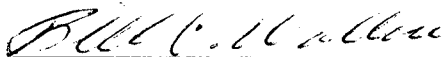


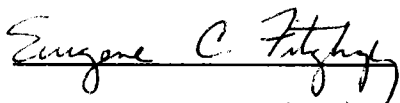
To the Graduate Council:

I am submitting herewith a dissertation written by Selene Diane Skonie-Hardin entitled "Early Adolescents' Levels of Cognition and Personal Fable Ideation as Related to Lesson Activities in Decision-Making Skills". I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Education, with a major in Health Education.


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EARLY ADOLESCENTS'
LEVELS OF COGNITION AND
PERSONAL FABLE IDEATION
AS RELATED TO
LESSON ACTIVITIES IN DECISION-MAKING SKILLS

A Dissertation
Presented for the
Doctor of Education
Degree
The University of Tennessee, Knoxville

Selene Diane Skonie-Hardin
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DEDICATION

This dissertation is dedicated
to the memory of
Kathleen M. Zoretich
1926 -1986
who
inspired and encouraged me,
and
to my grandparents who immigrated
in hopes of a better future;
John and Antionette Vuletin,
Yugoslavia,
from whom I inherited the value of education,
and
John and Veronica Skonieczny,
Poland,
from whom I inherited perseverance and a strong work ethic.

thank you

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I would also like to express my thanks to the following people, who, in different ways, allowed me to complete this degree:

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ABSTRACT

This study sought to view the constructs of formal operational thinking and personal fable ideation and their relation to each other as well as their relation to decision-making skills activities in teacher-provided lesson plans at the seventh grade level. Data was collected from four sources; 1) the student completed New Personal Fable Survey; 2) the student completed Arlin Test of Formal Reasoning; 3) teacher-provided lesson plans dealing with decision-making skills; and 4) expert analysis of these lesson plans for evidence of required student cognitive skills.

As a result of this data collection and subsequent data analysis, it was found that the majority (71.4%) of the seventh grade students functioned at the concrete or high-concrete level of thought. The majority of lesson plans (60%) required students to use formal operations during the lesson. Students (96.4%) also showed high levels of personal fable ideation, which was correlated to formal operational thinking at $r = .92$.

Young adolescents are primarily concrete thinkers who also have high levels of personal fable ideation. Because of this students are unaware that they are missing the complexities and subtleties associated with the complex decision-making of high-risk behaviors.

A secondary finding was noted in the considerable variation among evaluators regarding what constituted formal operational thinking as found in the lesson plans. Further research will be required to establish the source of this variance.

The conclusions are limited to the sample investigated. Young adolescents, who: 1) are primarily concrete thinkers are being asked to accomplish lesson objectives that, at times, are beyond their cognitive reach at the formal operational level; 2) have high levels of personal fable ideation, do not successfully internalize

lesson plan objectives intended to reduce participation in high risk behaviors; 3) are primarily concrete thinkers, and who have high levels of personal fable ideation, are unaware that they are missing the complexities and subtleties associated with the complex decision-making of high risk behaviors. Students, in their egocentric thought, believe that they completely understand all of the factors surrounding the situation and that they can control them simply because they have some basic knowledge.

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CHAPTER I

INTRODUCTION

Need for the Study

Early adolescence is a time of exploratory behavior; a time when many decisions about risky behaviors are being made; decisions that can often have lifelong consequences. Health educators have long recognized society's responsibility to help adolescents through this period of transition so that they can become healthy and productive adults.

Research has shown that the proportion of young adolescents (11-14 years old) who are initiating sexual intercourse has steadily increased over the past 25 years for both Anglo- and African-American females (Holmbeck, Crossman, Wandrei, & Gasiewski, 1994). The 1995 Youth Risk Behavior Survey for Tennessee (Tennessee Department of Health Statistics, 1996) reports 44% of students under the age of 15 years having had sexual intercourse, with 15% of those reporting their initial intercourse before age 13. In related risk behaviors, 74% of students under age 15 report having smoked cigarettes, and 42% report having had their first drink of alcohol before age 13 (Tennessee Department of Health Statistics, 1996). Although early adolescents, who are reaching puberty at an earlier age than in previous generations, may physically experience the biological urges associated with sexual attraction, and may socially be at an age when dating relationships develop, their cognitive functions may not be at a level which allows them to fully comprehend and make informed decisions about participating in sexual intercourse (Pesttrak & Martin, 1985). As a

consequence, we have young adolescents who have physically, but not otherwise matured, engaging in sexual intercourse.

To counteract this trend, government organizations, communities, churches, schools, and parents are beginning educational interventions at earlier and earlier ages. The young adolescent, although possibly on the brink of high risk behaviors, and in need of information, may not be able to fully benefit from receiving the information due to cognitive constraints. The content of interventions, much of which is abstract in nature, may not effect desired attitudinal or behavioral changes because the young adolescent does not possess the cognitive skills necessary to fully synthesize the information.

Piaget (1972), Felice & Friedman (1982), Pestrak & Martin (1985), Flannery, Rowe & Gulley (1993), and others have argued that the concept of cognitive growth should be viewed as separate from, and possibly at variance with, physical or chronological growth. When applied to students in the classroom, this may mean a much wider variance between individual students than has traditionally been assumed. Not all students who are in the seventh grade are at the same level of cognitive development, just as they are not all at the same level of physical development. Further, even those who may be at a similar stage of pubescence are not necessarily at the same corresponding levels in regard to their cognitive development. This mismatch between pubescence and cognitive development may be a critical factor when discussing issues such as early sexual behavior, substance use and abuse, or other high risk behaviors.

Holmbeck, et. al. (1994) state that both the ability to generate alternative coping actions when faced with a sexual decision-making situation, and the ability to make predictions about the possible outcomes of various sexual behaviors may be critical determinants of adolescents' sexual decisions. Cvetkovich, Grote, Bjorseth, &

Sarkissian (1975), Baizerman (1977), and Gordon (1990), argue that the degree to which an adolescent is able to employ abstract thinking may be negatively related to risk taking in sexual situations. The ability to foresee possible future situations and their possible outcomes and consequences is basic to the ability to prepare oneself to deal with those situations. It would, therefore, seem imperative that the cognitive developmental level of the targeted adolescents be taken into consideration when determining the appropriateness of intervention-oriented curricula with decision-making skill development components.

Other factors, beside the lack of abstract reasoning skills, may confound the decision-making process for the young adolescent. In a furtherance of Piagetian theory, Elkind (1967), introduced the construct of egocentrism, which includes both imaginary audience ideation and the personal fable, as a possible confounding factor in adolescents' interpretation and subsequent decision-making regarding their behavior. Egocentrism is the extreme self-centering often exhibited by adolescents; they consider their own subjective point of view as representing objective reality and even as the only possible point of view (Elkind, 1967). While formal operations allow the adolescent to think about his/her own thoughts and to reason about those thoughts, it also allows the adolescent to conceptualize the thoughts of others (Elkind, 1967). Although they can conceptualize others' thoughts, adolescents are so preoccupied with their own thoughts, behavior, and appearance that they believe others are as preoccupied with their behavior and appearance as they are. This misperception regarding how others view and think of the adolescents' thoughts and behaviors constitutes the imaginary audience construct of egocentrism.

The second construct of egocentrism is that of the personal fable. Because the adolescent believes that they are so important to so many people, they overdifferentiate their feelings, and come to regard themselves as something unique and special (Elkind,

1967). This sense of uniqueness extends into a perception of invulnerability, believing negative consequences will not happen to them. "It won't happen to me", is commonly attributed to adolescents concerning their beliefs regarding consequences of high risk behaviors.

In an attempt to determine the most appropriate and the most effective means of preventing sexual behavior by young adolescents, professionals in several fields have developed numerous curricular intervention strategies. Other professionals have analyzed, evaluated, and critiqued these interventions to determine, in part, the most appropriate age levels for their implementation. These evaluations, while sound, have often focused on areas other than specific student characteristics (Gunn, Iverson, & Katz, 1985; Ross, Gold, Lavin, Errecart, & Nelson, 1991; Sexuality Information and Education Council of the United States [SIECUS], 1996; Stanton, Kim, Galbrath, & Parrott, 1996).

Of the twelve intervention programs evaluated by Stanton, et. al. (1996), only six described incorporation of developmental issues in the planning of the curriculum. Another example of this lack of inclusion of student characteristics can be found by examining the evaluation objectives of the Teenage Health Teaching Modules (THTM):

- ◇ Assess the effectiveness of a comprehensive secondary school health education curriculum in producing desired changes in student knowledge, attitudes, general health practices, and priority health behaviors.
- ◇ Determine effects of pre-implementation teacher training in THTM on curriculum implementation and student outcomes under controlled conditions.
- ◇ Determine effects of the teacher's preparation and personal characteristics and other aspects of school and classroom environments on curriculum implementation.

- ◇ Determine effects of variations in curriculum implementation on student outcomes (Ross, et.al. 1991).

As they are stated, the objectives for this evaluation are focused on assessing the effectiveness of this curriculum based solely on the preparation and implementation of the teacher. The evaluation does not investigate the readiness of students to fully participate in the curricular learning strategies and activities. The results of this omission may be evident in the findings reported in the summary of the evaluation. Although there is a reported overall positive change in students' self-reported knowledge, attitudes and practices at the high school level, Ross, et. al. (1991), identify several areas requiring further study. Two of these deal specifically with students: 1) lack of behavioral effects at the junior/middle high level (no self-reported effects were found), and 2) the loss of students at relatively high risk. These findings suggest that other unidentified factors are at work in addition to those cited in the evaluation. It is possible that some of these factors rest with the individual students; factors which might include the ability to use formal operational thinking skills, and their level of personal fable ideation.

Several curricular evaluations found in the literature make note of the importance of formal operational thinking on the part of the student to achieve maximum benefit from the various interventions (Gold, Parcel, Walberg, Luepker, Portnoy, & Stone, 1985; Ross, et. al. 1991; SIECUS, 1996; Stanton, et.al. 1996). However, these evaluations fail to establish whether the target audience possessed those cognitive skills, whether the curriculum required them, and therefore, whether the students could successfully attain the learning objectives developed for the lesson.

Curricula are often evaluated for their content and age-appropriateness with the expectation that educators match lesson topics and activities to the student's grade level and approximate IQ. Evaluations of this nature do not determine the fidelity with

which teachers implement the curricular guidelines, nor does it establish a match between the level of cognition needed to successfully attain the lesson's objectives. In a review of the literature, standard criteria were not found regarding the methods or guidelines used to reach these decisions. Therefore, there may be wide variance in how these decisions are made from school district to school district, classroom to classroom. Add to this the confounding factors of egocentric thinking and personal fable ideation, and results achieved in the classroom may be greatly compromised.

Problem Statement

This study sought to view the constructs of formal operational thinking and personal fable ideation among seventh grade middle school students, their relation to each other, and their relation to decision-making skills activities in teacher-provided lesson plans.

Research Question

How do formal operational thinking and personal fable ideation in young adolescents relate to each other and to activities in a decision-making skills lesson plan?

Hypotheses

In order to determine an answer to the research question, the following hypotheses were tested:

Hypothesis 1. The majority of young adolescents (seventh grade students) will not function at the cognitive level of formal operational thinking.

Hypothesis 2. Lesson plans dealing with decision-making skills will require students to use formal operations.

Hypothesis 3. There is a positive relationship between lesson plan activities and the young adolescents' level of formal operational thinking.

Hypothesis 4. Young adolescents will have high levels of personal fable ideation.

Hypothesis 5. There is a positive relationship between young adolescents' level of personal fable ideation and their level of formal operational thinking.

Limitations

In order to receive approval from the local school administration, it was agreed that the administration of the instruments to the students would not disrupt instructional time. Scheduling of the specific time of administration was therefore left to the individual homeroom teachers who administered the instruments to their students.

Delimitations

This study focused on young adolescents, those between the ages of 11-14 years of age, and in the seventh grade. The sample was drawn from a single middle school in a midsize northeast Tennessee city of predominantly Caucasian ethnicity. As

such, the results of this research will not be generalizable to the entire adolescent population in either Tennessee or the Nation.

Assumptions

During the completion of this research study, the following assumptions were accepted:

- ◇ That students participating in the completion of the two instruments answered honestly and to the best of their ability.
- ◇ That teachers teaching in public school systems were assumed to be certified teachers.
- ◇ That lesson plans submitted by the teachers were those actually used in seventh grade classrooms.
- ◇ That members of the expert review panel, due to their educational and professional backgrounds, were appropriate persons for evaluating the lesson plans.

Definition of Terms

For the purposes of this study the following definitions were established:

- ◇ Abstract thinking--the ability to think beyond the present; to think about thinking; to consider possibilities; to recognize that others feel and think differently.
- ◇ Cognitive matching--matching lesson activities to the cognitive level of the students.

- ◇ Formal operations--the ability to think beyond what is considered concrete operations; ability to use abstract thinking; terms may be used interchangeably.
- ◇ Higher order thinking skills--skills considered to be more complex and of a higher level than basic learning skills; ability to use abstract thinking; may be used interchangeably with abstract thinking and formal operations.
- ◇ High risk behaviors--behaviors which when practiced may result in short or long term damage or consequences to the person (e.g. unprotected and/or early sexual intercourse, tobacco use, alcohol consumption by adolescents, possession of a weapon).
- ◇ Personal fable ideation--belief by an individual that they are something unique and special; this sense of uniqueness extends into a perception of invulnerability.
- ◇ Probabilistic thinking--ability to evaluate possible problem situations, determine possible solutions, and evaluate those solutions.
- ◇ Protective Behaviors--behaviors which when practiced reduce the risk of damage or consequences from high risk behaviors (e.g. using a condom and/or other forms of contraception).

