a partner bigger than themselves and mount him. . . . To have good fun you need about twenty boys, ten mounts and ten horses. . . .[15]

Another example, similar to the above, is the chariot race, which became the most popular event of a local school's indoor track meet. Here five boys formed the chariot which resembled a rugby scrum with a rider on top. The object was to circle around four posts in the gym two times, keeping the team/chariot intact. There was plenty of drama and excitement as chariots would collide with other chariots, causing great pile-ups and confusion. This simple race seems to reflect the essence of the romantic stage. Students could also be given the opportunity to invent their own games. If allowed to do so, they will usually include some romantic quality.

The story form remains important throughout the romantic stage and can be incorporated into the teaching/learning of skills. Individual skills could be introduced or practiced in terms of beginnings, middles, and endings. For example, in throwing, there is the preparation, getting arms and legs into the ready position; contact, the moment where impact takes place; and the follow-through, the conclusion of the throw. If the students can get a feel of the movement picture/story, then skills could perhaps be more successfully accomplished. Students at this

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[15]Ibid., p. 217.

stage do seem to practice deductive thinking which indicates that teaching might first focus on the particular aspects of the skill or game and then move to the general.

The romantic student will also show an interest in the extremes and in details. Game situations which allow them to test their speed, endurance, power, agility, would be meaningful. Students want to know how fast they can run, how far they can throw, and how much strength they have. The teacher should capitalize on this period of motivation. Details also become very important not only in rules of games, but also in performing skills, as Mauldon and Redfern have pointed out:

> When children reach the upper Junior stage (9-13) they begin to show a greater concern for the "right" way of doing things, and games techniques are no exception. They want to know about correct grips, how to place the feet in certain circumstances, how to collect and throw a rugby ball most efficiently, and so forth. Boys especially perhaps are often keen to emulate high-class players and to model their style on theirs.[16]

In choosing games and other activities that will help students grow in and through this romantic stage, all characteristics need to be considered carefully. These, in summary, are: 1) exploring the limits of reality through focussing interest on the extremes (expansion from the self); 2) romantic associations with the powerful, noble, brave, so as to transcend the threats of the world around them; 3) interest in collecting facts and memorizing details (the particulars); 4) story form--more elaborate and dealing in the realm of the plausible, the real; and 5) developing a sense of otherness and discovering the autonomous world.

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[16]Mauldon E., and H. B. Redfern, Games Teaching, (London: MacDonald & Evans, Ltd.), p. 25.

The Philosophic Stage

Characteristics

Egan calls this third stage of educational development the philosophic stage. It spans the years from 14/15 to 19/20. He has labelled it philosophic in that the major characteristic is likened to the search for general and philosophic truths.

Whereas in the romantic stage the student focused his interest and attention on details, particulars, extremes, facts, the philosophic student tries to connect all the 'fragments.' He begins to realize that everything is related or interconnected. In history, for example, where the romantic student associated himself with heroes and heoines or bizarre occurrences, he now, at the philosophic stage, needs to organize events and details into general patterns or schemes. In physical education, the romantic student may show keen interest in particular aspects of the lungs, heart, muscles, or bones, whereas the philosophic student begins to see the connection of systems and their relation to fitness and movement. For example, principles for improving strength such as isotonic and isometric could be examined along with the effects that these types of training have on the heart and lungs. General aspects of nutrition could be explored and their relationship to exercise and weight control. In this way, the philosophic student will show interest in the general scheme of how the body functions as a unit, as a single complex organism.

> The major defining characteristic of the philosophic stage, then, is the search for the truth about human psychology, for the laws of historical development, for the truth about how societies function. This is, the philosophic focus on the general laws whereby the world works.[17]

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[17] Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 51.

The romantic student felt the need to transcend the everyday world by associating with elements of the extreme, powerful, noble, and heroic. The philosophic student becomes aware of the general laws of nature, of human psychology, of social life, of historical development and thereby begins to see his place in this new, complicated scheme. The student begins to define and know himself through learning the truths of the world around him. With this new perspective comes the need to establish once again a sense of intellectual security. The child at the end of the mythic stage had to give up his myth-like world and establish a new security through romantic associations. Now the student faces another transition. He leaves the romantic associations and begins to establish his place in the real world which is governed by general laws.

Through this exploration of the general features of the real world, the philosophic student turns inward. Egan states:

> This is not a process of expansion outwards along lines of content associations; rather, it is a closer charting of the context within which the student exists. It is not a further expansion from the self, but rather a closer approach toward the self.[18]

Another characteristic of the philosophic stage is the craving for generality. All the particulars, details, and facts learned at the romantic stage are now organized under some general schemes. Be it in history, in science, or in physical education, the student "maps the general features of the real world in terms of very general organizing grids."[19] During this period, the student is likely to lose interest in the hobbies that occupied him during the romantic stage.

With this craving for generality comes the ability to develop abstract intellectual tools. For example, general concepts such as

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[18]Ibid., pp. 51-52. [19]Ibid., p. 63.

society, culture, the mind, evolution, and human nature become part of their intellectual vocabulary in writing, thinking, and speech. From these general concepts and principles of how the world functions, the students

> . . .form ideologies and metaphysical schemes, intellectual tools with which they can organize, simplify, and reduce even the greatest complexities with casual confidence. Ideologies and metaphysical schemes represent the boldest lines that give order to the students' mental map of the world.[20]

Another feature associated with this desire to reduce the world to general schemes is the development of hierarchies. Students will wish to slot, for example, hockey players into categories of best, second best, third, etc. This they will do in a variety of areas, music, novels, athletes, sport cars, and many others. They will need to establish criteria by which to formulate these hierarchies. At first they may choose only a single criterion to establish these hierarchies while later they will employ more sophisticated multiple criteria. The important feature here is that they first need to establish some kind of general order to gain security. Students at this level are likely to appear over-confident and know-it-all. They feel that once they have comprehended the general laws, they know all there is to know about the world. Hence it is extremely important for the teacher to understand this characteristic and to be able to guide the student towards the next level of educational development.

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[20]Ibid., p. 54.

Principles for Organizing Knowledge

How might we best organize subject matter at the philosophic stage to further educational development? First of all, we must recognize that philosophic students have access to knowledge through association with the truth about the world. The student shows interest in that knowledge which aids him in formulating,

> . . . the general schemes which they identify as expressing the truth about historical, psychological, social, or natural processes. For example, if one accepts the simple Marxist ideology, then one's interest is focused by that onto the particular knowledge that best clarifies and supports it.[21]

An important prerequisite for progressing into the philosophic stage of educational development is the possession of a large quantity of knowledge, for if the student lacks a sufficient amount of knowledge about certain subjects, he will be unable to generate general schemes. Not only does he require a large quantity of knowledge, but also a quantity of knowledge from a wide variety of topics. A vast array of knowledge will help the student formulate philosophic schemes and a continued healthy dosage of knowledge is necessary to increase the sophistication of these general schemes throughout this stage.

The story form still plays an important part at this stage, as it helps to organize knowledge in a way that is meaningful to students. The philosophic student in his quest to organize separate pieces into general schemes will find the story form useful as the general schemes and ideologies are best understood if the student applies a kind of plot to them. Egan gives an example of the type of story that would be suitable for the philosophic perspective. Stories such as are in Jorge Louis Borges' Inquisitions where there is a play with ideas as opposed

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[21]Ibid., p. 56.

to types of details and extremes that fascinated the romantic student would be suitable.

It must be remembered that the philosophic students' desire to organize the world in terms of general schemes stems from the inner desire to find their place, to know themselves in this complex world. In this sense, Egan calls this stage narcissistic. The teacher then, when organizing the subject should keep this characteristic in mind and aid the student in his search for the general laws of the world around him. In physical education, students will show interest in sports psychology, sociology of sport and fitness as these areas will provide them with springboards from which to learn more about themselves through the search for general laws. Girls, for example, may find an investigation of the changing roles of women in sport stimulating. Perhaps they could, in this project, look at outstanding female athletes such as Billie Jean King, Nadia Comaneci, and Karen Magnussen and the attitudes, personalities, and roles they exhibited. In this type of investigation the student would actually be aiding an understanding of her own behavior and attitudes to sport and exercise.

One further important aspect of teaching at this stage is the recognition of the dialectical process of interaction between the general schemes and the particular knowledge. The teacher's role is to organize and select the kind of knowledge suitable to assist in the development of a general scheme and to develop more sophisticated general schemes. Breadth of knowledge is the key agent in this process as information will generate anomalies to the existing general schemes and call for revisions and refinements.

Egan summarizes the four critical points to consider when teaching

at the philosophic stage:

1. The first comes with the transition to the stage, at which point students begin to formulate from their romantic knowledge some very general scheme or schemes. . . .
2. The second critical step is to encourage the development of flexibility and commitment to the general scheme. . . .
3. Third, the teacher needs to be sensitive to just what kind of question, assignment, or stimulus to inquiry will engage students in acquiring that knowledge which will best support their general scheme and also generate anomalies which will require some revision of the general scheme. . . . The teacher's task is to persist in stimulating inquiry in particular topics until dialectical interaction gets properly underway.
4. Fourth, when the dialectical interaction is underway, the teacher's task is that of a regulator of the process, remaining sensitive to the developing sophistication of general schemes and the kind of knowledge students are seeking, to body them forth more fully. . . .[22]

Games

Egan writes briefly about games at the philosophic level. Like stories at this stage, games tend to be taken very seriously by the student. "It is the imposition of general schemes that reduce reality and assert clear rules and roles which gives life at the philosophic stage the quality of a game."[23] Players are typically very serious and tend to define a clear division between games or recreational activities and their occupations. For example, a senior basketball player might play the role of an all-important, elitist, glorified athlete. He would act out his role on the court or off with full seriousness, believing that he epitomized a special cast or breed. Immature students and adults act out these kinds of roles, confusing them with reality.