Summary

Research continues to demonstrate that adolescents are engaging in a variety of risk behaviors at an earlier age than that of previous generations. Many of the risk behaviors are such that emotional maturity, abstract cognition and the ability to conceptualize are important factors in making positive health decisions. Young adolescents, whose cognition is still at a concrete stage, and who possess high levels

of personal fable ideation, are unable to consider or accept the possibility of future consequences as being applicable to their own lives.

Many interventions have been developed to influence young adolescents' future decision-making, with variable results regarding actual behavior change. It is possible that the cause of these variable results may lie in the fact that cognitive matching is not taking place; educators are discussing what might be termed adult behaviors with groups of young adolescents who have not yet developed adult skills. Further complicating the success of these interventions is the personal fable ideation that many young adolescents exhibit.

In an effort to gather further data on this phenomena, this study sought to view the constructs of formal operational thinking and personal fable ideation and their relation to each other as well as their relation to decision-making skills activities in teacher-provided lesson plans at the seventh grade level.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The transition from childhood to adulthood is a time of vulnerability as well as an opportunity for developing a life style that promotes health and well-being. This is the cornerstone of school health education; that developmentally-appropriate, theory-based, comprehensive health education programs can make a difference in the behaviors in which adolescents choose to engage. Providing students with accurate knowledge, along with enhancement of skills for negotiating prevention and risk reduction, is believed necessary for behavioral change to occur (Kipke, Boyer, & Hein, 1993). Education, when it is holistic in nature, integrated into a variety of situations and repeated in multiple ways, is more likely to change behavior than brief, encapsulated programs (Brown & Fritz, 1988).

Just as important are the characteristics that the learner brings to the classroom. The level of cognitive thinking abilities possessed by the student will have a direct bearing on their comprehension and understanding. This becomes particularly important in relation to problem-solving, situational analysis, and similar tasks requiring higher order thinking skills. In order for the students to adequately consider possible future situations, they must possess the cognitive abilities of abstract thinking. An additional compounding factor in the successful completion of assigned learning tasks, is the student's degree of personal fable ideation. Personal fables, a construct of adolescent egocentrism, results in the "it-can't-happen-to-me" thinking common to many young adolescents.

Given these factors, all of which may have a significant impact on learning activities, the importance of cognitive matching is recognizable. If teachers and other professionals wish to provide students with usable information and skills, they must be matched to the developmental level of the students, both cognitively and psychologically.

This chapter reviews the available literature concerning the theoretical justifications for health education as an intervention, the cognitive development of the early adolescent, the personal fable construct in early adolescence, and cognitive matching in lesson development.

Theory and Justification for Health Education

School health education originated with the belief that increased knowledge could effect changes in behavior and lifestyle. Although accurate knowledge is necessary, and plays a central role, it is, in itself, not sufficient to produce behavioral change (Rudd & Glanz, in Glanz, Lewis, & Rimer, 1990).

Several theories of behavioral change have developed focusing on such cognitive variables. Among them are The Health Belief Model (HBM), The Theory of Reasoned Action, The Attribution Theory, The Multiattribution Theory, and The Consumer Information Processing Theory. The Consumer Information Processing Theory has a specific focus on the acquisition of information necessary to make choices and how that information is used to make those choices (Rimer, in Glanz, et. al., 1990). The Protection Motivation Theory, The Self-Regulation Theory, The Transtheoretical Model and Relapse Prevention Theory are also concerned with individual health behavior. Still other theories focus primarily on interpersonal health

behavior; these include such models as Social Learning Theory and The Social Ecology Theory.

School health education, as it has matured beyond a simple conveyance of fact, has grounded itself in these various theories of health behavior. Over the years, researchers have established the importance of a theoretical base in the development of appropriate educational interventions (Enright, 1979; Walsh & Bibace, 1990; Kipke, et. al., 1993; Schonfeld, O'Hare, Perrin, Quackenbush, Showalter, & Cichetti, 1995; Stanton, et. al., 1996). However, as Sigelman, Madock, Epstein, & Carpenter (1993) note in a review of HIV/AIDS intervention programs, most HIV/AIDS curricula are not well grounded in theory. The lack of a theory base often results in the development of interventions with goals and objectives which are too broad, too vague, and generally, unmeasurable. Because of this lack of clarity, convincing proof of the effectiveness of health education has, at times, been lacking (American Academy of Pediatrics [AAP], 1993).

Recently, however, the AAP (1993) suggested that when certain criteria are met, it is not unrealistic to expect an improvement in health habits or health behavior outcomes, as well as knowledge and attitudes, as a result of various health education interventions. These criteria include developmentally appropriate instructional objectives which are linked to skills building in a true comprehensive health promotion environment. Other research indicates that comprehensive school health education can make a difference in the health, knowledge, attitudes, and behavior of adolescents (Gilbert, Gold, & Dambert, 1985). At the same time, it appears that health education is more effective in preventing the initiation of undesired behaviors than in modifying any behaviors that are already present (Brown, & Fritz, 1988; United States Department of Health & Human Services [USDHHS], 1988; Sly, Eberstein, Quadagno, & Kistner, 1992; Brown, Reynolds, & Brenman, 1994).

Theory-based, well-constructed, developmentally appropriate school health is not only needed, it is critical for the health and well-being of our society. In addition to the long standing issues of early sexual behavior and substance abuse among adolescents, the advent of HIV/AIDS has catapulted school health education to the forefront of prevention strategies.

According to many researchers, early and effective school-based educational programs are the most viable means of increasing awareness of the risk of HIV and to combat the spread of infection (Strunin & Hingson, 1987; Institute of Medicine, 1988; USDHHS, 1988; Walsh & Bibace, 1990; AAP, 1993; Brown, et. al., 1994; Stanton, et. al., 1996). The advent of HIV/AIDS has also strengthened the impetus to begin HIV/AIDS education at a young age, before the initiation of high risk behavior (Schonfeld, Johnson, Perrin, O'Hare, & Cichetti, 1993). For the young adolescent, education and health are inextricably linked, with the protection of health, now and in the future, largely dependent on this education (Hamburg, 1993).

While research shows the need for early, school-based health education, most research has focused only on what children know without also evaluating how the child assimilates that knowledge (Brown, et. el., 1994). This results in an incomplete picture, measuring simple knowledge, and not beliefs, attitudes, or formal operational skills. Schonfeld, et. al. (1993) argue that such a superficial analysis of content overestimates the student's true understanding and fails to identify major misconceptions. For example, the student may be able to recite the ways in which HIV is transmitted, but is confused regarding which behaviors are considered casual contact, and which are not. It has become more important than ever to determine what children of different ages understand about health issues and how this knowledge can be advanced (Sigelman, et. al., 1993).

When designing curricula, Schonfeld, et. al. (1993) caution that the teacher or health professional must recognize that there are limits in what children can be helped to understand at different ages. Young children may not be capable of understanding the fundamental health concepts necessary to guide appropriate behavior to prevent HIV/AIDS, even if education is provided (Schonfeld, et. al., 1995). If young children are unable to understand the information taught, HIV/AIDS programs may only result in misinterpretations that can lead to increased fears about illness (Strunin & Hingson, 1987; Schonfeld, et. al., 1995). If true learning is to occur, education efforts about HIV/AIDS should aim to advance comprehension and not just promote the memorization of facts. Some findings suggest that significant advances in conceptual understanding can be achieved through direct educational interventions, if these interventions are cognitively matched (Schonfeld, et. al., 1995). Strict memorization, in the absence of comprehension, is likely to result in beliefs that are inaccurate and highly vulnerable to conflicting arguments, such as those that might be opposed by peers.

Kipke, et. al. (1993), while evaluating an HIV/AIDS intervention program, found that perceptions of risk among adolescents are low, due, in part, to the fact that many adolescents, particularly younger adolescents, are not able to understand the future consequences of their behavior. Children of differing cognitive levels understand a phenomenon in ways unique to their stage of development, suggesting that how a child understands is more important than what a child understands (Walsh & Bibace, 1990).

Many younger adolescents do not possess higher order thinking abilities, nor have they developed the problem-solving, communication, and assertiveness skills necessary for effective prevention and risk reduction. Young adolescents are, therefore, likely to be ill-prepared to negotiate risk reduction with friends and sexual

partners, resist peer pressure, and avoid situations that are associated with risk behaviors.

For adolescents, interventions must go beyond traditional, fact-only, cognitive interventions, toward interventions which help adolescents recognize risk to themselves while providing them with the tools to make sound decisions. A developmentally-based HIV/AIDS education curricula should be tailored to the cognitive capabilities of the age group and focus on advancing further the adolescents' comprehension of critical health concepts (Schonfeld, et. al., 1995; USDHHS, 1988). According to Schonfeld, et. al. (1993), however, there is little information to offer guidance in the creation of effective, developmentally appropriate health education programs.

Pre-service and tenured teachers alike, have, in general, received cursory instruction and guidance in the development of unit and lesson plans both while in college and on-the-job. Often, there are curriculum guides, and other resources available for use in this planning. Realistically, however, many teachers may develop plans and learning activities loosely adhering to these guidelines and to what seems appropriate to them. The decisions made regarding specific objectives for a specific class of students are generally left to the teacher, and these teachers may base their decisions only on age-appropriateness, not developmental- or cognitive appropriateness.

Cognitive Development of Early Adolescents

Ideally, part of curriculum design would have the teacher evaluating the curriculum for its' age- and developmental-appropriateness. To accomplish this an understanding of the applicable stages of development and their attendant

characteristics is necessary. These stages of cognitive development should not be confused with the concurrent physiological developmental changes of puberty. While these physiological changes have effects in their own right, they are beyond the scope of this study, and will therefore, not be addressed.

Inhelder & Piaget (1958), and Piaget (1972) theorized that cognitive development occurs through a series of invariant stages from birth through adulthood. Patterned reflexes, present at birth, enable generalized responses to tactile, auditory, and other stimuli. During this period eye-hand coordination, object permanence, the ability to use words and their combinations to express needs, wants, and feelings are achieved. This is followed by the preoperatory period which extends, on average, from 18 months to 7 years of age. During the preoperatory period significant language gains are made, the child is egocentric, being able to account for everything, often with improbable explanations. As the end of this period approaches, the child may begin to take the view of other people, though still unable to tell the right and left hand of the person facing them (DiLeo, 1977). The concrete operational stage, extending from 7 to 11-12 years, follows, during which an intense period of intellectual growth takes place. The child is able to organize material on a higher, more general level; they are able to reverse; can multiply as well as divide, and concepts of conservation are understood. Less egocentric, the child begins to see and feel how things are experienced by others (DiLeo, 1977). The formal operational stage, initiating at 11 or 12 years, is characterized by the development of abstract thinking and logical reasoning. The child learns to consider hypotheses and ignore content as he/she becomes less dependent on information in their immediate situation. They begin to use inductive, as well as, deductive reasoning (DiLeo, 1977). Piaget (1972) maintains that while the order of succession has shown itself to be constant--each stage being

necessary to the construction of the following one--the average age at which children go through each stage can vary considerably from one environment to another.

Researchers differ on whether puberty--physical growth and development--is a necessary antecedent to the psychological changes associated with adolescence. Higgins-Trent & Gaite (as cited in Pestrak & Martin, 1971), suggest that many adolescents may not attain the stage of formal operations until the late teens or early twenties, regardless of physical pubertal changes. Increasingly, research shows that chronological age, puberty, and psychological development are distinct phenomena, which may, at times, be at variance with each other (Felice & Friedman, 1982; Vaughn & Litt, 1990; Flannery, et. al., 1993).

The attainment of formal operational thinking is necessary for the adolescent to fully comprehend the futuristic situational decision-making which is inherent in some classroom learning activities. Formal operational thinking enables the adolescent to think beyond the present; to construct hypotheses and deduce possible consequences. While the child still in the concrete operational stage is capable of certain logical reasoning processes, it is only to the extent of applying particular operations to events in the immediate present (Piaget, 1972). This is a critical difference; formal operations provides a framework for envisioning all of the possibilities, now and in the future, as well as enabling the adolescent to attribute value to those possibilities.

The adolescent now possesses metacognitive capabilities, the capability to think about thinking. At the Piagetian stage of formal operations, the individual is presumed to be capable of generating hypotheses to be tested before action is initiated, of thinking abstractly, of entertaining multiple contingencies simultaneously, of generalizing, and of considering possible consequences of behaviors in a logical manner without actually having experienced them (Vaughn & Litt, 1990).

Two important secondary effects identified by Piaget (1972) affect the depth and quality of participation in HIV/AIDS prevention learning activities:

1) Hypothetical reasoning changes the nature of discussions; a fruitful and constructive discussion means that by using hypotheses we can adopt the opposite point-of-view and draw the logical consequences it implies; we can then judge the value after having verified the consequences.

2) The individual who becomes capable of hypothetical reasoning, by this very fact will interest himself in problems that go beyond his immediate fields of experience. In HIV/AIDS prevention education, students are asked to discuss many situations with which many have not had any experience. Even if they have been sexually active, the emotional component of their relationships are very different from those of the older, more mature adolescent or adult.

These early adolescents are dealing with issues that oftentimes are difficult for adults to navigate, but the early adolescent may be without benefit of the very cognitive skills that would assist them in analyzing the situation. The adolescent, still at the concrete operational stage, although capable of participating in a discussion regarding sexual decision-making, would be unable to understand the complexities of situations and interpersonal relationships. Wagner (1987) argues that, "the concrete operational child who is restricted to reasoning about the present events may be viewed as cognitively incapable of conceptualizing a hypothetical life schema". Pestrak & Martin (1985) support this, maintaining that early adolescents have not reached the level of cognitive development to be able to develop genuine intimacy, or understand the complex, interpersonal aspects of a mature sexual relationship.

Jorgensen (1981) believes that certain cognitive skills are developmental prerequisites to adequate internalization and integration of information bearing on human sexuality and conception, Abstract concepts such as fertility, are difficult to

cognitively process until formal operations has been reached (Smith, Nenney, Weinman, & Mumford, 1982). Many adolescents who have completed a sexuality education course come away with a poor understanding of sexuality and contraception, which suggests, state Hamburg (1986) and Jorgensen (1981), that there may be a poor fit between current forms of educational programming and the developmental level of most adolescents. The cognitive developmental level of the adolescent will not only have an effect on contraceptive behaviors, but may also have an effect on the adolescents' ability to view contraceptive information as relevant--thereby impacting on the adolescents' knowledge and attitudes about contraception (Holmbeck, 1994).

While current statistics appear to show that more adolescents are becoming sexually active at an earlier age, there is evidence that adolescents are not developing at a faster rate cognitively (Petrak & Martin, 1985; Holmbeck, et. al., 1994). In a survey done by Smith, et. al., (1982), adolescents had a great problem with the concept of future and had great difficulty understanding the relationship between ovulation and pregnancy. Cvetkovich, et. al. (1975), cite a low level of cognitive development in early adolescents to explain why many do not practice birth control. Other authors go further, stating that one of the primary barriers to effective contraceptive use is the frequent mismatch between the cognitive developmental level of adolescents and the cognitive skills required in sexual decision making situations (Jorgensen, 1981; Chilman, 1983; Hamburg, 1986; Gilchrist & Schinke, 1987; Holmbeck, et. al., 1994). Petrak & Martin (1985) caution that while the cognitive level of adolescence is likely to deter genuine intimacy and progress toward a mature and healthy sexual relationship, there is no guarantee that after a more sophisticated cognitive level is reached, a healthy and satisfactory sexual relationship will be achieved.

This inability to abstract is further exacerbated by the adolescents' egocentric viewpoint and the creation of a personal fable. Thus, the adolescent, who has minimal

skills for internalizing possible future events, effectively rationalizes any risky behavior with, "It won't happen to me".

Personal Fable in Early Adolescent Egocentrism

As adolescents move from concrete to abstract thinking, around the ages of 11-15 years, they will begin to conceptualize their own thoughts and to reason about those thoughts. According to Looft (1971), this formal operational thinking is characterized by two abilities:

- ◇ the ability to think about one's own thinking, and
- ◇ the ability to recognize possibilities as well as actualities.

The adolescent is now able to think beyond the present, looking instead at the infinite number of possibilities which exist. According to Elkind (1967), this capacity to conceive many different alternatives is not immediately coupled with the ability to assign priorities and to decide which choice is more or less appropriate than the others. Therefore, while the adolescent may be able to list several options for a given situation, asking them to analyze those options in a decision-making process may not produce the desired results.

Adolescents, who are now able to conceptualize the thoughts of others, are not yet able to differentiate between the focus of others' thoughts and their own personal focus. In his discussions, Piaget (1972) argues that adolescent egocentrism is manifested by a belief in omnipotence of reflection; the adolescent therefore constructs the ideal family, religion, society, as well as the ideal person. This helps to explain the short-lived crushes that adolescents have, believing that the other person is absolutely perfect, ignoring any flaws that they might exhibit.

Since early adolescents are very concerned with their own behavior, bodily changes, and appearance, this lack of differentiation causes them to believe that everyone around them is equally concerned with these attributes. This imaginary audience, as Elkind (1967), described, has as its' focus of attention everything the young adolescent says or does and, especially how they look. This audience, since it is of their own construction, is privy to all that they know of themselves; therefore, it is aware of the most sensitive and potentially embarrassing information. If someone should inadvertently comment on a sensitive issue, the adolescent thinking the comment specifically directed to cause discomfort, may appear to over-react to the innocuous statement.

The second construct of egocentrism identified by Elkind (1967), is that of the personal fable, an extension of the uniqueness each adolescent believes they possess. Because they are unique, rules and consequences that apply to others do not apply to them. This belief in one's own indestructibility impairs the adolescents' judgment in critical situations since it provides a false sense of power (Muuss, 1982; Buis & Thompson, 1989).

The personal fable originates from the adolescents' belief that they are of such importance to so many people that they overdifferentiate their feelings and come to regard themselves as something unique and special (Elkind, 1967). This belief becomes a conviction that they will not be hurt, that bad things will not happen, and that they will not die. Lapsley (in Montemayor, Adams, & Gullotta [eds.], 1990), writes that the personal fable reflects the adolescent's belief in one's personal uniqueness, invulnerability, and omnipotence. Adolescents' behavior, therefore, reflects heightened self-consciousness, idealism, and risk-taking.

In studies of sexual behavior, contraceptive use, and pregnancy among teenagers, several findings are of interest:

- ◇ 40% of respondents believed that fertility does not begin at menarche (Kantner & Zelnick, 1972);
- ◇ 10-25% did not believe they could get pregnant the first time they had intercourse (Cobliner, 1974; Cvetkovich & Grote, 1975; Reichelt & Werley, 1975; Zabin, Kantner, & Zelnick, 1979);
- ◇ 33% said that “if a girl truly doesn’t want a baby, she won’t get pregnant even though she may have sex without taking any birth control precautions” (Sorensen, 1973).
- ◇ 34% of adolescents under the age of 15 years reported having had unprotected sex (Tennessee Department of Health Statistics, 1996).

This ideation is reflective of the personal fable that early adolescents are immersed in; creating their own reality. Adolescents are being required to make a decision about sexual intercourse and contraceptive use at a time when they are sexually undifferentiated and perhaps unprepared for such analytical thinking about themselves (Cvetkovich & Grote, 1975).

The problem is compounded by two changes that have occurred in the timing of puberty and adolescence. First, girls today reach biological maturity, on average, at 12.5 years, with some girls experiencing their first menstrual period as early as age 9. In contrast, the average age for first menstruation a century ago was 16.5 to 17 years of age (Eveleth, 1986). Secondly, the current trend is toward late marriage and late childbearing, a distinct difference from a few decades ago when early marriage and early childbearing were the norm. There is significant contrast from the 1950’s when the birthrate for adolescents, age 15-19 years, was 90 per 1,000 females; compared to 1986 when the rate was 51 per 1,000 females (Luster & Mittelstaedt, 1993). Of

interest is the increase in the number of unmarried, pregnant young females in recent years.

If it is accurate to conclude that the cognitive level of many adolescents is not advanced enough to expect them to practice birth control, it should follow that steps taken to educate adolescents in the areas of human reproduction and methods of contraception will not result in their acting on this knowledge (Pesttrak & Martin, 1985). While knowledge of human reproduction and birth control is an important part of adolescent education, educators should bear in mind that this knowledge, at least in early adolescence, may not be utilized.

Jorgensen (1981), Chilman (1983), Hamburg (1986), and Gilchrist & Schinke (1987), concluded that one of the primary barriers to effective contraceptive use is the frequent mismatch between the cognitive developmental level of the adolescent and the cognitive skills required in sexual decision-making situations. From a Piagetian perspective, four components of formal operations reasoning are relevant to adolescent decision-making about contraceptive use and sexual behavior: 1) envisioning alternatives, 2) evaluating alternatives, 3) perspective taking, and 4) the ability to reason about chance and probability (Gordon, 1990). Educators must consider to what extent accurate risk assessment concerning intercourse can be taught to the early adolescent age group.

A failure to differentiate between hypothesis and fact means that the concrete-operational adolescent may treat hypothesis as if they were facts, and facts as if they were hypothesis (Muuss, 1982). When challenged, the young adolescent would not change their viewpoint, but rather would reinterpret the data to fit with their initial assumption, defending it as if, indeed, it were true. As the adolescent ages, the ability to move beyond egocentric thinking has been shown to positively correlate with the ability to make mature moral and causal judgments (Muuss, 1982).

Cognitive Matching

The relationship of cognitive abilities and health beliefs further relates to the health behaviors which adolescents practice. Efforts at educating adolescents should take into consideration the level of cognitive development of the target group (Epstein, 1981). Education efforts that are too sophisticated may serve to confuse and, consequently may meet with little success. Likewise, presentations that are too simplistic are likely to be ignored and discounted by the adolescent.

Traditional methods of assessing students' abilities, IQ test and achievement tests, are inadequate for determining cognitively matched curricula. As Epstein (1981) observes, IQ scores give no hint about what should be taught next or how that child should be taught, and achievement tests do not differentiate among children on the basis of what can now be understood; its' emphasis is on what has previously been understood.

As educators design curricula, it is important to address relevant developmental factors such as perceived invulnerability to adverse consequences, the development of abstract thinking, and susceptibility to peer influence. These attributes, which are prominent in the adolescent, may each impact on an adolescent's likelihood of engaging in high risk or protective behaviors. Because of the tremendous effect these characteristics may have in how an adolescent learns and assimilates content material, the importance of matching material to cognitive and developmental factors is underscored.

Age-grading, as with IQ and achievement testing, is not adequate for determining which curricula are appropriate. According to Epstein (1981), there is a wide distribution of cognitive levels at every age studied; students are not equivalent in

their styles of reasoning. In an effort to make the teaching-learning process more successful and to facilitate cognitive development, appropriate modifications should be made to the structure and content of educational experiences (Brooks, Fusco, & Grennon, 1983). This process can be facilitated by utilizing one of several measures of concrete-abstract thinking skills, as well as measures of psychosocial attributes.

If prevention and health education are to succeed, intervention must begin at the time during which the individual is developing an understanding of health and behavior, forming attitudes and behavior patterns regarding such matters, and developing the psychological autonomy and cognitive capacity necessary for decision-making and action-taking (Roberts, Maddux, & Wright, in Matarazzo, Weiss, Herd, Miller, & Weiss [eds.], 1984). The challenge for the teacher will be to accommodate the differences among a classroom full of individual students at various stages of social, physical, and cognitive development.

Summary

School health education has the potential for making significant strides in affecting the behavior of young adolescents, who, in many cases, have yet to engage in high risk behaviors. Implicit in this success, though, is the need for a developmentally appropriate curriculum, one that is cognitively matched to the learners. At the same time, attention must be given to the egocentric thinking that young adolescents exhibit and its' effect on their ability to conceptualize potential future situations.

Many researchers have argued the need for theory-based programs, with clearly stated goals and objectives that can be measured in an evaluative process. In developing these interventions, educators need to look not only to theories of health

behavior, but also those of cognitive learning, and developmental psychology. It appears that programs which are based in health behavior theory, account for developmental differences, such as egocentric thinking and personal fable ideation, and incorporate the cognitive development of concrete or abstract thinking will have an increased chance of successfully influencing adolescents.

CHAPTER III

METHODOLOGY

Introduction

This study evaluates the constructs of formal operational thinking and egocentrism, specifically the level of personal fable ideation of young adolescents, and the relation of these constructs with selected learning activities for decision-making skills in a sample of seventh grade students. An analysis of selected lesson plans pertaining to decision-making skills was completed, along with measurement of young adolescents' levels of cognition and personal fable ideation. The students' cognitive abilities were correlated to evaluated lesson activities, as well as to the personal fable construct.

Population and Sample

Students

Although norms had been established for both of the measurement instruments which were used, they were not reflective of the precise sample used in this study. For that reason, the survey instruments were administered to this particular sample population in order to establish accurate baseline data for the sample.

The instruments to measure cognitive developmental levels and the degree of personal fable ideation were administered to a sample of seventh grade students at a selected middle school in a Northeast Tennessee city. The city, with a population of 51,000, has one middle school, serving the majority of the students in this age group.

There is a student population of 480 in the seventh grade, of which 39% (186) are on the federal free- or reduced-lunch program for low-income families. Males account for 55.2% (265) of the seventh grade, with females accounting for 44.7% (215). Of this population, 12.2% (59) are African-American, 0.62% (3) are Hispanic, 0.83% (4) are Asian-American, with the remaining 86.2% (414) Caucasian. The school follows the inclusion model of instruction, where students of varied intellectual abilities and behaviors are heterogeneously grouped.

Cluster sampling of the homeroom classes of the identified population of seventh grade students at the chosen middle school was utilized to select a representative sample. Full-time, self-contained, special education classes were excluded from the sampling population. A sample size of approximately 50% of the homeroom classes, or clusters was utilized. To insure randomization, each homeroom was assigned a number and chosen through use of a table of random numbers. This translates to a sample size of eight homeroom classes, with an average student roster of 28 students per homeroom. All students in the chosen homeroom were asked to participate in this study. The maximum number of students who could potentially participate in the study was approximately 224 students. Initially, a relatively large sample was chosen due to the anticipated low return rate of parental permission forms. Gay (1994) considers a sample of over 10% of the available population to be appropriate in public school-based research.

Teachers

Lesson plans were solicited from twenty teachers from across the state of Tennessee. Teachers were identified from the Tennessee Department of Education HIV/AIDS Program publication HIV/AIDS Resource Educator Directory (December, 1993). This publication identifies contact persons from across the state, who are

responsible for the teaching of HIV/AIDS curriculum. Only those persons identified with a specific middle school or local school system were selected. This eliminated persons associated with community HIV/AIDS organizations and insured that those selected were certified teachers within a school system. There were twenty-two such persons identified, located in seven divisions across the state.