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[22]Ibid., pp. 75-76.

[23]Ibid., p. 62.

Ironic Stage

Characteristics

The last stage in Egan's educational development scheme is labelled ironic. A student may begin this stage at approximately age 19/20 which continues throughout adulthood. Since it is here that the student reaches educational maturity he is referred to as an adult. Egan, however, points out that only a very small percentage of students ever reach this final stage.

With the transition from the philosophic stage to the ironic stage comes the realization that the general schemes should neither be perceived as true nor false, but rather useful in organizing particulars into units. It is now that the particulars determine the general scheme. Particularistic knowledge in the ironic stage is dominant as opposed to the philosophic stage where the general scheme was dominant. This is the primary characteristic of the ironic stage. To cross the bridge to this final stage, the students once again have to re-establish a new intellectual security. Truths are found in the particular, not the general schemes. This stage marks the end of narcissism. The adult with a maturely developed ego can pursue knowledge for its own sake.

The story form played an important role in organizing knowledge in the first three stages. At this stage however, there are no stories. Egan states:

> In as far as the story form represents an important method whereby the mind imposes order on phenomena, and this form becomes increasingly more sophisticated and less determining as we progress through the stages, we can suggest as one dimension of a general characterization of educational development that it is a process which begins with the mental forms determining what is perceived of the world and ends with mental forms conforming to the complex particular reality

> of the world as far as they can. There are no stories or discontinuities in the world. They are created by our imposition of beginnings and ends.[24]

Likewise at the ironic stage, there are no games in the sense of the seriousness with which the philosophic mind was involved in recreation or games. "Escape from the serious games of the philosophic stage, frees the ironic mind to introduce the mythic, romantic, and philosophic senses of games and play into everything, guided by aesthetic criteria of appropriateness."[25] Games at the ironic stage are similar to what Hellison calls playful spirit. "Playful spirit refers to a non-serious, non-reflective dimension of life which focuses on the moment and on the activity for its own sake rather than extrinsic motives and preplanned goals. It is spontaneous and often creative."[26] Herrigel in his book Zen in the Art of Archery, also provides us with an insight of the ironic mind's perspective in games. "Bow, arrow, goal and ego, all melt into one another, so that I can no longer separate them. And even the need to separate them has gone."[27] Play and games are ironic in the sense that both seriousness and sincerity can be combined with playfulness.

General Comments on the Stage Theory

The four stages that Egan has articulated describe an ideal educational development. Egan claims that what you do in Grade One is important to the eventual adult. Educational development is then a cumulative process whereby what the child learns in the early grades will

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[24]Ibid., p. 85. [25]Ibid., p. 85.

[26]Hellison, Don, Beyond Balls and Bats: Alienated (and Other) Youth in the Gym, (Washington: AAHPER Publications, 1978), pp. 4-5.

[27]Herrigel, Eugen, Zen in the Art of Archery, (New York: Vintage Books, 1971), p. 70.

have significant importance as to how well he will learn at the next stage. If the foundation has been adequately laid, then it is likely that subsequent stages will be able to expand, elaborate, and enrich from this base. The students pass from one stage into the next, taking with them the perceptions and knowledge from the previous stage. Therefore, it is vital that students are not rushed through a stage but rather are allowed to develop fully in each stage. Egan repeats time and time again that the "immature require immature concepts." At each stage the student makes sense of the world differently. They must be encouraged to develop at each stage according to the characteristics Egan has outlined. Education has got to be done right the first time around. The end product, the ironic mind, does retain characteristics of the mythic, romantic, and philosophic stages. In this educational process the student virtually leaves nothing behind.

Although Egan claims that the sequence of stages he has described is a necessary sequence, that is a student cannot reach the ironic stage without passing through the others, he does state that full satisfaction at a stage is not necessary before entering into the next stage. In other words, a person is not totally in one particular stage. Ideally, one should try and develop as fully as possible the capacities of each stage, especially at the mythic stage. To illustrate the amount of minimum development that needs to take place in order to progress through the stages, Egan uses percentages which he intends to be read as metaphors. He states: "If one hopes to reach the ironic stage, at least 80% of the capacities of the mythic stage, 65% of the romantic stage, and 50% of the philosophic will need to be developed."[28]

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[28]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 96.

To ensure the full development at each stage, knowledge should be organized appropriately for that stage. Knowledge so organized is an 'aliment' to further development. Knowledge that is organized for the stage below one's achievements can only be 'entertaining.' Knowledge that is organized in advance of the student's stage of achievement will remain 'inert.' Therefore, it remains imperative that teachers be sensitive to the characteristics of the different stages and organize knowledge so that it is an aliment to further development.

Another important aspect of the stage construct is that the stages are not intended to be isolated and concrete. That is, educational development does not proceed on a smooth unruffled road of gradually accumulating more and more knowledge. Rather, progress is often sporadic, sometimes sudden jumps occur and ideas coalesce rapidly. Movement from one stage to the next can also happen quite rapidly. If knowledge can be organized to suit the characteristics of the stage then educational development would be successfully furthered.

Ultimately, the success with which the student will progress and develop reflects the important role that teachers have in this theory. To promote educational development the teacher needs to be aware of the characteristics of the different stages and organize knowledge so that it will be accessible to the student. This necessitates that the teacher be fully aware of the needs of the students. If this is not the case, then knowledge will remain merely entertaining to the students and may not promote further intellectual growth. Learning that challenges the student, and is appropriately organized for that stage, serves as an aliment and provides an aesthetic pleasure. Ideally, the teacher should have reached the ironic stage of development.

Now that the four stages have been described, it might be best to return to the four questions that Egan's educational development theory will help us answer.

1. Educational end-products. Simply stated the end-product that Egan envisions is a person who has reached the ironic stage. It is a person who is knowledgeable, who knows a lot, who can think. A person at the ironic stage will be ". . . able to properly pursue and establish a truth uninfected by our ego's need and independent of the self. The achievement and expression of such a truth . . . is the proper aim of educated people."[29] Egan gives us other glimpses of the end-product. The mind of an educated person is "stocked with fine poetry and prose" which "enriches both the rhythms of one's language and the range of one's thought and sentiment and provides an infinitely rich treasure. . . ."[30] These treasures, among many others, (such as being able to program a computer), allows the educated person "to have life and have it more abundantly." The end-product is a person who can enter the conversation of culture, in Oakeshott's words. Egan would agree with Whitehead's description of the end-product of his curriculum. His product should be able

> . . . to experience the joy of discovery . . . see that general ideas give an understanding of the stream of events that pour through . . . life, to prove ideas, evoke curiosity, judgement and the 'power of mastering a complicated tangle of circumstances, the use of theory in giving foresight in special cases,' and to have above all, 'style.'[31]

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[29]Ibid., p. 89. [30]Ibid., p. 48.

[31]Egan, Kieran, "Some Presuppositions that Determine Curriculum Decisions," Curriculum Studies, 2 (1978):p. 130.

The kind of end-product that a physical education curriculum based on Egan's theory would aim at, would be a person who possesses the following qualities. The person who has reached the ironic stage will have developed their potential for both skill performance in specific areas as well as muscular and cardio-vascular endurance in a general fitness sense. The ideal end-product will be physically literate in terms of having developed a kinaesthetic awareness and a sense of co-ordinated, rhythmical movement. Qualities of grace and flow will be balanced with the qualities of physical strength in skill performances. Likewise, the person will have attained a balance between the serious competitiveness and creative joyfulness in their approach to physical activities. The ideal end-product will be a person who has developed self-discipline, courage, and confidence through a variety of games and activities. The person that has reached the ironic stage will also have achieved an increased consciousness of how the body works. They will have acquired knowledge of how the body functions physiologically and its relation to nutrition and exercise. Basic mechanical principles of movement will be mastered. The end-product will have developed a fairly sophisticated understanding of the many facets of our world of movement: sport psychology and sociology, the value of recreational activities, and so on. This kind of person will also have gained an awareness of the historical development of movement, how styles in various activities have changed over the ages.

This image of the ideal end-product of a physical education curriculum formulated upon Egan's educational developmental theory brings us very close to the kind of person that Plato envisioned. Physical training, in Plato's terms was meant to develop 'courage,' 'self-confidence,'

and 'energy,' the spirited elements in the human.[32] However, to avoid developing a "savage violence" the spirited elements needed to be balanced with the philosophic elements to produce a harmonious development. Perhaps the most profound aspect of Egan's theory is that it requires the planners of physical education curricula to be quite clear about the nature of the end-product.

Egan, like many other educators, believes that education is not a democratic process. On the contrary, it is an extremely delicate and serious enterprise in which those that have the most expertise should become the leaders (in curriculum planning) in the field. The importance of focussing on the end-product is re-iterated by Donaldson. ". . . teachers need to be clear not only about what they would like children to become under their guidance but about what children are actually like when the process is begun."[33] Egan has provided us with just such a picture.

2. How should we teach? The answer to how we should go about teaching certain things is inherent in the characteristics of the four stages. They will tell us <u>how</u> best to organize knowledge for that particular stage so that it will be engaging, meaningful, and contribute to the educational development of the student.

3. When should we teach particular things? Egan has given us the approximate age range for the opening and closing of each stage.

4. What should we teach? Egan claims that the four stages of educational development are sensitive periods for the development of the

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[32]Cornford, Francis MacDonald, trans., <u>The Republic of Plato</u>, (London: Oxford University Press, 1966), p. 101.