No further attempt was made to screen individual teachers regarding years of experience, major content area of study, experience in developing lesson plans, etc., etc.. Although demographic data was requested at the time of contact, for the purposes of this study, an unscreened sample more accurately and realistically portrays teachers in the state of Tennessee.

In addition, the school district in which the teachers taught was compared to the study population school district on the basis of Tennessee Comprehensive Assessment Program (TCAP) scores for the seventh grade and the ethnic make-up of the district. Of the 20 school districts with a teacher participating in the study, 12 were found to be within 10 percentile points of the selected middle school TCAP scores for the 1995-1996 school year. Of the remaining eight districts, information was not available for five of the districts, primarily city school systems, and three districts' TCAP scores fell within a 15-point range (Tennessee Department of Education, 1996).

In regard to ethnic make-up, one district was a near-perfect match to the study district, with the following characteristics: African-American, 12.4%, Hispanic, 0.5%, Asian-American, 1.4%, and Caucasian, 85.4%. All of the remaining 19 districts were, on average, 96.4% Caucasian; with the balance of the populations averaging 2.6% African-American, 0.2% Hispanic, and 0.3% Asian-American (Tennessee Department of Education, 1996).

It was decided to use a HIV/AIDS prevention unit as a representative lesson unit in which decision-making skills were taught. Due to funding availability and

federal and state mandates, HIV/AIDS prevention education is taught in almost every school system in the state of Tennessee. Mandated by state law with a specific state-level Division dedicated solely to prevention skills, this unit is more likely to be comparable across school districts than others where the recommendations are not as clearly spelled out and materials, resources, and training are not provided.

Each of the selected teachers were asked to submit one lesson plan dealing with decision-making skills for the seventh grade students in a HIV/AIDS prevention unit. To evaluate the level of cognitive skills required for the student to successfully complete the tasks contained in these lesson plans, 20 expert judges were selected from members of the American School Health Association-School Health Education Section (ASHA-SHES). The use of an expert panel of judges is an accepted method of evaluating selected materials (Neutens & Robinson, 1997). By utilizing those professionals associated with the ASHA-SHES, it was expected that the identified professionals would be involved and interested in the development, implementation, and evaluation of school health curriculum. Permission to obtain and use the membership list was obtained, in writing, from the organization's director of membership services (see Appendix A). The mailing list was reviewed by the committee and the researcher in order to choose those professionals known to have an interest and expertise in the area of health education lesson development.

Data Collection

Data was collected from four sources; 1) a student questionnaire measuring level of personal false ideation; 2) a student instrument measuring the level of formal operational thinking; 3) teacher-provided lesson plans dealing with decision-making;

and 4) expert analysis of these lesson plans for evidence of required student cognitive skills.

The cluster sampling of students was based on the 17 homeroom classes of the seventh grade. Full-time self-contained, special education classes were excluded from the sampling population. Confidentiality was maintained through several procedures. Student response forms were numerically coded; students did not put their names on the response sheets, but were asked to provide age, ethnic group and gender. Confidentiality was also accorded the teachers who submitted lesson plans, and their school districts; the expert review panel members, and their affiliations; the middle school, the school district, and the city in which the study was completed.

In accordance with the human subject research regulations of both the University of Tennessee and the local school system, approvals were sought from: 1) the university internal review board; 2) the local school system's Director of Schools (see Appendix B); 3) the local Elementary Curriculum Director; 4) the principal of the selected middle school; and, 5) the parent/guardians of the seventh grade students. Each parent/guardian of students in the selected sample received a letter describing the project and its' purpose, and requesting written permission for their child to participate (see Appendices C & D).

Participating students completed the Arlin Test of Formal Reasoning (ATFR) (Arlin, 1988), and the New Personal Fable Survey (NPFS) (Lapsley, Fitzgerald, & Rice, 1989), to establish cognitive levels and the levels of personal fable ideation, respectively. Since scheduling was flexible at the designated middle school, time was not a significant factor; both surveys were completed in less than 80 minutes total.

The instruments were administered by the individual homeroom teacher. Teachers received identical written instructions, which they read to the classes in order to standardize administration of the instruments (see Appendices E & F). The

researcher met with the teachers prior to the administration of the instruments to further insure uniformity. Completed response forms and instruments were returned to the researcher on the same day that they were administered.

To establish the level of cognitive skill required of students, 20 middle school teachers from across the state were requested to submit one seventh grade lesson plan on decision-making skills from an HIV/AIDS prevention unit. Each lesson plan included the stated student learning objectives, the student activities, and occasionally the expected outcome. Recruited teachers were provided with a postage pre-paid envelope. Upon receipt by the researcher, identifying information was removed and lesson plans were re-typed, verbatim, in a standard format.

A packet of two lesson plans, coded for confidentiality, and randomly assigned, were sent to each of the expert judges for evaluation. Included in the packet, along with the two lesson plans were a cover letter (see Appendix G), two cognitive rating sheets for the expert to record their evaluation (see Appendix H); an instruction/explanation sheet (see Appendix I); a sample, completed, rating sheet; and a list of definitions for each of the 28 cognitive skills on which the lesson plans were to be evaluated (see Appendix J). Each expert reviewer was asked to simply check the degree to which the lesson activities required students to use any of the identified cognitive skills in order to successfully complete the lesson tasks. The completed review sheets were returned to the researcher in a postage pre-paid envelope.

Instrumentation

Two instruments were completed by participating students to determine their degree of personal fable ideation and their level of formal operational thinking.

The New Personal Fable Survey (NPFS) (Lapsley, et. al., 1989) was utilized to measure the personal fable construct. Evolving from Elkind's Adolescent Egocentrism Scale (AES), the NPFS is directly focused on the personal fable constructs as is true of the AES. A majority of research has focused on either egocentrism in general, or specifically, on the imaginary audience (Elkind & Bowen, 1979; Enright, et. al., 1979; Gray & Hudson, 1984; Pesce & Harding, 1986; Lapsley, et. al., 1989; Peterson & Roscoe, 1991). The NPFS, a 46-question, forced-choice measure is based on three variables of personal fable ideation, those of omnipotence (19 items), invulnerability (14 items), and personal uniqueness (13 items). Omnipotence was defined in terms of having virtually unlimited authority or influence. Invulnerability was defined in terms of an incapability of being wounded, injured, or harmed. Personal uniqueness was defined as not having the same thoughts as others, or somehow being different from everyone else (Lapsley, et. al., 1989).

Each of the subscales may be scored separately, with the total, combined score indicating the strength of the student's personal fable ideation. For the purposes of this study, only the total score will be used, with higher scores representing a heightened sense of personal fable ideation. Scores will be divided by the researcher into high and low categories based on a possible total high score of 230 points with the median of 115 being the division point.

This measure is considered appropriate for students ranging in age from 11-19 years of age, of varied ethnic and economic groups. It has been administered, on several different occasions to middle school students (D.K. Lapsley, personal communication, April 21, 1997). Coefficient alpha reliabilities range from .69 to .72 for the full scale. Subscale reliabilities are reported as: omnipotence, .67 to .79; invulnerability, .57 to .73; and for personal uniqueness, .37 to .70 (Lapsley, et. al., 1989; Lapsley, Flannery, Gottschlich, & Raney, 1996).

The second measurement instrument to be used will be the Arlin Test of Formal Reasoning (ATFR) (Arlin, 1988). The ATFR was designed for large group administration within schools to obtain a general assessment of students' levels (or stages) of cognitive development, whether concrete or abstract-formal. It was also designed to yield specific subtest scores with reference to each of Inhelder & Piaget's (1958) eight formal schemata: 1) multiplicative compensations (volume), 2) correlations, 3) probability, 4) combinational reasoning, 5) proportional reasoning, 6) forms of conservation beyond direct verification, 7) mechanical equilibrium, and 8) coordination of two or more systems or frames of reference. Inhelder & Piaget (1958) define these as the concepts which the subject potentially can organize from the beginning of the formal level when faced with certain kinds of data, but which are not manifest outside these conditions.

Only those items which produce results comparable to an individual's performance on the Piagetian clinical tasks were selected for inclusion (Arlin, 1988). The items chosen underwent item analysis as well as several revisions as a result of reviews by more than 500 teachers who represented school districts in 20 states and three Canadian provinces (Arlin, 1988). The test is considered appropriate for students ranging in age from 11-19 years, of varied ethnic and economic groups, who reside in North America and use English as their primary language.

The ATFR has been used for instructional planning based on cognitive levels matching (CLM) (Arlin, 1983; Brooks, et. al., 1983; Elkind, 1981; Epstein, 1981). The reported internal consistency estimates of reliability for ATFR are alphas ranging from .60 to .73 (Arlin, 1988; Hagborg & Wachman, 1992). Arlin (1988) reports test-retest reliabilities of .76 to .89.

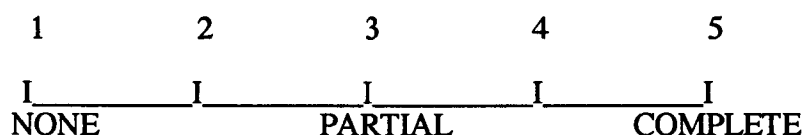
Scoring of the ATFR yields two sets of scores. The first set of scores is used to determine overall cognitive level; the second set contains individual scores for each

of the eight formal schemata. To determine the overall cognitive level, one of five levels is assigned:

concrete	00-07 points
high concrete	08-14 points
transitional	15-17 points
low formal	18-24 points
high formal	25-32 points

The second set of scores contains eight scores, one for each of the subtests which represent the eight formal schemes. These subtests create a profile which indicates potential areas of strength and weakness. For this research study, only the score for overall cognitive levels will be utilized.

Analysis of the lesson plans was completed using a list of higher order thinking skills (see Appendix H). The list was formulated using previously cited taxonomies (Meeks & Heit, 1992; Butler, 1994; Bender, Neutens, Skonie-Hardin, & Sorochnan, 1997). Logical, or face validity was based on the expert nature of the published taxonomies (Gay, 1992; Neutens & Robinson, 1997). The taxonomies were arranged in a likert-style format which was utilized by the expert panel to record the formal operational skills they felt were required of the students in each of the submitted lesson plans. The experts determined whether the lesson activities required use of a particular cognitive skill based on the following range of possibilities:



The following definitions were provided for use in the completion of the likert scales:

- ◇ none--no use of this higher order thinking skill required at any time during the lesson.
- ◇ partial--use of this higher order thinking skill is required during some parts of the lesson.
- ◇ complete--use of this higher order thinking skill is required throughout the entire lesson.

Scores were determined by averaging the individual scores assigned to each of the 28 cognitions on a given lesson plan by a given researcher. As each lesson plan was critiqued by two experts, these scores will be reported as a range for that particular lesson plan.

Analysis of Data

In order to test the stated hypotheses, analysis of the data gathered from the expert panel, the student-completed ATFR and the student-completed NPFS was performed for each of the hypotheses. The following delineates the analysis which was completed in relation to each hypothesis.

Hypothesis 1. The majority of young adolescents (7th grade) will not function at the cognitive level of formal operational thinking.

Scoring of the ATFR provided scores for the overall cognitive level of each of the students participating in this study. Students identified as in the low formal or high formal levels, as described by the instrument author, were considered to be functioning at a formal operational stage for the purposes of hypothesis testing. Based

on the total number of students who participate, if over one-half of the total sample fall into the same category, it will be considered a majority.

Hypothesis 2. Lesson activities dealing with decision-making skills will require the students to use formal operations.

Each one of the lesson plans submitted by the teachers was reviewed by two of the expert panel members. Utilizing a likert scale instrument measuring formal operational thinking, the experts completed their analysis; a range of scores was then determined based on the average score given each lesson plan by each expert. No weighting was utilized in scoring different skills; for the purposes of this study all cognitive skills identified as being of formal operations hold the same value as each other skill listed.

Hypothesis 3. There is a positive relationship between lesson plan activities and the young adolescents' level of formal operational thinking.

A comparison of the means of the two variables was completed. Scores from the ATFR are reported ranging from 00 points to 32 points, with 00 being concrete, and 32 being high formal operational thinking. Ratings of the cognitive skills in the lesson plan activities are reported ranging from 1--no formal operational thinking required, to 5--formal operational thinking required throughout the entire lesson.

Hypothesis 4. Young adolescents will have high levels of personal fable ideation.

Scoring of the NPFS provides a full-scale score to indicate the level of personal fable ideation. Students' full scale scores were divided into high and low levels of personal fable ideation based on the 230 possible points. The dividing point was the median score, or 115 points. Students placing in the top one-half of the scoring were considered to have high levels of personal fable ideation.

Hypothesis 5. There is an positive relationship between young adolescents' level of personal fable ideation and their level of formal operational thinking.

A Pearson r was calculated using the students' scores on the NPFS and the students' scores on the ATFR. Higher scores on the NPFS indicated stronger levels of personal fable ideation; high scores on the ATFR indicated stronger formal operational skills, while low scores indicated the concreteness of thought processes.

Summary

Utilizing a sample of seventh grade students at a middle school in northeast Tennessee, this study sought to evaluate the constructs of formal operational thinking and personal fable ideation, their relation to each other, as well as their relation to selected lesson plan activities for decision-making skills in a HIV/AIDS prevention unit. This was accomplished through collection of data from four sources: 1) student completion of the New Personal Fable Survey (NPFS); 2) student completion of the Arlin Test of Formal Reasoning (ATFR); 3) twenty lesson plans solicited from a sample of teachers from across the state of Tennessee, and 4) expert analysis of these lesson plan activities for evidence of required student cognitive skills.