[33]Donaldson, Margaret, <u>Children's Minds</u>, (Glasgow: William Collins, 1978), p. 15.

capacities characteristic of each stage. In this respect they provide us with guidelines as to what kind of content would be most appropriate. Egan states:

> Content is the fuel of the process; without content the capacities that ideally develop during the process of education cannot be actualized . . . if a sensitive period represents the time during which the particular genes are responsive to relevant stimuli, optimal development requires that those stimuli be optimally accessible during the period. If the critical period is the philosophic stage, the relevant stimuli are general schemes.[34]

Among the many curriculum recommendations Egan makes throughout his book, the central importance of content is a re-occurring theme in the process of educational development. The following chapter will focus on the kinds of content that will be most appropriate to encourage development at each stage in physical education. Egan urges that there be an "introduction of much more knowledge about the world and human experience in the early grades."[35] He recommends that less time should be spent on debating methodology and more time on organizing knowledge for each stage. Teachers would take a more active role in Egan's scheme instead of playing only a facilitative role. "Without knowledge there is no education; with little knowledge there is little education."[36]

The following chapter will attempt to apply Egan's educational theory and the recommendations implicit in it, to physical education curriculum planning.

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[34]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), pp. 115-116.

[35]Ibid., p. 159. [36]Ibid., p. 156.

CHAPTER IV

APPLICATION OF EGAN'S DEVELOPMENTAL THEORY TO PHYSICAL EDUCATION CURRICULUM

Chapter three has outlined the characteristics of Egan's four stages of educational development and has mentioned some general principles for organizing subject matter. Egan's theory postulates that the interests of a six-year old child are different from those of a 16-year old student. Not only are their interests different but they make sense of the world and experiences around them in different ways. Subject matter should, therefore, be organized so that it is accessible to that particular stage and so that it will help promote educational development. Using the principles derived from the characteristics of the four stages, this chapter will explore how physical activities might best be organized so that they are both educationally beneficial and engaging for each stage. Each stage will be considered in the light of three broad activity areas: dance, gymnastics, and games. Although other activities are taught, such as aquatics and outdoor pursuits, the above are generally considered the major content areas of physical education curricula.

Mythic Stage

At the mythic stage, the main principles we have for organizing lessons or units are: 1) the story form, 2) binary oppositions, 3) absolute meaning, 4) lack of concept of otherness, 5) lack of clear sense of an autonomous, objective world, and 6) emotional and moral categories. It

should be remembered that the child at this stage learns or makes sense of the outside world in terms of the known inner world--basically emotional and moral conceptual categories. It is a time of projecting outward and absorbing what they can.

Dance

1. Creative. The area of dance is unique in the sense that it does not necessarily serve an external purpose or goal. For example, in gymnastics and games, skills will be learned for a definite purpose, to score a goal or to jump the vaulting box. However,

> . . . in dance, movement is used for the inner purpose of expression. Inner feeling or moods, direct observation of external reality or the act of moving in itself can provoke movement images, and these, in dance, are formulated in an artistic way that heightens and controls the initial raw experience.[1]

Because of this unique characteristic of dance, Egan's principles will aid the teacher a great deal in planning individual dance lessons and units.

Lessons in dance and gymnastics, as they are generally structured, have been greatly influenced by the work of Rudolph Laban.[2] Laban analyzed basic movement skills and established four basic qualities of movement: 1) body actions, the way in which the body can move, 2) dynamics, the use of time and energy, 3) space awareness, the way the body uses space, and 4) relationships, to what and with whom the children are relating their movements. The exploratory or movement education approach is often used to develop his four components of movement. To

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[1]Carroll, Jean and Peter Lofthouse, Creative Dance for Boys, (London: MacDonald & Evan Ltd., 1969), p. 11.

[2]Laban, Rudolph, Modern Educational Dance, (London: Macdonald & Evans, 1948).

promote educational development, it would be possible when planning dance lessons to combine Laban's principles of movement with the characteristics Egan has outlined for the mythic stage.

A good place to start then, would be with the emotional and moral categories the child knows best: love, hate, joy, fear, good, bad, and place these in a movement setting. These could be expressed in terms of basic locomotor movements such as running, jumping, galloping, or in body actions. Perhaps, better still, would be to select a fairy-tale story that reflects these kinds of profound human emotions and allows children to express themselves through their own feelings and imagination. Fairy-tale stories, legends, myths, or any imaginative theme could be expressed in movement.

At first children could explore only two basic movements at a time--movements such as running, hopping, sliding, leaping, skipping, with dimensions of fast/slow, strong/light, to provide binary opposition. These movements could be best taught in the form of a movement sentence, something that has a beginning, a middle, and comes to some sort of conclusion. In this context, movement experiences will likely help the children gain security in their world. The child with his myth-like construction of the world needs to find his space, his place, and through a variety of creative dance experiences arranged appropriately for this stage, the child will begin to gain confidence in moving his body and expressing himself through this dance form.

As the child progresses through this stage and develops a large movement vocabulary these movement sentences will become more complicated. Movement actions will become more refined combining bounding, wheeling, freezing, twisting, and sliding efforts. New actions are best presented,

again, in binary terms such as rising and sinking, concepts of space, e.g., high and low should be presented in a movement-picture. Stories that portray conflicting forces, engage imagination through characters like fairies, witches, monsters, princesses, kings, and dragons, will always be more stimulating and beneficial to children at the mythic stage. Children need to be able to express their inner feeling, and their make-believe worlds.

Egan emphasizes the importance of the story form throughout his book. The story form ". . . must lie at the heart of all attempts to make the world meaningful to young children."[3] It is important as it "fixes meaning" and "limits reality." It provides the boundary in which children will feel secure. There are, of course, numerous stories which would be suitable as a basis for a movement lesson in Grades 2 or 3. One such story is the story of Beowulf.[4] Here, basic actions utilizing large body parts are employed. The story is rich in binary opposites: slow movements of Beowulf/fighting actions; light movements of acrobats/ heavy movements of Grendel; everyone sleeping/great fighting scenes; victory/defeat; villain/hero; celebrations/fear. The story also has the potential for a variety of movements to challenge those who may be a bit further along in the mythic stage. At the dramatic level, many basic emotional and moral concepts have been tapped such as love, hate, fear, joy, good, bad, jealousy, pain. The unreal and real characters, and setting provide interest and freedom for the imagination, which is so

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[3]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 17.

[4]Ascough, Julia, Dance Program, Surrey School Board, 1978, pp. 3-6.

critical at this stage. Egan states:

> An aspect of connecting the children's vivid mental life to knowledge about the world, we call the development of imagination; that is, being able to project mental images onto the world and absorb the world to them with ease and flexibility.[5]

The power of the story form, in terms of engaging enthusiasm, imagination, and motivation, as in the example above, should not be forgotten when organizing creative dance experiments.

At this stage it might be best to accompany movements with some kind of percussion instrument, or sound. A variety of rhythms can be obtained from the use of the voice, clapping, stamping, drums, tambourines, bells, cymbals, and recorded music. Rhythms are essential at the mythic stage as they assist in learning basic movements such as galloping or jumping and act as a stimulus for the dynamic, binary kinds of actions. They also focus on the changes between fast/slow, strong/weak,/ push/pull, sudden/sustained, joy/pain. Rhythms used in these ways provide children with a sense of security. David Best states that "the requirement of some sort of recurring pattern, or the possibility of relating to such a pattern is a necessary conditions for the correct use of rhythm . . ."[6] Perhaps it is this 'recurring pattern' that provides children at the mythic stage with a sense of security. The movement picture or story could, indeed, be the music phrase. Egan writes: "Rhythm is a kind of contentless story. By convention it sets up expectations, which are complicated and resolved."[7]

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[5]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 27.

[6]Best, David, "Rhythm in Movement--A Plea for Clarity," Journal of Human Movement Studies, 2, (1976) p. 273.

[7]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 143.

Not only could folktales, fairy-tales, and legends be expressed through movement but also the children's own poems and stories representing their own imaginative worlds. Children should be allowed to express their dreams and fantasies as well as their fears. Emotional and moral categories are very real to them at the mythic stage. Through children's own stories, the teacher can obtain clues as to how far along the mythic stage the child has progressed.

Creative movement lesson themes could also be integrated with other subject areas. For example, lessons could complement the study of the seasons in a science unit. The spring,[8] winter, autumn, wind, thunder, are all dynamic themes. Egan suggests that curriculum at this stage should focus on the ". . . most dramatic and powerful themes of human life, history, and the natural world."[9]

Utilizing these themes within the story it is possible to create an atmosphere in which the child can give expression to his inner world and better understand the outside world. If we plan creative dance experiences, employing the principles Egan has outlined, it seems likely that children will be given more opportunity to express their imaginative worlds, find security through actions, come to enjoy movement more, and at the same time provide experiences that will act as aliments in assisting educational development through this stage.

2. Singing games/folk dance. Unlike creative dance, in singing games and folk dance, the rhythm, the words, and actions are already set,

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[8]Boorman, Joyce, Creative Dance in the First Three Grades, (Don Mills: Longman Canada Limited, 1969), pp. 83-86.

[9]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 27.

traditionally established. It is here then, that the teacher should select those dances which might best provide meaningful rhythmic experiences. At the mythic stage, children have "direct access to flights of fantasy" through imaginary characters, or imaginary places. In singing games, children often sing the words and sometimes clap the rhythms. The story form here is found in the song or music. It remains imperative that distinct beginnings, middle, and endings are obvious. Children feel better, more secure when the movement sequence or story comes to some kind of conclusion. Appropriate for Grade One would be singing games such as Brownies and Fairies,[10] Ten Little Indians, The Fairies' Moonlight Dance, and Come, My Dolly. Movements are simple, meaning is clear, and imagination is stimulated as in "wings of pink and rosy crown." Binary oppositions are present in the movements as: sleeping/dancing, and emotions such as love, joy, sadness, and happiness are evoked. In the singing games it is the rhythms as much as the actions that provide a harmonious role. These simple singing games make it possible for children ". . . to establish some personal and affective relationship with what is being learned"[11]--be it the beauty of the apple blossom or the free, and light, dancing of the fairies.

In the early grades, folk dances parallel singing games. At first, dances should be selected that utilize basic locomotor movements such as walking, skipping, hopping. Rhythms should be clear and definite since children need to know the precise, fixed meanings. Suitable dances might

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[10]Moses, Irene E. Philips, Rhythmic Action Plays and Dances, (Springfield: Milton Bradley Company, 1915), pp. 100-103.

[11]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 12.

be Hansel and Gretel, Gustaf's Skål, Seven Jumps, or The Shoemaker's Dance. Before teaching the dance, the teacher could put the dance into some story form. For example, the emotions of the little old shoemaker, struggling painfully every day to make a pair of shoes, could be highlighted in the story so as to encourage some kind of relationship between the child and the dance to be learned. The clearer the connection with the child's inside world (intellectual tools--emotional and moral), the more meaning he will derive from the movement experience. As children at the mythic stage seem to be capable of deductive thinking, it may be best to present dances in their entirety at first. Once the general feeling of the dance has been presented through the story and movement sense, it then could be broken down to learn smaller parts within the whole.

Gymnastics

Gymnastics is generally taught at the elementary level using the movement education approach. This approach emphasizes exploration of movement skills and is similar to dance in that it is not bound by specific organizational rules. Egan's principles can, therefore, be adapted to organizing lessons at the mythic stage. The education movement approach has been defined as:

> . . . an individualized approach or system of teaching children to become aware of their physical abilities and use them effectively in their daily activities involving play, work, and creative expression. Through the medium of gymnastics, using small equipment such as a vaulting box, or climbing apparatus, a child learns basic movement skills which are appropriate to his physical maturity and general readiness.[12]

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[12] Kirchner, Glenn, Jean Cunningham, and Eileen Warrell, Introduction to Movement Education, (Dubuque: Wm. C. Brown Company Publishers, 1970), pp. 4-5.

Generally, the lesson progresses from an opening activity, to floor work where some aspect of movement is developed, on to apparatus work where movements experienced on the floor are then related to the apparatus. Such problems are presented as: "Can you take your weight on two hands and one foot?" or "Show me different ways of travelling on your feet." Every child discovers, explores, and creates his own original answer to the problem posed by the teacher.

The question is how can we make educational gymnastics more meaningful to the child at the mythic stage? Lesson outlines found in textbooks usually are organized around a theme, one theme lasting for one or more lessons. At the mythic stage it would be best to choose those themes or tasks which call for dynamic kinds of movement. Explosive movements that provide adventure, excitement, and involve human emotions such as climbing, jumping, swinging, are kinds of movements that will challenge children. Apparatus work could involve heights, flight, and perilous moments. If what children at this stage know best are the emotional and moral categories, then we must connect these to their movement experiences in gymnastics using picture stimulus or music stimulus. Themes should be chosen that represent binary opposites such as stretch/curl, feet together/apart, over and under, long, thin, shapes/round shapes, travelling high/low, contrasting parts, ways of getting on/ways of getting off. It is not common that image stimuli or verbal pictures are given to encourage movements in gymnastics. According to Egan's characteristics it might be best to encourage teachers to use phrases such as: "How quietly can you bring your feet down?" "Show me how you can roll smoothly." "Can you find three other smooth rolls?" "Show me how high you can jump." "Think of your feet as rockets. Can you shoot

into the air when you jump?" "Can you make a big bridge-like shape?" It would seem that if these types of aids were used throughout the units in combination with binary opposites children would likely derive more satisfaction, confidence, and meaning from their movement tasks. Partner work should be encouraged as it helps the child see more clearly binary oppositions.

The story form can also be incorporated into the movement tasks. Tasks should be ultimately placed in a movement sequence, matching the theme at hand. There needs to be some link between the movements explored. Too often children discover ways of answering several tasks in a lesson, but the tasks remain isolated challenges without any connecting unit. They need to experience some feeling of unity, flow, and completion in their movement sequences or stories. Children at the mythic stage can make sense and understand things put in story form, in binary opposition and involving the profound human emotions. Children at this stage seem to display an instinctive sureness of movement actions. Through utilizing Egan's principles in lesson planning it is hoped that this confidence is fostered as the child gradually develops through this stage, onto the next.

Games

Children seem to fully enjoy games and derive greatest meaning and pleasure from games when they are chosen according to principles that best provide learning (cognitive, affective, psychomotor) at the various stages of a child's educational development. That is, for a 6-year old to play ice hockey or baseball would not be as meaningful to him as a game of hide and seek or cat and mouse.

Games at the early mythic stage should replicate the structure of the story form, that is, games should have beginnings, middles, and ends. Thinking of our own childhood experiences one probably remembers how completely involved one was with hopscotch, kick-the-can, skipping, or other games. The story form was obvious in these games. Egan states that the story form is important as it is ". . . able to reduce and limit reality, providing an arena within which children may feel secure because they know the rules. Within the limits of the game, the meaning of behavior is established clearly and precisely."[13] Games appropriate for the mythic stage might be: Cowboys and Indians (Brownies and fairies), Old Mother Witch, Cat and Rat, Steal the Bacon (club snatch), Crows and Cranes, Man from Mars.[14] In these games, rules are simple, clear and well established at the beginning. They are also appealing, not only because simple skills such as running, dodging, tagging, provide a feeling of security, but also because the basic human emotions are involved. There is suspense as in Crows and Cranes, deception in Snatch the Club, and plenty of concern about being caught or feeling of courage from escaping. These games also have in common binary opposites which help provide clear role distinctions and involve, to a certain extent, the child's imagination.

Children at the mythic stage will need a lot of skill practice in catching, kicking, throwing, dodging, batting, and aiming. They should also be given the opportunity to practice these skills with a variety of

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[13]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 18.

[14]Schurr, Evelyn L., Movement Experiences for Children, (Englewood Cliffs: Prentice-Hall, Inc., 1967), pp. 327-334.

balls, bats, bean bags, quoits, and various targets and goals. Once the children have been shown the correct techniques for these skills, it is up to the teacher to organize practice situations that challenge the children and involve an element of competition. Lenel, in her book, gives some good examples of how this could be done.

> Throw your beanbag in the air and clap once.
> Catch it, throw it up again and clap twice. See how many times you can clap, throwing and catching your beanbag.
> Using bats and rubber balls, find the best distance for exchanging your ball and keep exchanging it.
> Count the number of hits in the rally and try to improve each time. The ball may bounce once or twice.[15]

If there is some binary drama, some expectation, some goal to try and achieve, the child is more likely to derive meaning from the practice sessions.

Skills can soon be put into a game situation. Rules should remain simple and be given clearly in order to provide a secure setting. Appropriate games might be: nervous wreck, prisoner ball, and circle kick ball. Along with these types of games, Vinton in his book, The Folkways Omnibus of Children's Games, describes several interesting games that originate from myths. These are ideal since children's thinking has similar characteristics to those of myth-using people. These games present binary drama, have imaginative content, involve the profound human emotions, and are presented in story form. Three relevant examples are: Badger the Sun, Ptarmigans against Ducks, and Shove winter out.[16]

Relays have recently taken on a perjorative meaning today in physical

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[15]Lenel, R. M., Games in the Primary School, (London: Hodder & Stoughton, 1969), pp. 60, 68.

[16]Vinton, Iris, The Folkways Omnibus of Children's Games, (Harrisburg: Stackpole Books, 1970), pp. 71-75.

education, as they seem to imply long line ups, little activity, and sloppy skills. There does seem to be a place for them, especially at this stage. Relays can combine dynamic, binary actions. The struggle between winning and losing,victory and defeat. Relays can be chosen so that each child will experience the feeling of winning and begins to understand losing. If teams are small, 3-4 children, then there is much activity, much fun, and developmental progress.

Currently, there has been a movement towards emphasizing co-operative sports and games. Terry Orlick has created games in which children play together rather than against one another.[17] They are co-operative, not competitive. However, Egan makes the following point very strongly.

> We do no service to children by introducing them only to the secure surface and not letting them see that what they have gone through as individuals, their society and culture has gone through in its own way.[18]

What the individual goes through, Egan says, are the "titanic struggles" for survival, security and relative independence. It is important that children see these struggles in the world around them as it will help them make sense of the world through these struggles that they feel within. Hence, there is no purpose in "burying" the nature of games, winning, and losing aspects, but rather exposing them to these real struggles and assisting them in developing a healthy understanding of competition and ensuring that children experience both winning and losing. This is not to suggest that none of Orlick's games are valuable but rather that those games which provide an element of challenge, binary

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[17] Orlick, Terry, The Co-operative Sports and Games Book, Challenge Without Competition, (New York: Pantheon Books, 1978).

[18] Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 122.

opposition and involve the most profound human emotions would be more valuable for children at the mythic stage.

General Principles for Organizing Physical Activities at the Mythic Stage

The preceding section has described how the characteristics of the mythic stage could be applied to the traditional curriculum areas in physical education. Some general observations will be added in this section.

1. What happens at the mythic stage is of paramount importance to the eventual adult. Egan has mentioned that educational development is a cumulative process. The child leaves nothing behind. Here at this stage we are molding the skeleton, as it were, upon which later growth will take place. What the child then needs at this stage is to be provided with a great variety of movement skills. Locomotor and non-locomotor skills need time to be practiced and mastered to a basic degree. Through the ". . . capacity to manipulate the outside world in the mind" the child achieves confidence and security. If the child is provided with a variety of movement tasks and game skills with and without apparatus, he will become less self-conscious and develop more poise and confidence. What is needed is both a large amount of content (a good deal of time in each lesson to practice skills) and a large variety of skills (not only throwing and catching but also dodging, guarding, timing, kicking, and so on).