Upon completion of data collection and scoring, correlations were determined between the variables. Student levels of formal operational thought were correlated with levels of personal fable ideation. The means of the the ATFR student scores and the evaluated lesson plan scores was completed. The purpose of this study was to determine if young adolescents' formal operational thinking and personal fable ideation are related to each other, as well as to decision-making-skills activities in teacher-provided lesson plans.

CHAPTER IV

ANALYSIS OF DATA

Introduction

Adolescents are engaging in a variety of risk behaviors at earlier ages than that of previous generations. As a consequence, interventions are being instituted at earlier and earlier ages, often with variable results. It may be possible that one of the contributing factors of these inconsistent results is the lack of cognitive matching in regard to lesson plan development. Further complicating the potential success of these interventions, is the level of personal fable ideation among the young adolescents.

The purpose of this study was to investigate the constructs of formal operational thinking and personal fable ideation, their relation to each other, and their relation to decision-making skills activities in teacher-provided lesson plans at the seventh grade level.

Presentation of the Data

Four separate sources were utilized to obtain data for this study. They include: 1) lesson plans on decision-making skills solicited from selected teachers in Tennessee; 2) expert panel evaluations of the submitted lesson plans regarding the level of cognition required by the student to complete the lesson; 3) student completion of the ATFR; and 4) student completion of the NPFS.

The members of the expert panel utilized a researcher-designed likert-scale instrument to evaluate the cognitive skills required by students to complete the lesson

activities presented in the solicited lesson plans. Participating students completed the ATFR, a 32-item, multiple-choice instrument measuring the students' level of concrete or formal cognition, and, the NPFS, a 46-question, forced choice instrument measuring the students' level of personal fable ideation.

Population and Sample Response

Students

Random cluster sampling of the 17 homeroom classes containing a total of 480 seventh grade students resulted in a representative sample of 8 homerooms, or 224 students. Of the 224 potential participants, 119 students returned signed permission forms, which translates into a 53% participation rate. Males constituted 51.3% (61) of the sample, with females accounting for 48.7% (58). The ethnic composition of this sample was: Caucasian, 81.5% (97); African-American, 9.2% (11); Hispanic, 2.5% (3); Asian-American, 1.8% (2); and 5.0% (6) who did not write in their ethnic background. When grouped according to age, the sample was comprised of 32.7% (39) 12 year old adolescents, 58.8% (70) 13 year old adolescents, and 8.4% (10) 14 year old adolescents

Teachers

Of the approximately 230 persons listed in the Tennessee Department of Education publication HIV/AIDS Resource Educator Directory (Dec., 1993), 22 were associated with public school systems. Anticipating that some teachers would not respond, or might have moved from that position, all of the 22 teachers were requested to send sample lesson plans in order to receive the 20 plans required for this study. The initial mailing explained the background and purpose of the research, as well as

the actual request for a lesson plan (see Appendix K). Teachers were also asked to provide demographic data (see Appendix L). One week after the initial response deadline, follow-up phone calls were made by the researcher. The result was a response rate of 90.9%, or 20 of 22 possible teacher-provided lesson plans. Of these 20 teachers, only three returned the requested demographic information.

Expert Review Panel

The potential members of the expert panel were selected from the ASHA-SHES membership list which contained a total of 1172 names. An initial inquiry mailing was sent to 34 professional educators as identified by review of the membership list by a member of the doctoral committee and the researcher (see Appendices M & N). Persons were selected on the basis of their interest and involvement in curriculum development as well as their perceived willingness to participate in a timely fashion. Of the 34 professionals contacted, 26 (76.5%) responded positively, while 8 (23.5%) responded negatively, or not at all.

Each of the 20-member expert panel received two randomly selected lesson plans and the evaluation instrument. The resulting distribution of lesson plans to each of the experts is presented in Table 1. To maintain confidentiality, each expert is identified numerically, with each lesson plan also being coded by the numbers 1-20. Therefore, Expert # 5 received lesson plan numbers 3 and 18. One week after the initial return deadline, reminder letters were sent to those experts who had not yet returned the completed evaluations (see Appendix O). In all, two of the expert panel did not return the completed lesson plan evaluations resulting in a return rate of 94%. All 20 lesson plans were evaluated by at least one expert reviewer.

Table 1.
Distribution of Lesson Plans to Each Expert Reviewer

Expert	First Lesson Plan	Second Lesson Plan
1	2	4
2	8	13
3	11	15
4	3	9
5	3	18
6	10	20
7	1*	12*
8	6	20
9	13	17
10	2	17
11	5	18
12	11	14
13	7*	19*
14	14	6
15	7	19
16	10	16
17	4	5
18	9	15
19	12	16
20	1	8

Note: * Lesson plan evaluations not returned

Hypotheses

Hypothesis 1.

The majority of young adolescents (seventh grade students) will not function at the cognitive level of formal operational thinking.

Results of the ATFR strongly support the stated hypothesis. Of the 119 students who completed the test, 85 (71.4%) scored 14 points or lower. Students scoring lower than 14 points were considered to be in the concrete (15 students, 12.6%) or high-concrete (70 students, 58.8%) category of cognition based on the instrument author's scale. Of the remaining 34 students, 20 (16.9%) fell into the transitional category; 13 (10.9%) into the low-formal and 1 (0.8%) in the high-formal stage of cognition. When classified on the basis of age, a total of 15 (12.6%) participants in all three age groups fell into the concrete cognitive level. Of these, 7 (46.7%) students were 12 years of age, 6 (40.0%) students were 13 years of age, and 2 (13.3%) students were 14 years old. In the high-concrete cognitive level, there were 70 (58.8%) students, with 23 (32.9%) 12 year olds, 42 (60.0%) 13 year olds, and 5 (7.1%) 14 year olds. Twenty students placed in the transitional stage; 6 (30.0%) of whom were 12 years old, 12 (60.0%) students who were 13 years old, and 2 (10.0%) students who were 14 years old. In the low-formal category, there were 13 students; 3 (23.1%) 12 year olds, 9 (69.2%) 13 year olds, and 1 (7.7%) 14 year old. One 13 year old attained the level of high-formal operations.

Table 2 illustrates the categorization by age and sex. In Table 2, it is noted that seven males (47.0%) and 8 (53.0%) females placed in the concrete cognitive level, while 30 (42.8%) males and 40 (57.1%) females placed in the high-concrete stage.

Table 2.

ATFR Raw Scores by Age and Sex

Score	Stage	Age			Total	Sex		Total
		12 yr.	13 yr.	14 yr.		Male	Female	
00-07	C	7 46.7%	6 40.0%	2 13.3%	15 100.0%	7 47.0%	8 53.0%	15 100.0%
08-14	HC	23 32.9%	42 60.0%	5 7.1%	70 100.0%	30 42.8%	40 57.1	70 100.0%
15-17	T	6 30.0%	12 60.0%	2 10.0%	20 100.0%	12 60.0%	8 40.0%	20 100.0%
18-24	LF	3 23.1%	9 69.2%	1 7.7%	13 100.0%	10 76.9%	3 23.1%	13 100.0%
25-32	HF	0	1 100.0%	0	1 100.0%	1 100.0%	0	1 100.0%
Totals		39	70	10	119	60	59	119

Note: Percentages equal 100.0% in rows only, and are separate for age and sex. Shading indicates the majority of the students who do not function at the formal operational level.

Of the 20 students who placed in the transitional stage, 12 (60.0%) were male, and 8 (40.0%) were female. Of the 13 total students placing in the low-formal cognitive stage, 10 (76.9%) were male, and 3 (23.1%) were female. Only one student, a male, placed in the high-formal stage.

In an examination of Table 3, it can be seen that those participants classified as concrete thinkers were 11 (84.6%) Caucasians, 1 (7.7%) Hispanic, and 1 (7.7%) Asian-American. None of the African-Americans who participated fell into the concrete category. In the high-concrete stage, 55 (80.8%) were Caucasian, 10 (14.8%) were African-American, 2 (3.0%) Hispanic, and 1 (1.5%) Asian-American.

Table 3.
ATFR Raw Scores by Race

Score	Stage	Caucasian	African	Hispanic	Asian	Totals
00-07	C	11 84.6%	0	1 7.7%	1 7.7%	13
08-14	HC	55 80.8%	10 14.8%	2 3.0%	1 1.5%	68 100.0%
15-17	T	17 94.4%	1 5.6%	0	0	18 100.0%
18-24	LF	13 100.0%	0	0	0	13 100.0%
25-32	HF	1 100.0%	0	0	0	1 100.0%
Totals		97	11	3	2	113

Note: Percentages equal 100.0% in rows only.

Shading indicates the majority of students who do not function at the formal operational level.

In the low-formal category, all 13 (100.0%) were Caucasian, as was the 1 male student who ranked in the high-formal category.

The mean = 12.24 ± 4.24 . It should be noted that on both Table 2 and Table 3 the number of students does not consistently equal 119 due to some participants' incomplete demographic data entry on the response forms.

Hypothesis 2.

Lesson plans dealing with decision-making skills will require the students to use formal operations.

Twenty different lesson plans were sent for evaluation by the experts, with each lesson plan being sent to two different expert evaluators, for a total of 40

separate lesson plan evaluations. Two of the 20 experts did not return the completed evaluations, resulting in a final tally of 36 completed evaluations. Lesson plan numbers 1, 7, 12, and 19 were evaluated by only one expert; all other lesson plans were evaluated by two separate experts (Table 4). In analyzing the data from the lesson plan evaluations, all 36 evaluations were taken into account. Therefore, lesson plans which had been evaluated by two experts had each of the scores listed individually for statistical computations.

As can be seen in Table 4 and Figure 1, there was consistency among evaluators of some lesson plans, but significant inconsistencies among evaluators of other lesson plans. For example, lesson plan number 11 has a score range of 1.14 - 3.35, a variance of 2.21; the largest discrepancy. Conversely, lesson plan number 16 has a score range of 3.10 - 3.14, a variance of .04; the smallest discrepancy. Factors which may potentially be responsible for these variations are addressed in the discussion of the findings.

Of the 20 lesson plans submitted for evaluation, 12 (60.0%) were evaluated by at least one evaluator as requiring students to use formal operational skills during more than half of the lesson; three were evaluated as such by both expert reviewers. The remaining seven (35.5%) lesson plan evaluations concluded that students were required to use formal operational skills less than half of the time. Only one lesson (5.0%) was evaluated as not requiring formal operational skills at any time during the lesson (Table 4).

As shown below, evaluators were able to rate the lesson activities on a scale of 1 to 5. The scale was defined as :

- ◇ none (1) --no use of this higher order thinking skill required at any time during the lesson.

Table 4.
Mean Evaluation Score Assigned by Each Evaluator
for Each Lesson Plan

Lesson Plan	First Evaluator Score	Second Evaluator Score
1	2.25	NR
2	2.82	3.30
3	1.57	2.73
4	2.60	3.32
5	1.83	3.25
6	2.78	2.39
7	2.32	NR
8	2.53	3.42
9	1.85	2.92
10	1.98	3.82
11	1.14	3.35
12	3.60	NR
13	3.42	2.14
14	1.00	2.92
15	3.46	3.39
16	3.14	3.10
17	3.46	3.41
18	3.10	2.08
19	2.64	NR
20	2.32	3.60

Note: "First Evaluator" and "Second Evaluator" are generic designations for the two different experts who reviewed that particular lesson. There were 20 individual expert evaluators.

NR = completed evaluations not returned

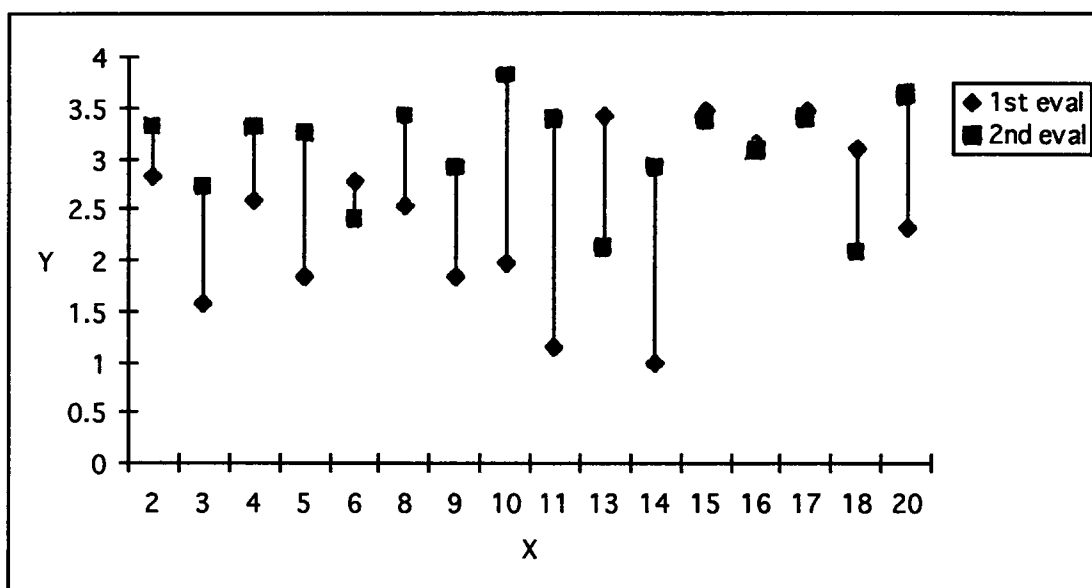


Figure 1.