2. The kind of activity or content most appropriate for unfolding the capacities at the mythic stage would be dance or rhythmical activities and games. These two activities are rich in binary opposites, present clear, fixed meanings, and provide easy access through the basic

human emotions. The story form is easily represented in dance through rhythm and actions and is basic to most games. Educational gymnastics could be included but it appears to be more difficult to present the skills using principles of the mythic stage.

3. Along with the characteristics Egan has articulated, that of rhythm could be included. As children make sense out of their world through the story form or binary opposites, emotional and moral categories, so too the children may make sense out of movement through rhythm. Children at this age do most of their movements--running, jumping, skipping, hopping--rhythmically. We need only to observe a child on a playground or a child sitting on a high chair--the legs run and swing to an inner rhythm. They accompany many rhythmical movements with singing (or what seems to be some kind of humming). Rhythm seems to be a part of their very being--their inner world. Therefore, it would make sense that much of the movement done in this stage should be of a rhythmical nature. Plato often emphasized that gymnastic movements should have a rhythmical character and also be accompanied by some musical instrument. At the mythic stage, then, many (if not all) movements could be done in a graceful rhythmical manner. One could even be so bold as to suggest that this may be a sensitive period for the development of a rhythmical sense. If neglected at this stage, an athlete may be highly skilled but lack the grace, the flow of movement.

4. If the immature require immature concepts, as Egan frequently suggests throughout his book, then at the mythic stage, curriculum planning must emphasize this principle. Simple dances must come before intricate dances no matter how silly they may appear to the teacher. Strong, clear rhythms should be chosen before complicated syncopated

ones are attempted. Gymnastic or other exercises should be presented in a rhythmical context. When movements are placed in this context, young children seem to tire less quickly. If fitness is an objective then it should be pursued through games, dance, and rhythmical gymnastics instead of imposing an adult perception of fitness--one or two laps around the track or field. The immature need to develop their capacities to the fullest before moving into the next stage. Hence, simple children's games take precedence over involved kinds of adult games. In the gymnasium and on the play field, children should be allowed free expression of their wildest dreams, and fears, to create from the inside out something that will bring them closer to the world around them.

5. Egan states that children at the mythic stage seek ". . . meaning primarily from the general or paradigmatic . . ."[19] In other words they seem to be capable of deductive thinking at this stage. This has implications for teaching skills in all activity areas. It tells us that a skill is probably best presented in its entirety so that the child gets a general picture of what is to be done. They need to get a sense of feeling of the whole before the parts are practiced.

Romantic Stage

This section will examine how physical education curriculum can be organized so that it best supports and coheres with the characteristics Egan has described for the student at the romantic stage. Organization around the romantic stage will involve the following principles: 1) an exploration of reality in detail--collecting facts and memorizing particulars, 2) developing a sense of otherness, 3) focusing interest on

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[19] Ibid., p. 160.

the extremes, something as different as possible from the everyday experiences, 4) romantic association with some human quality such as nobility, bravery, courage, and 5) more elaborate, sophisticated story forms, dealing with reality or the plausible.

Dance

1. Creative. If the central characteristic of this stage is to explore the limits of reality and at the same time to transcend everyday reality, then dance activities could best be organized using these transcendent qualities as themes. Themes that express romantic associations with the powerful, noble, brave, and the courageous would all be suitable. Movement themes and skills built around characters such as Napoleon, Florence Nightingale, Long John Silver, St. Joan, Thomas à Becket, the Knights of the Round Table, Lancelot, St. Francis. For example, a movement sequence, drawing actions based upon such romantic figures as Long John Silver or Wild Bill Hickok in combination with music from The Good, the Bad and the Ugly could be a dramatic dance experience. Boys especially like the possibility of a fight sequence.

Students at this stage are capable of longer extracts of music and a greater diversity of actions. Whereas at the mythic stage themes focused on binary opposites, they now can mediate between these opposites. Their movement vocabulary expands. Action words such as slither, melt, soar, whirl, and many different hues of the stark opposites can be explored at this stage. Volcano, earthquake, windstorm, and other themes of nature are also appropriate. Using the poem The Eagle by Tennyson, Boorman illustrates how this could provide stimulus of a group

dance.[20] Spatial awareness is increasing and the romantic student is capable of a greater range of 'group' relationships. Nevertheless, these movement sequences should be patterned into a rhythmical structure and still retain the story form. Egan points out that the story form remains an important vehicle for presenting knowledge, but at this stage it becomes more elaborate and needs to deal with the plausible elements of this world.

Any themes that explore the limits of reality through extremes or extraordinary, different events, places, or people will also prove engaging and meaningful. Star Wars music or the music from 2001 could be used for a dance setting such as: a moon landing, a visit to a Martian colony, a voyage to outer space. Movements emphasizing different levels of energy could be practiced such as flying, falling, rolling, freezing, and gripping. Practice sessions could culminate in a group dance. Unlike themes at the mythic stage these themes must contain plausible or realistic details.

The reason for focusing on these types of extremes is to satisfy the students' desire to 'feel' different forms of life, thereby exploring the limits of the world around them. Dance will also help develop the sense of otherness in the sense that students get to explore physical space and relationships. Through romantic association and interest in extremes the student can transcend the threats to his immature ego momentarily, until such time as he develops a fuller sense of identity.

Along with the romantic zest for exotic and bizarre themes, students also show great interest in collecting facts and memorizing details.

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[20] Boorman, Joyce, Creative Dance in Grades Four to Six, (Don Mills: Longman Canada Limited, 1971), p. 37.

This allows for a tremendous scope of possible ideas. Poems that children have memorized in language-arts, could be put into dance movements. Egan also suggests that the same theme could be exemplified in different subjects. A social studies unit on the glories of Greece could be integrated nicely with dance. The heroic, adventurous qualities of Odysseus or the drama of The Seige of Troy are excellent themes.[21] As movements become more sophisticated and involve the finer muscles, the children's appetite for detail could also be met by stressing subtle actions of the fingers, toes, elbow, vertebrae, and facial expressions. Percussion instruments can beat out more detailed rhythms. A favorite idea is that of creating a machine. Different mechanical parts are practiced and can be co-ordinated with partner movements. The class may wish to become one giant machine. This idea could be related to the inventions of the Industrial Revolution. The assortment of motifs, or themes, that would be suitable at this stage, seem to be endless. As long as the stress is on romantic associations, details, and extremes embodied in the story form and rhythmically structured, then students will derive meaning from creative dance experiences.

2. Folk dance. Folk dance serves as a vehicle for understanding the different customs, rituals, beliefs, manners, and occupations of people from various countries. The planner needs to ask "What is romantic about it?" Much of folk dance can act as an 'aliment' for educational development through the romantic stage. Steps and patterns put to music represent aspects of the peoples' lives, for information about their costumes, beliefs, and struggles provide access to knowledge through romantic associations. The interest in extremes can also be

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[21] Cronwell, Paul, Creative Playmaking in the Primary School, (London: Chatto & Windus, 1970), pp. 53, 115.

satisfied through an investigation of dances from a wide diversity of cultures--Eskimo, Serbian, German, or Greek. Diversity not only in customs and manners, but also in rhythms that help tell the story of a people or place. Facts and details could accompany the dance in areas such as: details of ethnic ornamented embroidered costumes, geographical locations, history, facts about unique musical instruments (drums, bagpipes, harmonicas, flutes, etc.), art and music.

Dances can be selected to express themes covered in other subject areas. For example, if the theme was courage and survival then it might be appropriate to choose a dance from Serbia. The state of Serbia has a long history of struggles for independence, resisting many invasions throughout the centuries. This courage and struggle is reflected in their dances. "The proud dignity, full posture of the Serbian dancer is warrior-like in style."[22]

Any of the easier Kolo dances as Seljancica Kolo, Ersko Kolo, or Roumansko Kolo would be appropriate. The walking steps done with plie and the tempo of the music both capture the proudness of the people. Another suitable dance would be the German, Blacksmith's Dance. Here the energy of the blacksmith, toiling long hours would be emphasized. The rhythm is strong and clear, accented by the clapping sequence. The dance represents the story form in that the two parts, the clapping and circling complement each other--the strong beginning and the happy, lively ending. Dances for special occasions could also be learned as they offer further insights to the habits of people. A wedding dance such as Patch Tanz or a dance in praise of water like the spirited

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[22]Joukowsky, Anatol, The Teaching of Ethnic Dance, (New York: J. Lowell Pratt and Company, 1965), p. 29.

Israeli Mayim, would be meaningful to the romantic stage student. In Mayim, a joyous, strong rhythm helps the feet articulate the foot patterns and the voice assists in singing the praise. Through this kind of movement picture the romantic student is able to sense the spirit and feeling of people from another culture. It allows them to develop a "sense of romance." As Egan states ". . . the romantic stage involves a dialectical extension of the student's concepts, feelings, and other human qualities by constant comparisons with, and inhabitation of, other peoples in other times and places."[23]

3. Square dance. Square dance, like folk dance can also give students access to knowledge and understanding of people through movement, story form, and romantic association. A study of pioneer life, the expansion of America's west, the cowboys, and ranch life are all captured in the many mixers and square dances. Virginia Reel is a good example. It expresses the free, happy spirit of the early settlers in its steps, voice accompaniment, and rhythms. By 'feeling' different styles, from different lands, the students get to sense the scale of things around them, helping them to develop their distinct identities. Romantic association is the vehicle to provide this sense of security. Other suitable dances would be Solomon Levi, Red River Valley, Buffalo Gals, and Teton Mountain Stomp. The sense of romance is best invoked if the dance is the outgrowth of a story, or a theme studied in other curriculum areas. Interest in extremes could be studied by comparing different country dances. For example, the boisterous energetic gaiety of the Virginia Reel, could be contrasted with the control and grace of Patch

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[23]Egan, Kiéran, Educational Development, (New York: Oxford University Press, 1979), p. 128.

Tanz. Both forms of dance will feed development through the romantic stage. Steps should not become too complicated in these dances as students will need to develop confidence in moving their bodies to a variety of rhythms and patterns. Once control and security are evident, they will be ready for the philosophic stage.

Gymnastics

The main aim at this stage is to broaden the foundation of general skills and to develop flexibility and confidence. The basic movements that were introduced at the mythic stage, jumping, landing, transferring body weight, hanging, curling, stretching, and flight are now broadened. Egan suggests that we ask the question, "What are the limits and dimensions of the real and the possible?",[24] to lead us in choosing appropriate content for the romantic stage. Themes which allow the student to transcend his everyday reality through romantic associations would be the best for this stage: ". . . the search for transcendence is the motivator for learning . . ."[25] Hence, in gymnastics, films could act as the motivating force showing great achievements in the sport. Each movement sequence might focus on a particular theme. Instead of building lessons around tasks such as twisting, turning, use of space, bending, stretching, it might be better to focus on themes such as energy, courage, creativity, power, grace, beauty, and so on.

For example, if the lessons are to focus on the theme courage, one could begin by showing the film of the Japanese gymnastic team member who competed at the Olympics with an already broken leg in order to ensure his team a gold medal.

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[24]Ibid., p. 125. [25]Ibid., p. 124.

This kind of story would appeal to their appetite for extremes and the 'different.' The rest of the lesson, on floor and apparatus might focus on courage. Courage in working with partners: taking each other's weight, courage in maintaining balance on apparatus, courage in flight, courage in lifting and lowering parts, and courage in turning and twisting movements. Another theme could be energy. One could begin a lesson by watching a floor exercise routine and a routine on the rings, and discuss the different energies in play. For instance, the energy that is required to do whip-like actions of the body; the energy discharge to selected parts of the body, arms, legs, hips; and the various intensities of energy for landing, balancing, leaps, and jumps. Allowing the students to explore these kinds of themes will bring to them the spirit, excitement, and romance of gymnastics.

These kinds of themes will give them the freedom to explore, not only the extremes, but also the very details of movement. Challenging apparatus such as ropes, vaulting boxes, and bars are good in the sense that they can attempt the spectacular, the extreme in height, strength, distance, and speed. It is between these extremes that the student begins to gain control of his own body and constructs his own identity.

Students need time to exhaust all the movement possibilities. The stress should be placed upon building the widest possible range of movement skills. As Morrison says: "Much leaping and jumping should be included for if people do not 'fly' at this stage, they are unlikely to enjoy it later."[26]

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[26]Morison, Ruth, A Movement Approach to Educational Gymnastics, (London: J. M. Dent and Sons Limited, 1969), p. 151.

Games

"Romantic games involve a hesitant, ambivalent grappling with serious problems in a context insulated by playfulness."[27] Egan also suggests that games which students find appealing at this stage deal with the plausible world. They might find games such as hound and rabbit (mythic stage) rather childish. Other characteristics of students' thinking such as interest in extremes, fascination with details, transcending threats of the everyday through romantic associations, and elements of the story form will help to better organize game situations that will be meaningful and engaging.

An appropriate game would be that of Agents and Spies.[28] This game involves running, throwing, and accuracy. It also involves suspense, since there is a romantic association in playing the part of the clever spy or the cunning agent. A game that the students especially may enjoy at this stage is that of Slaughter.[29] Here there is plenty of drama, excitement, and humor. It gives the big boys a chance to be the hero and use their muscle strength and it gives the smaller boys an opportunity to outwit an opponent by working together to throw the other team member out of the boundary. Dodgeball games such as Three Team Dodgeball, Space Travel, Atomic Dodgeball or Battleball all provide an arena in which the students can experience competition, tense situations, and develop

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[27]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), pp. 34-35.

[28]Schurr, Evelyn L., Movement Experiences for Children: Curriculum and Methods for Elementary School Physical Education, (Englewood Cliffs: Prentice-Hall, 1967), p. 353.

[29]Fluegelman, Andrew, ed., The New Games Book, (New York: The Headlands Press, 1976), pp. 101-102.

confidence in building basic running, dodging, and throwing skills.

Gradually more complicated skills will be developed in a variety of minor or lead-up games. Skills practice should remain challenging and culminate in applying skills in a game situation. When introducing traditional sports or games, the teacher could encourage students to study the history of that particular sport. The teacher could relate stories of records set, goals scored, anecdotes, and unbelievable feats of strength, speed or height. The students are interested in details and extremes and these would help motivate.

A visit with the Harlem Globetrotters would probably be the highlight for a student at this stage. Romantic associations with the giants of this game and their ingenious and unbelievable mastery of the skills is really spectacular. When practicing ball handling skills or shooting, students could be encouraged to compose a sequence imitating the Globetrotters. All the teacher needs is the music and they would find the students working very energetically at this task. In track and field, the teacher could, at the start of a lesson, set the high jump bar at Olympic record height, or mark in the long jump pit the Olympic record jump, and then watch how eagerly students participate. Another way of bringing romantic life and flavor into the gym is through impersonations. The teacher may appear to be a hero in the gym by demonstrating whatever skills he or she can make appear 'fantastic.' For example, here is Cassy walking up to bat, or here is _____ about to throw the discus to set a new world record, or here is _____ to run the hurdles in record speed. Students love this kind of display. All the actions, the little movements to psychologically prepare for the great event could be exaggerated to add more color and suspense. Students in this stage will constantly

request 'Show us how to do it,' or demand, 'you do it!' These kinds of ideas will best feed development through this stage and provide students with a sense of romance of man's physical and intellectual achievements and adventures.

History of the Olympic games would also be a suitable topic to be researched. Slides could be shown of Olympia and the particulars of the events of those ancient days such as details of how each racer's lane was marked by a slab of marble and later how strings were drawn to indicate each racer's lane. "By exhaustively knowing something one gets a sense of the scale of everything."[30] This seems to be the essence of the romantic stage and games content can be organized to aid more fully this development.

To feed their appetites for the bizarre and different, stories could be told of how men disguised as women actually competed in women's events in the Olympic games, or perhaps stories could be told of the greatest feats accomplished by Jesse Owens or Mark Spitz.

One might say, these ideas and stories are interesting but how should the skills be taught. The intention of these ideas is to point out that skills should not be, as they very frequently are, disconnected or dissociated from the human aspect. Games and sport skills should be related to some human quality such as energy, courage, self-control, endurance, self-reliance.

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[30]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 35.

General Principles for Organizing Physical Education Curriculum at the Romantic Stage

It has been said that in the gymnasium the teacher meets the ego of the student face to face. Hence, through structuring appropriate physical activities, the teacher can assist the student in developing confidence and a sense of identity. Through romantic associations with the powerful, brave, creative, energetic, and courageous, students can transcend the challenges of the real world. By doing so, their immature egos are given support until they can resolve the tension created between what is real (the real world) and their concern with what is beyond.

1. Dance, gymnastics, and games should be organized to provide a large variety of themes that suggest transcendent qualities. Not only the common qualities associated with the physical body such as power, endurance, and energy should be emphasized but also the qualities as grace, harmony, poise, balance, control, and beauty. If a romantic sense of these human expressions is not achieved at this stage it is likely to be lacking in the adult forever.

2. Through a variety of skills, students should be given the opportunity to explore all the limits and dimensions of physical movement. The student needs to test his strength, test his endurance, test his courage, exhaust all movement possibilities. To this end, some activities are better than others as has been indicated. Creative dance, and apparatus work in gymnastics seem especially suitable. Certain team games and sports are also challenging.

3. The characteristics of the romantic stage, strongly suggest that isolated forms of exercises, circuits, and running laps will do little to aid development in this stage. Even simple exercises of the

body can be put in a form that represents a "movement-picture into which the child can grow."[31] Rhythmics and grace should not be sacrificed in the pursuit of fitness.

4. The teacher as actor serves an important role and can go a long way in stimulating enthusiasm and humor. Through skills and characterizations he or she can demonstrate a variety of different human qualities. Therefore, it is important that teachers do involve themselves in the lesson at hand through demonstrations, since they are more meaningful at this stage than at any other.

5. At this stage, students seem to exercise inductive thinking. Therefore, when presenting skills it may be best to start with the particular and move to the general. Emphasis should be put on details such as: arm action, foot placement, pushoff, shoulder movement, ball position, grip on implement. Skills are first dissected and only later are the parts connected. When discussing fitness and exercise it would be better to start with the details such as: the pulse, oxygen pick-up, capillaries, aorta, and so on, before presenting the general cardio-vascular picture.

6. Just because this is a stage very much for testing the extremes, exhausting movements in endless ways, does not suggest that students be left to run, jump, and play in an uncontrolled manner. There needs to be discipline in all of this movement exploration and discovery. Quality of form and execution needs to be reinforced. As Egan reminds us: "Quite commonly proponents of freedom for students' expression fail to recognize that disciplined mastery of a medium is a prerequisite for freedom of expression. . . .One cannot transcend conventional forms until

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[31] Bothmer, Gymnastic Education, (Clent: Goethean Science Foundation).

one has thoroughly mastered them."[32]

7. There is still an emphasis on rhythm at this stage. Perhaps this element of movement has been neglected in recent years in physical education classes. Activities are performed without much attention to tempo. Dance activities and even skills of team games can be accomplished in a rhythmical fashion. Egan says that ". . . a mind stocked with fine poetry and prose enriches both the rhythms of one's language and the range of one's thoughts and sentiment and provides an infinitely rich treasure that can be drawn on at will through the rest of one's life."[33] One could make the comparison that a body stocked with a variety of movement skills and rhythms enriches our capacity to enjoy movement throughout one's life and appreciate the aesthetics of movement.