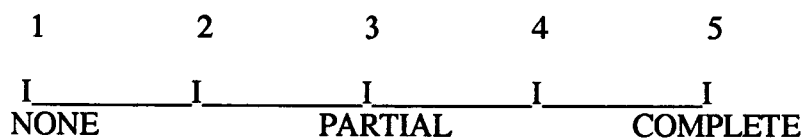
Scores given by First and Second Expert Evaluators for Submitted Lesson Plans

Note: X axis = numbered lesson plans;

Y axis = possible score on cognitive likert scale

Only lesson plans evaluated by both experts are included above.

- ◇ partial (3) --use of this higher order thinking skill is required during some parts of the lesson.
- ◇ complete (5) --use of this higher order thinking skill is required throughout the entire lesson.



Rating scores from the expert evaluators ranged from a low of 1.00, to a high of 3.82. The mean = 2.72 ± 0.72 . The median score was 2.87, with 6 (16.7%) lesson plans being evaluated with a score between 1.00 and 1.99. Fourteen (38.9%) lesson plan evaluation scores ranged from 2.00 to 2.99, while 16 (44.4%) of the lessons were evaluated between the scores 3.00 and 3.99. These scores are illustrated in Figure 1.

The results of the expert review support the stated hypothesis. Even though there was variation among evaluators, the majority (60.0%) of the lesson plans were evaluated as requiring students to use formal operational thinking during more than half of the lesson.

Hypothesis 3.

There is a positive relationship between lesson plan activities and the young adolescents' level of formal operational thinking.

Scores for the 36 lesson plan evaluations ranged from a low of 1.00 (no formal operational skills required), to a high of 3.82 (formal operational skills required throughout approximately 3/4 of the lesson). As discussed under Hypothesis 2, there was significant variation among the evaluations completed by the experts. Scores for the 119 completed ATFR instruments ranged from a low of 4 (concrete), to a high of 28 (high formal). A comparison of the means of the ATFR scores (12.24 ± 4.24), and the evaluated lesson plan scores (2.72 ± 0.72) indicate that both fall into the expected ranges as stated in Hypotheses 1 and 4. The mean for the students' ATFR scores fell into the high concrete stage of cognition as was expected, and supported by the majority of the students' raw scores for the ATFR. A small number (14, 11.7%) of the students tested as having reached the level of formal operational thinking. The

mean for the evaluated lesson plans indicated that, in general, the lesson plans matched the level of the students' cognition, with some experts indicating that some lesson plans (14, 38.8%) required considerable formal operational thought on the part of the students.

Hypothesis 4.

Young adolescents will have high levels of personal fable ideation.

Students' full scale scores on the 113 NPFS which were completed showed 109 (96.4%) scoring above the median of 115 points, indicating high levels of personal fable ideation among students of this sample. Four (3.5%) students scored below 115 points, indicative of lower levels of personal fable ideation. In all 117 students took the NPFS, however, four of the participants did not complete the instrument and their response sheets were not used in any of the calculations. The mean = 145.5 ± 16.6 .

Scores were divided further into low-low (25% or lower of the total points possible); high-low (26%-50%); low-high (51%-75%); and high-high (76%-100%). This translated into the groupings shown in Table 5.

When age was the characteristic, as shown in Table 6, it was evident that none of the 12, 13, or 14 year olds placed in the low-low category; 2 (5.6%) 12 year olds were in the high-low stage, with 2 (2.9%) 13 year olds in that same category; none of the 14 year olds placed in the high-low stage. The majority of the students placed in the low-high stage, with 33 (91.7%) 12 year olds, 61 (89.7%) of the 13 year olds, and 9 (100.0%) of the 14 year olds occupying this stage. One 12 year old (2.7%) and 5 (7.4%) 13 year olds placed in the high-high category.

Table 5.

NPFS Scores for All Participants by Stages

NPFS Range of Points	NPFS Stage	Number of Students
0-58	Low-Low	0
59-115	High-Low	4 3.5%
116-173	Low-High	103 91.2%
174-230	High-High	6 5.3%
Total		113 100.0%

Note: Shading indicates majority of students with high levels of personal fable ideation

Table 6.

NPFS Scores by Age and Sex

Stage	Age			Total	Sex		Total
	12 yr.	13 yr.	14 yr.		Male	Female	
L-L	0	0	0	0	0	0	0
H-L	2 5.6%	2 2.9%	0	4	3 4.9%	1 1.8%	4
L-H	33 91.7%	61 89.7%	9 100.0%	103	54 88.5%	52 94.5%	103
H-H	1 2.7%	5 7.4%	0	6	4 6.6%	2 3.7%	6
Totals	36 100.0%	69 100.0%	9 100.0%	113	61 100.0%	5 100.0%	113

Note: Percentages equal 100.0% in columns only

Shading indicates majority of students with high levels of personal fable ideation

When analyzed for sex, three males (4.9%) were in the high-low stage, with 1 (1.8%) female at that same stage. The next stage, low-high showed 54 (88.5%) of males and 52 (94.5%) of the females had reached this level of cognition. The high-high category had 4 (6.6%) male students and 2 (3.7%) female students, as indicated in Table 6.

Table 7 illustrates the stages of personal fable ideation with regard to the ethnic background of the participants. As previously indicated, none of the students placed in the low-low category, with only four students placing in the high-low stage; 3 (75%) were Caucasian, and 1 (25%) was African-American. In the low-high category, 90 (87.3%) were Caucasians, 9 (8.7%) were African-American, 2 (1.9%) were Hispanic, and 2 (1.9%) were Asian-American. Seven students place in the high-high stage, with all 6 being Caucasian.

Table 7.

NPFS Scores by Race

Stage	Caucasian	African	Hispanic	Asian	Totals
L-L	0	0	0	0	0
H-L	3 75.0%	1 25.0%	0	0	4 100.0%
L-H	90 87.5%	9 8.7%	2 1.9%	2 1.9%	103 100.0%
H-H	6 100.0%	0	0	0	6 100.0%
Totals	99	10	2	2	113

Note: All totals do not equal 117 due to some participants' incomplete data entry
 Percentages equal 100.0% in rows only
 Shading indicates students with high levels of personal fable ideation

Hypothesis 5.

There is a positive relationship between young adolescents' level of personal fable ideation and their level of formal operational thinking.

The Pearson r revealed a correlation of 0.92 (level of significance = .05), demonstrating a strong positive relationship between the two variables. The r exceeds the critical value of .19, indicating a significant relationship. To determine the r , all scores were converted to T scores before the correlation was computed. Eighty-five (71%) of the 119 students scored in the high-concrete or concrete stage of cognitive skill; while 104 (88%) of 117 students scored in the low-high category of the NPFS. The results indicate that those students using primarily concrete thinking skills also have significant personal fable ideation.

Research Question

How do formal operational thinking and personal fable ideation in young adolescents relate to each other and to activities in a decision-making skills lesson plan?

To establish norms for this particular sample, seventh grade students completed the ATFR. Of a total of 119 students who completed the test, 85 (71.4%) scored 14 points or lower. Scores of 14 or lower placed students in the concrete (00-07 points) or high-concrete (08-14 points) cognitive stage. By numerical count, 10 students were in the concrete stage and 75 students were in the high-concrete stage. Of the remaining 34 students, 20 (16.9%) were transitional, 13 (10.9%) low formal,

and 1 (0.8%) in high formal. It is apparent, that for this sample, the majority of the students utilize primarily concrete cognitive skills.

This same sample of students also completed the NPFS, to establish levels of personal fable ideation among this group of seventh grade students. Of the 113 completed instruments (4 were incomplete), 109 (96.4%) scored above the median of 115 points, indicating high levels of personal fable ideation. When divided at 25% increments, none of the students were in the low-low (0-58 points) stage; 4 (3.5%) placed in the high-low category (59-115 points); 103 (91.2%) in low-high category (116-173 points); and 7 (6.2%) in the high-high (174-230 points) category. These data indicate a high level of personal fable ideation for this sample of seventh grade students. The Pearson r for the student scores of ATFR and NPFS = .92, demonstrating a strong positive relationship.

A third segment of data originated with a sample of seventh grade lesson plans, which were evaluated by a panel of 20 expert reviewers. These lesson plans, which dealt with decision-making skills were provided by selected teachers in Tennessee.

The results of the evaluation determined that 12 (60%) of the 20 evaluated lesson plans required students to use formal operational skills during more than half of the lesson. The remaining 8 (40%) required students to utilize formal operations but during less than half of the lesson. Only one of the 20 lessons was rated as not requiring some amount of formal operations. Scores on evaluated lesson plans ranged from a low of 1.00 (no formal operations required), to a high of 3.82 (formal operations required for more than half of the lesson). The mean of the lesson plan evaluation = 2.72 ± 0.72 , indicated that, in general, the lesson plans matched the students' cognition, with some lesson plans (14, 38.8%), being evaluated as having required formal operational thought above the mean of 2.72 on the likert scale.

The three variables: 1) formal operations level of students; 2) level of personal fable ideation; and 3) lesson plan evaluations, were demonstrated to be related, and in support of the research question. Formal operational level is positively related to personal fable ideation.

Discussion of Findings

The findings which resulted from this study should be of particular interest to those professionals involved in curriculum planning, development, and implementation. From the sample population, the findings demonstrate that young adolescents, those who are primarily in middle school, are not yet able to grasp the complexities inherent in the high risk behaviors of which many adolescents are involved. This assertion is based not only on data from the 1995 Youth Risk Behavior Survey for Tennessee (YRBS) (Tennessee Department of Health Statistics, 1996), but also on the ATFR results for this sample. The YRBS showed significant involvement in smoking, drinking and sexual activity for those adolescents under the age of 15 years. The ATFR scores indicated that 71.4% of this sample functioned at the concrete or high-concrete cognitive levels. These findings support assertions made by Cvetkovich, et. al. (1975); Baizerman (1977); Pestrak & Martin (1985); Wagner (1987); Gordon (1990); and Holmbeck, et.al. (1994), as well as other researchers, that young adolescents do not possess the cognitive skills necessary for effective decision-making with high risk behaviors.

Because of this early involvement in risk behaviors, various intervention curricula have been initiated at younger and younger ages in an attempt to influence children *before* they are involved in the risk behavior (Kipke, et. al., 1993). These

intervention strategies have met with variable success (Gunn, et. al., 1985; Ross, et. al., 1991; SIECUS, 1996; Stanton, et. al., 1996).

This study demonstrated that evaluated lesson plans, in general, matched the cognitive level of the students as indicated by the ATFR. However, inconsistencies were noted on scores assigned by different evaluators regarding the same lesson plan. For example, in Table 4 and Figure 1, it can be seen that lesson plan number 11 showed a large variance in scores, 1.14 - 3.35, a difference of 2.21; while lesson plan number 16 showed great consistency with a score range of 3.10 - 3.14, or a variance of .04.

Several factors were identified as potentially having contributed to this wide variation in scoring:

1. the explanation and instructions provided by the researcher to the expert evaluators were insufficient and unclear;
2. each expert evaluator had different interpretations of the instructions and the construct of formal reasoning based on their individual educational background and experience;
3. the lesson plans themselves, as submitted by the teachers, were unclear in their explanation and descriptions of student objectives and activities.

It appears that the instructions provided by the researcher may have had an effect, in that there was the possibility of different interpretations of the cognitive likert scale utilized by the evaluators. However, as can be seen in Appendices G, H, I, & J, each expert evaluator was provided with clear, concise instructions, a sample of a completed evaluation, and definitions to serve as guidelines.

It appears more likely that factors 2 and 3 contributed to the variation in the scoring of the lesson plan evaluations. For use in this study, lesson plans were to be representative of actual plans that were being used daily in seventh grade classrooms.

Given that, even though some of the lesson plans that were submitted by the teachers appeared to contain inadequate descriptions of activities and/or objectives, they were re-typed verbatim by the researcher. This lack of clarity, however, may have lead to invalid evaluations of the lesson plan. The submitted lesson plans may have been examples of poorly written plans, or they may have indicated a lack of knowledge and skill in developing and utilizing appropriate, cognitively matched lessons.

The other possible factor in the scoring discrepancy addresses the members of the expert panel. Expert panel members were screened for their membership in ASHA-SHES, and their expertise in the planning, development, and the implementation of lesson activities. Several of the panel members are affiliated with universities and may, therefore, be involved with pre-service teacher preparation. The lack of consistency among evaluators' scoring of lesson plans raises questions regarding the depth of the evaluators' awareness of adolescent cognitive development, especially in regard to cognitive lesson matching. This, in turn, would impact the education of pre-service teachers under their tutelage. If educators at the university level have not received sufficient instruction in cognitive matching, they will, in all likelihood, not instruct their current students in this area. Additionally, college-level educators traditionally have little exposure, on a day-to-day basis, with young adolescents in the classroom. Their skills in regard to evaluating material for this age student may be utilized only sporadically.

The findings of this study support those cited by Schoenfeld, et. al. (1993) regarding the dearth of formalized instruction and guidance given to educators in cognitive lesson matching. Pre-service teachers receive basic information regarding child development, but it may be lacking the depth needed to develop successful, appropriate intervention strategies.

Another separate issue which may have contributed to the inconsistent results of the educational interventions implemented in the classroom is the egocentric construct of the personal fable. This type of thinking, which is shown to be common in this sample of young adolescents, allows the adolescent to rationalize involvement in risk behaviors. For this sample 96.4% of the seventh grade students scored over the median, indicating high levels of personal fable ideation.