Philosophic Stage

The 'bits and pieces,' the facts, the assorted romantic details no longer appeal to the philosophic mind. Instead, through the realization that they are a part of the larger world and all its laws, students begin to search for the 'wholes,' the general truths and laws of nature, of human psychology, of social life, of historical development and of human movement. This search will give them a new founded security. If this is the sensitive period for developing the capacity to generate general schemes and principles, then physical education activities could be organized to lead students into developing just such capacities.

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[32]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 144.

[33]Ibid., p. 48.

Dance

"The content that is of most importance for the philosophic stage then is that which best enables students to compose or to see general organizing schemes in each field of inquiry."[34] Dance, and in particular creative or modern dance is a good choice of activity through which students can begin to formulate the general concepts and laws governing human movement. Although various aspects of effort, space, and relationship had been part of their past lessons, it is only now that all the experiences they have had begin to coalesce into general schemes. Through continued dance experiences the student will begin to understand the principles of effort, that movement is impelled by energies. They will begin to answer questions such as "How does the body move?" "What is the meaning of movement?" and "What is the quality of movement?" An understanding of the principles of spatial displacements, e.g., movement patterns that their bodies trace in the air, will occur. For example, from a fight sequence, the teacher could ask, "Do the three blows with which you strike your partner move from the center of your body, spoke-like, or do they hit across, peripherally?"[35] If the dynamics of movement and spatial principles are to be coalesced during this stage then the teacher needs to provide themes or 'plots' in which these aspects of movements are stressed. More abstract kinds of themes could be tackled. More intricate rhythms including synchronization could aid in developing principles of dynamics. Poems suitable to act as stimuli for dance available in Stokes' book are: "Alone," "Shapes,"

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[34]Ibid., p. 130.

[35]Carroll, Jean and Peter Lofthouse, Creative Dance for Boys, (London: MacDonald & Evans, Ltd., 1969), p. 34.

"Time," and "The Nightmare."[36]

Students at this stage will become more aware of their own bodies, sensing to a greater degree its weight, balance, and possibilities for co-ordination. They will seek to understand body performance through the mechanical principles that regulate how the body moves. Principles of stability, motion, and force could be studied. They will find especially interesting their posture and discussion of the gravity forces that play upon the body. In their quest for the general laws and patterns of the world, the students are really attempting to know themselves. "They look at the world as they would a mirror, to see themselves."[37]

To be able to formulate these general concepts about how the body moves and to be able to answer such questions as "What is grace, beauty?" the students need to be given a variety and an abundance of dance experiences that will help them 'body-forth' the general principles, not only through creative or modern dance, but also with jazz, folk, and square dance. Folk dance helps them gain a deeper insight into the world around them as well as their own personal world. If they are given a lengthy unit of folk dance they will begin to understand that the dances are a product of geographic, economic, and religious factors and that the music and costumes are an expression of other peoples' creative powers. Through folk dances they will begin to develop a sense of the history of dance-movement from age to age, from the most primitive cultures up until the modern world. What is important is not only the quantity of dances

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[36]Stokes, Edith M., Word Pictures as a Stimulus for Creative Dance, (London: MacDonald & Evans, Ltd., 1970).

[37]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 63.

but also the fact that individual dances may be more appropriate than others. For example, the Macedonian dance, Chobansko, represents the thinking about the existence of mankind, striving to answer the 'why.' The opening pattern puts the questions and the following quick and intricate steps suggest ways of resolving them. Philosophic inquiries, the meaning of life, the meaning of music, the meaning of dance, and the meaning of religion can all be represented and searched for in some form of dance. Other appropriate dances might be the spirited dance Hasapiko (Zorba's Dance) from Greece; the graceful, flowing, melodious, intricate Rumanian Medley, and the Philippine dance, Tinikling, done with long bamboo sticks. Very intricate dances such as the Spanish Flamenco, Indian dances, Hawaiian hula, Japanese, and Chinese dances could be shown on film. Students interested in dance will take lessons seriously and should be presented challenging dance patterns. It is at this stage that the students will show interest in aspects of choreography and will be thrilled with the opportunity to organize group presentations as part of the class work.

Through dance experiences students will develop a kinaesthetic awareness, an awareness of their own body while moving in space. They will develop an understanding of how the parts of the body are related to the whole.

Gymnastics

In gymnastics, students will begin to show an interest in analyzing their own performances and seek ways of improving skills. It is at this stage that the teacher can introduce the general concepts, laws, and principles governing execution of skills in various areas of gymnastics.

Mechanical principles such as stability, gravity, and motion could be discussed and their relation to effective performance. For example, when performing skills on the uneven bars, pommel horse, or on the parallel bars, the center of gravity has a tremendous effect on the successful execution of the skill. Many skills on apparatus or floor have common elements and it is up to the teacher to organize themes or skills in groups that emphasize similar principles. For instance, the theme swinging and circling could be explored on ropes, rings, and bars. Concepts of friction, centrifugal force, and gravity could be related to skills. Another theme could be moving and stopping whereby students would ". . . gain experience and learn how to impart impetus to the body and propel it, and how to get a grip to check movements for purposes such as changing direction or holding motionless."[38] Application of movement principles could be practiced in either educational gymnastics or Olympic/artistic gymnastics. Considering the characteristics of the philosophic stage, it might be best to move into Olympic gymnastics as students will desire to copy what they see at live exhibitions and on television. Students at this stage are also quite capable of planning their own gymnastics routines, analyzing their own work, and judging others. Video replays can be most useful for these purposes.

Along with mechanical principles of movement, the student will show interest in physiological concepts that will help him 'body forth' general schemes related to the functioning of the muscles, heart, and lungs. Girls and boys may be interested in the laws regarding developing muscular

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[38]Morison, Ruth, A Movement Approach to Educational Gymnastics, (London: J. M. Dent and Sons Ltd., 1969), p. 112.

strength, the boys wishing to build up bulky muscles and the girls wishing to prevent the "bulky" look while still retaining a high level of fitness.

Principles such as overload, isometric, isotonic, relaxation, and stretching will all be suitable at this stage. Important is that the student be given a variety of situations to get underway the dialectical process of interaction between the general schemes and the particular knowledge. Sophistication of these general schemes via more and particulars will mark educational development through this stage.

Games

In their search for a sense of identity, students at the philosophic stage will tend to copy roles of characters in fictions they like. Egan likens philosophic games to philosophic stories in that the student, through the general schemes or patterns, is able to affirm distinct rules and roles. This role playing will make students appear very serious about their game, be it individual games/sports, team games, or outdoor activities. At times they may appear over-confident, over-sure of themselves. To assist in development through this period of role playing, the curriculum needs to offer a variety of games which challenge the student and allow him to see the general patterns, the general schemes of games.

In team games, students at this stage will be able to plan out strategies and comprehend general game patterns. For example, in volleyball, game tactics such as receiving, setting and spiking; in basketball, zone plays and man-to-man attacking formations; in badminton/tennis, doubles strategies--are all appropriate patterns that are suited for the student that has reached the philosophic stage. In addition, the philosophic student will be interested in analyzing player interactions, and

and specific rehearsed game 'plays.' Player psychology as part of game strategies will also become an important aspect that the philosophic student will want to consider.

In the search for a sense of identity, the philosophic student also becomes more fully aware of his own body. To assist development during this stage, the ectomorph (thin, slender body type) will need to have experiences in activities in which he can find success and gain confidence in handling his body so that he does not continually play the role of the loser or unskilled. The mesomorph (muscular body type), likewise will need a diversity of challenges so he does not continually play the role of the 'athletic jock,' 'machismo,' or a 'brute beast' as Plato puts it. The ectomorph, might find success in cross-country running, rock climbing, or Kung Fu, whereas the mesomorph may not find these as comfortable as basketball and football. The endomorph (fat body type) might gain security in activities such as Tai Chi, shot put, or golf.

The philosophic stage is a time that the students attempt to bring together all the pieces they have acquired in all the games they have learned. The teacher can help the student in this quest by presenting skills in reference to general laws. They will begin to make sense of concepts related to leverage; body force, absorption, and application of force; angles of rebound and understand the laws of motion. Through the understanding of these general concepts, students will be better able and equipped to progress in skills be they kicking soccer balls, swinging rackets (tennis, squash, badminton), throwing softballs (discus, shot put, javelin), shooting jump shots, or aiming arrows at targets. Once they are familiar with some of the fundamental principles of game skills they will develop more self-confidence in their movement potential.

If students have had a good deal of experience in rhythmical kinds of movements, they will at this stage be able to distinguish various rhythms in different games. They will come to understand the rhythm of the golf club swing, the lay-up shot, or the rhythm of the discus throw.

Principles of learning motor skills are also important, especially as applied to learning a completely new skill. A good exercise might be to have students observe ball throwing abilities of young children and record different patterns. Through this and other similar exercises, students will develop their capacities for organizing isolated aspects into general patterns or wholes as applied to motor skill acquisition.

This will also be the appropriate time to deal with principles of fitness such as specificity, adaptation, and progression. Up until this time students had been given smatterings of knowledge about fitness, but it is only now that the pieces begin to coalesce. Physiological concepts of neuromuscular and cardio-vascular systems also should be related to fitness and skill acquisition. Students require a large quantity of knowledge and also anomalous knowledge to develop more sophisticated general schemes. A crude generalization might be the following: "Regular exercise contributes to good health." Particular knowledge, for example, how exercise affects heart muscle, heart rate, back problems, sport performance, oxygen consumption, muscle tension, and appearance will all help build more sophisticated general schemes.