The combination of these two constructs, concrete cognition and high personal fable ideation, may exert great influence over how, and if, a young adolescent internalizes the lessons offered by the planned lesson curricula. In this sample, these two constructs are highly correlated ($r = .92$), indicating an exceptionally strong relationship.

It would seem then, based on the data from this study, that intervention curricula which account for developmental differences, such as egocentric thinking and personal fable ideation, and incorporate the cognitive developmental stages of concrete or abstract thinking will have an increased chance of successfully influencing adolescents.

Summary

This chapter displayed and described the data collected in this research study. The focus of the study was to investigate the constructs of formal operational thinking and personal fable ideation and their relation to decision-making skills activities in lesson plans for the seventh grade level.

The data presented described how a selected sample of students scored on two instruments, the ATFR and the NPFS. In general, the majority of the students were in the high concrete or transitional stage of cognition, and had high levels of personal

fable ideation. The correlation between the two variables indicated a strong positive relationship.

The other segment of the study focused on lesson plans provided by teachers for use in the seventh grade. These lesson plans were evaluated by an expert panel to determine the level of cognition students would be required to use during the lesson. Although there was significant variation among the scores assigned by the evaluators, the majority of the lesson plans were evaluated as requiring formal operations for more than one-half of the lesson.

Overall, the data indicate that formal operational thinking, personal fable ideation, and lesson plan activities are all related. These relationships may, in turn, impact student success in the classroom. A summary of these findings, conclusions, and recommendations may be found in Chapter 5.

CHAPTER V

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

Overview

The purpose of this chapter is to summarize the study, present findings, provide conclusions, and suggest recommendations. The first section of this chapter presents a summary of the study, including the problem statement that provided direction for the study, the purpose, and the procedures used in the study. The second section summarizes the findings of the study, with section three offering conclusions, and section four presenting recommendations.

Summary

Statement of the Problem

This study sought to view the constructs of formal operational thinking and personal fable ideation among seventh grade middle school students, the relation between these constructs and their relation to decision-making skills activities in teacher-provided lesson plans.

Purpose of the Study

Many interventions have been developed to influence young adolescents' future decision-making, with variable results regarding actual behavior change. It is possible that the cause of these variable results may lie in the fact that cognitive matching is not taking place. Educators are discussing what might be termed adult

behaviors with groups of young adolescents who have not yet developed mature, adult skills. Further complicating the success of these interventions is the personal fable ideation that many young adolescents exhibit. Personal fables allow adolescents to rationalize risky behavior with a "nothing-bad-will-happen-to-me" type of thinking.

Procedure of the Study

Data was gathered from four separate sources: 1) lesson plans on decision-making skills solicited from selected teachers in Tennessee; 2) expert panel evaluations of the submitted lesson plans regarding the level of cognition required by the student to complete the lesson; 3) student completion of the ATFR; and 4) student completion of the NPFS.

The members of the expert review panel utilized a researcher-designed likert-scale instrument to evaluate the cognitive skills required by students to complete the lesson activities presented in the sample lesson plans. Participating students completed the ATFR, 32-item multiple choice instrument measuring the students' level of concrete or formal cognition, and the NPFS, a 46-question likert-scale instrument measuring the students' level of personal fable ideation.

The likert-scale used by the expert evaluators was developed by the researcher based on previously published cognitive taxonomies. Logical, or face validity was based on the expert nature of the published taxonomies (Gay, 1992; Neutens, 1997).

Both the ATFR and the NPFS were previously published instruments with reported alpha reliabilities of .73 and .72, respectively. Descriptive and inferential, parametric statistical tests were applied to data gained from the instruments. Demographic data from the students was analyzed for frequencies and correlations with the instruments; demographic data from the teachers was not analyzed due to the limited number of completed response forms.

Findings

These findings are based on the stated hypotheses:

Young Adolescents' Level of Cognition--

1. One student (.8%) of the 119 students who completed the ATFR, scored in the high-formal stage of cognition.
2. The majority of the students, 105 in number (88.0%), scored in the concrete stage (15 students, 12.6%), the high-concrete stage (70 students, 58.8%), or the transitional stage (20 students, 16.9%).
3. The remaining 13 students (10.9%) fell into the low-formal stage.

Lesson Plans Requiring Formal Operations--

1. Of the 20 lesson plans submitted, 12 (60%) were evaluated by at least one evaluator as requiring students to use formal operations skills during more than half of the lesson; three lessons were evaluated as such by both expert evaluators.
2. The remaining seven (35%) lesson plan evaluations concluded that students were required to use formal operational skills for less than half of the lesson time.
3. One lesson (5%) was evaluated as not requiring formal operations at all during the lesson.
4. Lesson plans submitted by the selected teachers were, in some cases, too brief and of poor quality. Some plans did not clearly and sufficiently explain the lesson and the student objectives. This deficit had a detrimental effect on the evaluation process.

Young Adolescents' Cognitive Levels and Lesson Plan Activities--

1. The mean of the students' ATFR scores = 12.24 ± 4.24 , indicating a high concrete level of cognition.
2. The mean of the evaluated lesson plans = 2.72 ± 0.72 , indicating students' were required to use formal operational thought part of the time in the lessson plans evaluated.

Young Adolescents' Levels of Personal Fable Ideation--

1. Students' full scale scores on the 113 NPFS which were completed showed 109 (96.4%) of the students scoring above the median of 115, indicating high levels of personal fable ideation.

Young Adolescents' Levels of Cognition and Personal Fable Ideation--

1. The Pearson $r = .92$ (level of significance = .05) revealed a strong, positive relationship between the two variables.

Conclusions

The following conclusions are based on the findings and are limited to the sample investigated:

1. Young adolescents (seventh grade students) are primarily concrete thinkers who, at times, are being asked to accomplish lesson objectives that are beyond their cognitive reach at the formal operational level.
2. Young adolescents, the majority of whom have high levels of personal fable ideation, do not successfully internalize lesson plan objectives intended to reduce participation in high risk behaviors.

3. Young adolescents, who are primarily concrete thinkers, and who have high levels of personal fable ideation, are unaware that they are missing the complexities and subtleties associated with the complex decision-making of high risk behaviors. Students may, in their egocentric thought, believe that they completely understand all of the factors surrounding the situation and that they can control them simply because they have some basic knowledge.

Recommendations

The recommendations are based on the findings and conclusions drawn from the study:

1. Objectives written for decision-making skills activities intended for use by young adolescents must be carefully analyzed for appropriate cognitive-matching of required skills. Although there is some benefit to challenging a student to expand their way of thinking, this becomes irrelevant if the student misinterprets or completely misses the main objectives of the lesson.
2. Professionals involved in the planning, development, or implementation of intervention strategies for young adolescents must familiarize themselves with the egocentric construct of personal fable ideation and its potential for sabotaging the end result of the planned intervention. Methods to circumvent these student characteristics will need to be developed to increase the success of intervention curricula.
3. Professionals involved in the planning, development, or implementation of intervention strategies for young adolescents must familiarize themselves with the cognitive developmental stages of young adolescents, and the potential impact on learning.

4. To investigate the phenomena found in the evaluation of lesson plans, further research should be conducted utilizing the cognitive likert scale instrument and panels of several expert judges evaluating the same lesson plans for the level of formal reasoning required of the student.

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APPENDICES

APPENDIX A

February 10, 1997

Ms. Pamela Quinn, Director
ASHA Membership Services
P. O. Box 708
Kent, OH 44240

Dear Ms. Quinn:

Re: Request for use of membership list for dissertation

I am an ASHA member who is currently a doctoral candidate at the University of Tennessee-Knoxville working on my dissertation research. My committee is chaired by Dr. James J. Neutens, FASHA, with Dr. Don Dickinson, Dr. Bill Wallace, and Dr. Eugene Fitzhugh also serving on the committee.

This is to request use of the membership/ mailing list of the School Health Education Section of ASHA for a portion of my research. My proposed study is to investigate the connection between young adolescent cognitive levels, egocentric thinking, and teacher-designed learning activities. My intention is to have an expert panel of judges review these learning activities for evidence of higher order thinking skills. I would like to solicit the expert panel members from the School Health Educator Section list. Panel members would be chosen by use of a table of random numbers, with a total of ten (10) persons being asked to serve on the panel.

Each panel member would receive a packet of lesson plans and a check sheet listing the higher order thinking skills. Panel members would be asked to simply review the lessons to identify any higher order thinking skills students would be required to use in order to successfully complete the lesson activities. A postage pre-paid envelope would be provided for return mailing.

The names of the members chosen for the expert panel would not be associated with the reviewed documents and all names will be kept confidential.

I hope that you will look favorably on this request for assistance with the completion of my dissertation. My committee will convene on March 3, 1997; if at all possible, I would like to be able to advise them of the use of the membership list.

If there are any questions, please call me at 000-000-0000 (home) or 000-000-0000 (work). You may also reach me by FAX at work, the number is 000-000-0000. Thank you for your assistance in this request.

Sincerely,

Selene D. Skonie-Hardin

APPENDIX B

March 5, 1997

Dr. _____, Director
_____ Central Office
_____ School System
_____ Streets
_____, TN. 00000

Dear Dr. _____:

Re: Request to conduct survey with seventh grade students as part of dissertation research

This is to request approval for conducting two surveys of seventh grade students at _____ Middle School. This survey is necessary as part of my dissertation research study at the University of Tennessee, Knoxville. Enclosed please find all pertinent information as required by Board of Education policy. If further information is necessary, please contact me at 000-0000.

Thank you for your assistance in this matter.

Sincerely,

Selene D. Skonie-Hardin

teacher, _____ Middle School
doctoral candidate, University of Tennessee

APPENDIX C

March 31, 1997

Dear Parent/Guardian:

This letter is to request your son/daughter's participation in completing two research surveys that will be administered between April 15 and May 30, 1997. Your son/daughter's homebase class has been chosen as part of a sample of seventh grade students to be surveyed. The two survey questionnaires are:

- 1) The Arlin Test of Formal Reasoning--a questionnaire which measures the student's ability to think abstractly, or to use higher order thinking skills, and
- 2) The New Personal Fable Survey--a questionnaire which measures the student's level of personal fable construction. "It can't happen to me" or "I'm too smart to let that happen" are examples of personal fable thinking.

The survey results are to be used in the completion of my dissertation research. I am currently working to get my doctorate at the University of Tennessee. I will be comparing the results of these two surveys with information from lesson activities dealing with decision-making in high risk situations.

The results will be **strictly confidential**. Your son/daughter's name will NOT appear on any of the answer sheets used. I will ask them to fill in their age, sex, and ethnic background. When results from the surveys are reported in my dissertation, neither the name of the school or the name of the city will be identified.

At the time of administration I will have received approvals from both the University of Tennessee research review board and the _____ School System administration to carry out this research. However, your son/daughter may not participate without your approval. Please fill out the information below and return this form to the student's homebase teacher as soon as possible.

If there are any questions whatsoever, please call me at 000-0000. Thank you, in advance, for your help in completing this research.

Sincerely,

Selene D. Skonie-Hardin, MPH

Health & Family Life Teacher, _____ Middle School

DATE _____

NAME OF STUDENT _____

HOMEBASE TEACHER NAME _____

I GIVE MY PERMISSION FOR MY CHILD TO PARTICIPATE YES NO

PARENT/GUARDIAN SIGNATURE _____

cc. Mr. _____, Principal

APPENDIX D

EXPLANATION FOR STUDENT INFORMATION

*PLEASE USE AT TIME THAT PERMISSION LETTERS ARE GIVEN OUT
TO STUDENTS*

Mrs. Hardin is getting her doctoral degree at UT. This is not the same as the doctoral degree that medical doctors get; hers will be the same as professors at the university have. Some of our principals have doctoral degrees (Dr. _____ at _____; Dr. _____ at _____; Dr. _____ at _____; Dr. _____ in the 6th grade), and our Director of Schools, Dr. _____.

To get this degree, Mrs. Hardin has to do a research study. These tests are part of that research. She is studying how lessons that we give you in school match with the way your brain is developing as you become teenagers.

One of the tests is going to see where you are in terms of your thinking skills. People are able to think in different, more complex ways as we get older. This test is going to measure where you are at in this development.

The other test is going to measure how you think and feel about different situations. It has to do more with how you feel about things.

None of these are going to make any difference in your grades here at school. Mrs. Hardin will be the only one using the test results; even the school won't know how you do on these. ALL of the information will be kept confidential; your name won't be on any of the papers, so even Mrs. Hardin won't know who took the test and who didn't.

You are going to get a permission form to take home to your parents. To participate you must have this signed.

APPENDIX E

New Personal Fable Survey**INSTRUCTIONS**

PLEASE READ TO STUDENTS

The questionnaire that you will be taking is called the New Personal Fable Survey.

This

survey is designed to measure how you think and feel about yourself in different situations.

The answers you give will only be used to complete this research study. The answers will be kept confidential, and your score on this survey will in no way affect your grades in any of your classes.

DO NOT PUT YOUR NAME ON THIS SHEET. Please fill in the blanks at the top for age, sex, and race.

Read each statement and use the scale at the top to decide how much you agree or disagree with the statement. Write the number which matches how you feel in the blank in front of that statement.

EX: If you "strongly agree" with the statement,
write the number "5" in the blank.

Please respond to all of the statements; they are printed on both sides of your sheet.

Thank you for responding to these statements honestly and truthfully. Remember, all responses will be kept confidential.

APPENDIX F

ARLIN TEST OF FORMAL REASONING**INSTRUCTIONS**

PLEASE READ TO STUDENTS

The test you are taking is the Arlin Test of Formal Reasoning. This test is not an achievement test or an IQ test. The test gives us an indication of your thinking skills and whether you can use different types of concepts in your thinking. The answers you give today will be used only for this research study. Your performance on this test in no way affects your grades in school. We would like you to try your best to answer all of the questions.

DO NOT PUT YOUR NAME ON THIS PAPER. Please fill in your grade, age, race and sex.

Now look at the first page of your test booklet and read the instructions silently as I read them aloud.

Each item in this test is followed by four different answers, one of which is best. You are to indicate the best answer in each case by making a heavy black mark in the proper place on the answer sheet. Be sure that you mark your answer in the space whose number corresponds to the question you are answering. If you are not sure of the best answer to an item, make the best guess that you can. Mark only one answer on the answer sheet for each item. If you wish to change an answer you may do so, but be sure to erase the mark completely. Do not mark or otherwise damage this test booklet.

Work as quickly and as accurately as you can. You will have _____minutes to answer the 32 items on this test. If you finish before time is called, you may go back and check your answers. If you do not finish in _____minutes, additional time will be provided for you to finish.

APPENDIX G

April 00, 1997

_____, PhD
000_____ Drive
_____, ____ 00000-0000

Dear Dr. _____:

Thank you very much for agreeing to serve on the expert review panel for my dissertation research. Without your help, and the help of other professionals, I would not be able to complete my study as it is designed. I hope that your school year has gone well, and that you are looking forward to some relaxation this summer.

Enclosed please find the following:

1. Guidelines and definitions for completing the cognitive classification rating scale;
2. A completed example of the rating scale;
3. Two lesson plan activities submitted by active teachers in the state of Tennessee;
4. Two blank rating scales for your use;
5. A SASE for returning the materials to me.

I would greatly appreciate your completing the rating scales and mailing them to me no later than **Friday, _____ 00, 1997**. You need only send the rating sheets themselves; I do not need you to return the other materials. If you have any questions, please feel free to call me at 000-000-0000 (_____ Middle School), or at 000-000-0000 (home). I may also be reached by fax at 000-000-0000.

My aim is to complete my dissertation this summer; as soon as I have done so, I will be sending you a synopsis of my results. Again, thank you very much for taking the time to complete this review for me. I truly appreciate your assistance.

Sincerely,

Selene Skonie-Hardin

computation I-----I-----I-----I-----I
 none partial complete

demonstration I-----I-----I-----I-----I
 none partial complete

illustration

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prediction I-----I-----I-----I-----I
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application

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diagram I-----I-----I-----I-----I
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APPENDIX I

Guidelines for Completing the Cognitive Classification Rating Scale

The Cognitive Classification Rating Scale is to be used to rate the enclosed lesson plan activities for any higher order thinking skills that students will be required to use while engaged in the activities.

Evaluate each lesson plan for each of the listed skills which a **student** would be required to use during the completion of the lesson activities. The purpose is not to include all of the thinking skills students might possibly use, but rather which thinking skills the teacher (evidenced by the design of the lesson) expects the student to use in order to successfully complete the lesson. The following scale will be used and recorded by checking the likert scale at the appropriate point.

none-no use of this higher order thinking skill required at any time during the lesson.

partial-use of this higher order thinking skill is required during some parts of the lesson.

complete-use of this higher order thinking skill is required throughout the entire lesson.

On the following pages you will **find**:

- working definitions for each of the thinking skills listed;
- a completed example for the following lesson:

Stated objective: *Students will **apply** the principles of the food pyramid to menus from the school cafeteria.*

Activity: In conjunction with a food service representative, the students are to analyze the menus from the school cafeteria to determine whether they meet the recommendations in the food pyramid.

APPENDIX J

DefinitionsApplication

1. computation--carrying out analytical calculations
2. demonstration--to explain by showing examples
3. illustration--to make something clear with pictures, designs, or examples
4. prediction--using the information available, to foretell, or make known beforehand
5. application--relating to practical use; putting into effect a general rule or principle

Analysis

1. outline--short summary which omits detail; rough draft or plan
2. subdivide--to divide into parts once again
3. deduce--to infer by reasoning from known facts
4. discriminate--to observe or make distinctions; to use good judgment in making a choice
5. diagram--figure or sketch designed to give a broad explanation
6. classify--to put into groups systematically because of common characteristics
7. categorize--to divide in a system of classification
8. distinguish--to recognize something as distinct from other things
9. differentiate--to develop separate distinguishing characteristics

Synthesis

1. compose--to create; put the elements together into a good order
2. create--to bring into being; to make by applying the imagination
3. design--to invent; to plan in the mind; to prepare plans, sketch, or model
4. rearrange--to arrange again in a different way
5. plan--a proposed or intended course of action; to make a design for
6. produce--to bring forward; to present for inspection
7. conclude--to bring to an end; to decide on basis of reasoning
8. propose--to offer for consideration

Evaluate

1. contrast--to display the differences between
2. compare--to examine in order to discover likenesses or differences
3. appraise--to judge the quality of
4. criticize--to assess the merits and demerits of
5. support--to be or provide an argument in favor of ; provide additional evidence for
6. evaluate--to determine or assess the value of

modified from:

The New Lexicon Webster's Encyclopedic Dictionary of the English Language
(1992). New York: Lexicon Publ.

----- 00, 1997

APPENDIX K

Mr./ Ms. _____
 HIV/AIDS Educator
 _____ County School System
 000 _____ Avenue
 _____, TN 37000

Dear Mr./ Ms. _____:

Re: Request for a sample of seventh grade lesson in decision-making skills

I am writing to ask for your help in completing my doctoral dissertation research. I am a full-time health/family life teacher at _____ Middle School in _____, working on my degree through the University of Tennessee-Knoxville. My proposed study is to investigate the connection between young adolescent cognitive levels, egocentric thinking, and in-class learning activities. My intention is to solicit sample lesson plans from across the state and to then have them reviewed by an expert panel. This panel will identify whether or not students are required to use higher order thinking skills in order to successfully complete the lesson objectives.

Your name was selected from the list of elementary and middle school educators as found in the HIV/AIDS Educator Resource Directory published by the Tennessee Department of Education. This is to request a sample of **one** lesson plan, dealing with decision-making skills, that you use at the seventh grade level.

I would appreciate if the lesson included student objectives, student activities, and evaluation criteria for successful completion of those activities. *Please* do not feel as if this needs to be a formally written lesson plan. I plan on retyping all the lesson plans to not only remove identifying characteristics, but also to have the lessons in a uniform format for the review process. A photocopy of what you use would be perfectly acceptable.

You will also find an enclosed demographic survey that I would like to have you complete. Please enclose this with the sample lesson plan that you are sending to me.

I have enclosed a self-addressed, stamped envelope, for mailing. I would appreciate your mailing this by ----- 00, 1997. If you would like a brief synopsis of the results of this research, please let me know when you send the lesson plan; I will be happy to send you a summary when the research is completed (target date: Aug., 1997).

I truly appreciate your help in this request. Without your assistance, I will not be able to complete my dissertation as planned. Please feel free to contact me if I can ever be of assistance to you, or if you have any questions. My phone number is 423-461-1623.

Thank you very much.

Sincerely,

Selene D. Skonie-Hardin, MPH, CHES

p.s. if you no longer teach this topic area, please forward this to the appropriate teacher.

APPENDIX L

DEMOGRAPHIC INFORMATION

Please be assured that information you provide on this page will be kept confidential. It will be used only for establishing similarities between teachers participating in the survey.

Once again, thank you for your help.

1. The lesson activities being forwarded are:

- A. of my own design
- B. commercially designed and prepared lessons
- C. based on commercial lessons, but modified by the teacher
- D. state or local department of education
- E. other _____

2. My educational background is (circle all that apply):

- A. bachelor's degree in Health or Health and/or Physical Education
- B. bachelor's degree in another discipline
- C. master's degree in _____
- D. other _____

3. I am a certified teacher in the state of Tennessee

- A. Yes
- B. No

4. I am certified in _____

5. I have been teaching for:

- A. less than 1 to 3 years
- B. 3 to 7 years
- C. 7 to 10 years
- D. 10 to 15 years
- E. longer than 15 years

March 14, 1997

APPENDIX M

_____, HSD
Box 0000
_____, ____ 00000

Dear Dr. _____:

Re: *Request for your participation on expert review panel*

I am a doctoral candidate at the University of Tennessee-Knoxville, working on my dissertation research. My committee is chaired by Dr. Jim Neutens, with Dr. Don Dickinson, Dr. Bill Wallace, and Dr. Eugene Fitzhugh, also serving on the committee.

As part of my research, I will be soliciting lesson plans on decision-making skills in HIV/AIDS prevention from teachers across the state of Tennessee. My plan is to have these lesson plans analyzed by a panel of ten experts to determine the degree to which students would be required to use formal operational, or abstract, thinking skills. Each expert reviewer would then receive two (2) lesson plans and a likert-scale survey sheet on which to record their analysis. This would involve simply checking the appropriate place on the scale; it is anticipated that this should take no more than 30 minutes to complete. Reviewers would have approximately two weeks in which to complete the analysis.

The focus of this study will be on the relationship between seventh grade students' level of abstract thinking, their levels of egocentric thinking (particularly their levels of personal fable ideation), and the relation of these to planned lesson activities. My hypothesis is that in our eagerness to initiate high-risk behavior interventions at earlier and earlier ages, we fail to adequately modify the lesson activities to accommodate the concrete and egocentric thinking of the young adolescent.

This letter is to request your participation as part of the review panel. Your name was chosen from the American School Health Association-School Health Educator Section mailing list. Dr. Neutens and I reviewed the list for those people who have an expertise not only in health education, but also in lesson planning, development, and implementation.

I have enclosed a SASE and a reply form for your convenience. Please let me know as soon as possible whether or not you would be willing to participate. Those who are part of the panel will be receiving the lesson plans during the first week in April. If you have any questions or concerns, please feel free to contact me at 000-000-0000 (home) or 000-000-0000 (_____ Middle School). You may also reach me by FAX (at work); the number is 000-000-0000.

I appreciate your consideration of this request, and extend my thanks, in advance for your assistance. Upon completion of my dissertation, I will be happy to send you a summary of the results of this study.

Sincerely,

Selene D. Skonie-Hardin, MPH, CHES

APPENDIX N

Response Form

From: _____, PhD
To: Selene Skonie-Hardin
Re: Expert Review Panel
Date: _____

_____ Yes, I will be willing to serve as a member of the expert review panel.

_____ No, I will not be able to serve as a member of the expert review panel.

Those responding "yes", and subsequently chosen for the final panel, may expect to receive the lesson plans during the first week in April, with a turn-around time of two weeks.

~ thank you for your assistance ~

APPENDIX O

Dr. _____

_____, _____ Lane
_____, _____ 00000-0000

May 2, 1997

Dear Dr. _____:

Re: Lesson plan critiques for dissertation

If your spring has been anything like mine, you have been extraordinarily busy! It is very easy to have something disappear under a pile of papers or get shuffled to another pile. I hope, however, that you have received from me the two lesson plans and the evaluation information. These were mailed on April 7, 1997 for your completion.

If you received them, completed them, and they are in the mail, please accept my thanks.

If you did receive them, and have not completed the evaluation, I would greatly appreciate your doing so and either mailing it to me in the postage-paid envelope, or faxing the two evaluation sheets to me at 000-000-0000.

If you have not received them, or for some reason feel you cannot complete these evaluations, please call me at 000-000-0000 (work) or 000-000-0000 (home).

I appreciate your willingness to assist me in this phase of my research, and look forward to hearing from you.

Sincerely,

Selene D. Skonie-Hardin

_____, TN. 00000
_____, _____ Rd.

VITA

Selene Diane Skonie, a Chicago, Illinois native, was born on April 17, 1955. She attended George Washington Elementary and High School, graduating in 1972. In September of that year, she began course work at Western Illinois University, Macomb, Illinois. In June, 1977 she completed the requirements for her Bachelor of Science in Health Education with a K-12 teaching certification. After working for 2 1/2 years as a paramedic at the McDonough District Hospital, Macomb, Illinois, she moved to Ashland, Kentucky, where she was employed as a crisis counselor at the Lansdowne Mental Health Center. In August, 1979 she moved to Johnson City, Tennessee, where she initially worked as an inpatient counselor at the Watauga Mental Health Center for 3 years. After leaving Watauga, she worked as a houseparent for teenage delinquent girls in Maryville, Tennessee for 1 1/2 years, and a child protective services investigator in Washington County, Tennessee. She was then employed as the Graduate Medical Education Coordinator for the Family Practice Department at the Quillan College of Medicine, East Tennessee State University for 2 years. During this time she returned to school at ETSU to complete her master's. In September, 1986 she was married to Ron Hardin, and in December, 1986, she graduated with her Master of Public Health from ETSU. She began teaching in the Department of Health Education, ETSU, on a part-time basis, and began her teaching career at Science Hill High School, and Liberty Bell Middle School in Johnson City, Tennessee. In Fall, 1991, she resumed taking graduate courses at ETSU, subsequently entering the doctoral program at The University of Tennessee-Knoxville, Department of Health, Leisure, and Safety during Summer, 1993. The doctoral degree was conferred in August, 1997.

She is presently continuing her teaching career at Liberty Bell Middle School in Johnson City, Tennessee, where she lives with her husband.