During this stage topics in sports psychology, sociology, and philosophy could be researched and discussed. Girls might find special interest in the area of 'women in sports' and boys may be keen on topics such as value of sports, competition in sports, drugs in sports.

In an experimental unit that I organized with a class of grade 11

girls, students investigated current sport issues and problems.[39] A social inquiry model, that of Massialas and Cox, was adopted. The students formulated a hypothesis and then collected evidence to prove or disprove their original general statement. Students were given the opportunity to choose their own topics. Issues such as violence in sports, pressures on young children in sports, sport injuries, and the changing roles of the Olympic games were a few of the topics tackled. Students showed particular interest in discussing, arguing, debating, and defending their positions. This type of unit seems very suitable for this stage. However, it should be remembered that the desire to organize knowledge is motivated by the need to better know themselves. As Egan states:

> In the sense that students' interest in the world is primarily directed not toward finding out about the world for its own sake, but rather for their sakes--to establish a sense of their own identity--I call this stage narcissistic.[40]

General Principles for Organizing Physical Education Curriculum at the Philosophic Stage

1. If students have had optimal development of capacities throughout the mythic and romantic stages they will be ready to develop the most important capacity of the philosophic stage, namely that of generating general schemes. Schurr,[41] in her textbook mentions that mechanical and

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[39]Schueler, Annemarie, "The Inquiry Model in Physical Education," The Physical Educator, (May, 1979), pp. 89-92.

[40]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 63.

[41]Schurr, Evelyn L., Movement Experiences for Children: Curriculum and Methods for Elementary School Physical Education, (Englewood Cliffs: Prentice-Hall, Inc., 1967), pp. 147-149.

physiological principles such as basic concepts of gravity, levers, and muscle action, should be taught to elementary children. This can be done if one considers the characteristics of the particular stage of the children. However, it should be noted that complicated theories and principles of body mechanics are not accessible to students that have not yet reached the philosophic stage. It is only then that they can begin to generate general schemes related to human movement.

2. Students should be given a greater choice of activities at this stage, as it is through this interest that they will be able to develop their own identities and security. Along with this choice, however, should also come the presentation of new ideas by the teacher, as students are often reluctant to attempt or are completely unaware of the range of movement possibilities. Exposure to activities such as Tai Chi, Yoga, and Feldenkrais systems of movement and exercise, will present variations from the traditional view of exercise, health, and fitness. Anomalous knowledge will be the fuel to help development through this stage.

3. A lot of knowledge and a range of activities is also necessary to offset the over-confidence and the seriousness with which students play games or other activities. For example, if a talented male student is allowed to role play the ideal North American jock, his ego is likely to swell out of proportion, taking on an aggressive competitiveness, then he is likely to remain stuck at this stage. Stereotype roles and a 'business'-like approach to physical activities can be prevented at this stage by organizing a wide range of activities in the program, such as camping, hiking, kayaking, canoeing, snow and ice sports. In fact, in the recent Assessment of physical education the grade 11 students rated

outdoor activities the highest in terms of enjoyment gained.[42]

4. At this stage, students exercise primarily deductive thinking, so skills and knowledges presented should first focus on the general laws, concepts, principles, and move to the particulars to refine crude generalizations.

5. The teacher's role at this stage remains critical as particular knowledge needs to be presented at the appropriate moments to keep the engine progressing forward--to help students refine and develop more sophisticated schemes. This role, Egan states, necessitates that teachers have passed through this stage. If the physical education teacher is still playing the role of the 'jock' who never quite made the big time, then it remains impossible for him to aid the development of students at the philosophic stage.

Ironic Stage

According to Egan, most people rarely progress beyond the romantic stage and, therefore, still fewer reach the ironic stage. It would indeed be rare that a grade 11 or 12 student will have reached this stage. Nevertheless, it is important to discuss briefly how curriculum should be organized in pursuit of that goal and to draw attention to authors who have misleadingly designated ironic capacities to stages much earlier in the curriculum.

Egan states that the ironic stage is the sensitive period for the development of two associated capacities:

> first, the capacity to accept the primacy of particular truths in the composition of meaning, and second, the capacity to

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[42]British Columbia Assessment of Physical Education, Summary Report, December 1979, p. 34.

> control the capacities of all the previous stages. Together these provide an important intellectual freedom; a freedom from the self and its immature needs.[43]

Any activity, sport, or game would be suitable for the adult who has arrived at the ironic stage. The adult will tend to specialize in one or two activities, for through mastery will come the realization that theories and general schemes about movement are only useful for organizing particulars. It is now that he sees that the particulars determine the general scheme.

At the ironic stage there is no game, dance, or gymnastics in the distinct, concrete, and confined sense of the philosophic stage, but rather the ironic adult is able to combine mythic, romantic, and philosophic elements into his or her physical pursuits. In activity, the adult is able to bring together the mythic sense of imagination and drama, the romantic sense of vivacity and vitality in exploring the limits, the philosophic sense of organizing experiences into general schemes and patterns. Physical activities will take on the qualities of playfulness, joyfulness, spontaneity, and at the same time the performer may derive a sense of aesthetic pleasure. The adult who has arrived at this stage will be able to experience the spirit and feeling of the activity, the essence and freedom of movement.

Bartal and Ne'eman in their book, Movement, Awareness and Creativity, speak about movement and dance activities which would lead to body-mind integration. They describe the goals of movement in terms such as "balancing the energies flowing in the body," "free-flowing movement," "increased consciousness of how the body works," "harmony." These are

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[43]Egan, Kieran, Educational Development, (New York: Oxford University Press, 1979), p. 133.

all capacities of the ironic adult. Spino, in his book Beyond Jogging,[44] pictures a new brand of physical education; one that emphasizes the "inner dimension." Influenced a great deal by the Eastern philosophies, through activities such as aikido, yoga, and meditation, he describes athletics and physical education in terms of ". . . combining imaginative approaches to mind and spirit with good physical fundamentals."

Hellison, in his physical education humanistic paradigm, outlines one of the goals for his grade 9 boys as developing a playful spirit which he describes as: ". . . a non-serious, non-reflective dimension of life which focuses on the moment and on the activity for its own sake rather than extrinsic motives and preplanned goals. It is spontaneous and often creative."[45]

Csikszentmihalyi, in his research involving athletes in various fields, discovered that several players experienced what he calls a "sense of flow." Players expressed similar characteristics to those of Egan's ironic stage. In particular, their egos were no longer affecting their performance. They could do the activity for its own sake--its aesthetic pleasure. Interesting, also, was the finding that beginners seldom achieved this 'flow' or 'integration' sensation. This clearly points up the fact that students need a good foundation of movement experiences at the mythic, romantic, and philosophic in order to hope to achieve the ironic stage. Physical education objectives should be suitable and realistic for each stage.

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[44]Spino, Mike, Beyond Jogging, (New York: Berkley Medallion Books, 1976), p. 8.

[45]Hellison, Don, Beyond Balls and Bats, (Washington: AAHPER, 1978), p. 5.

The adult at the ironic stage is one who can control the capacities of the former stages; can experience the sense of flow, can sense the spirit and feeling of movement, can play joyfully, can play the game or dance the dance for its own sake, can find the balance between mind and body. Schiller says it rather well.

> For to speak out once for all, man only plays when in the full meaning of the word he is a man, and he is only completely a man when he plays.[46]

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[46]Schiller, Friedrich, "Letters Upon the Aesthetic Education of Man," vol. 32, The Harvard Classics ed. by Charles Eliot, (New York: P. F. Collier & Son Co., 1910), p. 266.

CHAPTER V

SUMMARY

This thesis has suggested that physical education curriculum could be more meaningfully designed if based upon an educational theory. Theories have, of course, influenced curriculum decisions in the past but too often an eclectic, non-theoretical approach to curriculum design has resulted in fragmentary, inconsistent programs which sometimes produce the unsatisfactory kind of results outlined in the B.C. Assessment Report. Psychological theories such as Piaget's have led educators to draw implications from his theory and apply them to the structuring of curriculum. In general, research has failed to show any significant difference between Piagetian-structured curricula and traditional curricula. In light of the available evidence, it was decided to investigate an educational theory and explore possible applications to building physical education curricula. Egan's educational developmental theory has been explicated and an attempt has been made to develop a physical education framework around the theory.

Certainly there are many ways to organize activities, but it appears that the application of Egan's theory to physical education may focus a new perspective upon curriculum design in this field. Egan's theory, with its coherent developmental orientation, provides planners with a set of principles from which it is possible to structure activities from kindergarten to Grade 12. Moreover, it helps planners and teachers

to answer important questions such as: What activities should we teach? When and how should we teach certain activities? Inherent in the theory is the need for educators to be explicit about the kind of end-product they wish to see. In this sense, the theory provides an all-encompassing, comprehensive, developmental paradigm for curriculum designers. Egan's theory assists in organizing not only the movement or psychomotor areas but also the cognitive or knowledge oriented activities in physical education. This thesis has, in fact, shown that his theory may be most useful in organizing a meaningful developmental sequence in all aspects of the activity program.

This thesis has dealt with the first stage, that of applying the theory to physical education in a theoretical sense. A useful follow-up would be to empirically test some of the ideas that have been presented here. Units could be planned and presented to students at different stages, or, tests could be designed to diagnose what stage the student is at. This type of experimentation would seem a necessary step in the continued attempt to refine and relate theory and practice.

Egan continually reminds us that education is a 'dangerous business' and Whitehead assures us that ". . . education is a difficult problem, to be solved by no one simple formula."[1] Nevertheless, physical educators need to be continually striving, utilizing theories, to build a curriculum that will provide a meaningful physical education experience to all students.

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[1]Whitehead, Alfred North, The Aims of Education, (New York: The MacMillan Co., 1929), p. 45.

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