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ADDRESSING SCHOOL DISTRICT READINESS FOR ELEMENTARY HEALTH EDUCATION USING THE TRANSTHEORETICAL MODEL

by

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A DISSERTATION

Submitted to the graduate faculty of The University of Alabama at Birmingham,
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ADDRESSING SCHOOL DISTRICT READINESS FOR ELEMENTARY HEALTH EDUCATION USING THE TRANSTHEORETICAL MODEL

SARAH E. HIGHFILL TOTH

HEALTH EDUCATION/HEALTH PROMOTION

ABSTRACT

The elementary classroom offers a potentially favorable setting to impact student health. However, research indicates that elementary health education (EHE) is frequently omitted or haphazardly delivered. Traditional efforts in educational change have had limited success and lack a theoretical foundation. The purpose of this study was to investigate the organizational readiness of a public school district in Alabama for the delivery of 60 minutes of weekly EHE using constructs of the Transtheoretical Model (TTM). This study was intended to identify the stage of readiness, decisional balance, self-efficacy, the extent to which the school district was engaging in behaviors that may facilitate teacher progression through the Stages of Change (SOC), and to inform the development of a stage-matched intervention for EHE.

Development of the Elementary Health Education District Assessment Tool (EHE-DAT) included a pilot, and the instrument was found to be reliable and valid through qualitative and quantitative review. Data was collected at an Alabama school district's inservice at the beginning of the school year. Inservice was a mandatory time for the district faculty and administrators to meet together prior to the first day of student arrival.

A total of 161 school district faculty and administrators completed the EHE-DAT. A majority of the participants were female, white, and regular classroom teachers. Data

analysis included descriptive statistics, analysis of variance (ANOVA), and Kruskal-Wallis H tests.

Results indicated that the school district is not fulfilling the state requirements for EHE. Most of the respondents were classified in the two earliest stages of readiness for EHE: Precontemplation and Contemplation. Self-efficacy, beliefs, and practices were significantly correlated with EHE readiness. The current study enhanced understanding applicable to improving health education policy and practice. It contributed to the limited research in addressing the integration of TTM theory, change processes of schools, and readiness for EHE.

Keywords: elementary education, health education, Alabama school district, readiness, Stages of Change, Transtheoretical Model

DEDICATION

This degree is dedicated to my loving and devoted husband, Rob. "Grow old along with me! The best is yet to be." –Robert Browning.

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My sincere gratitude goes to my dissertation committee for their commitment and expertise in this rewarding experience. Dr. Loucrecia Collins, Dr. Marcia O'Neal, Dr. Angelia Paschal, and Dr. Sandra Sims were steady sources of strength. Special appreciation goes to my committee chair and professional mentor, Dr. Retta Evans, for her endless patience and guidance.

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Above all, I thank my Lord and Savior, Jesus Christ, for giving me the inspiration, ability, and endurance to complete this incredible journey. "And let us run with perseverance the race marked out for us." – Hebrews 12:1.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
CAN	Confidence about Activity and Nutrition
CDC	Centers for Disease Control
CQI	Continuous Quality Improvement
EHE	Elementary Health Education
EHE-DAT	Elementary Health Education District Assessment Tool
HHS	Health and Human Services
IRB	Institutional Review Board
ISD	Integrated Service Delivery
POC	Processes of Change
RWJF	Robert Wood Johnson Foundation
SOC	Stages of Change
TTM	Transtheoretical Model
WHO	World Health Organization

CHAPTER 1

INTRODUCTION TO THE STUDY

Introduction

Each day in the United States, 55 million kindergarten through twelfth-grade students attend 132,700 schools (Centers for Disease Control and Prevention [CDC], 2011a). Schools play a vital role in helping young people establish and develop healthy behaviors that can last a lifetime (CDC, 2011b). Schools are one of the most important health settings because programs can impact students during the most formative years of life (World Health Organization [WHO], 1999). Furthermore, "establishing healthy behaviors during childhood and maintaining them is easier and more effective than trying to change unhealthy behaviors during adulthood," (CDC, 2011a, p.2).

Health Issues for School-Aged Children and Youth

The primary causes of death, injury, and illness among children and youth include motor vehicle crashes, violence, suicide, sexually transmitted diseases, and pregnancy (Kolbe, 2005). In the United States, one-fifth of high school students are smokers; one-third of children and teens are overweight or obese; one-third of female adolescents become pregnant before age 20; one-fifth of youth suffer from vision problems; and only one-third of high school students average eight or more hours of sleep each night (Basch, 2010; CDC, 2011a; CDC, 2012).

Motor vehicle accidents cause 30% of deaths among young people ages 10-24, 18% of all new HIV infection diagnoses are among young people ages 13-24, and approximately 22% of young people ages 13-18 experience severe mental health

disorders (CDC, 2011a). One-third of high school students text or email while driving (CDC, 2012). Only about 40% of students eat breakfast daily, and millions go without breakfast on virtually any day of the week (Basch, 2010; CDC, 2012).

Violence and abuse are pervasive aspects of home and school life for youth and children (Basch, 2010). There are approximately 29,400 gangs and 756,000 gang members throughout 3,500 jurisdictions in the United States (U.S. Department of Justice, 2012). In 2010, 3.3 million reports were made to Child Protective Service agencies regarding the suspected neglect, physical, sexual, or emotional abuse of 5.9 million children (U.S. Department of Health and Human Services [HHS], 2011). That same year, there were 754,000 confirmed victims of child maltreatment with an estimated 1,560 children who died from abuse or neglect (HHS, 2011).

Health Education

Health education is the combination of planned learning experiences that are designed to help individuals and communities improve their health through increasing knowledge or influencing attitudes (WHO, 2014). It is based on sound theory and provides students with opportunities to acquire the information and skills necessary to make sound health decisions (*National Health Education Standards*, 2007). Health education is an essential component of the coordinated school health model which also encompasses other interrelated units such as physical education, health services, food and nutrition services, school counseling, psychological and social services, healthy and safe school environments, staff health promotion and wellness, and family and community involvement (CDC, 2011a). These dimensions combine to promote a lifetime of fitness;

address the physical, mental, social, emotional, and spiritual aspects of health; focus on prevention and management of chronic diseases; provide access to nutritious meals and healthy food choices; and engage caregivers in health promotion (Allensworth & Kolbe, 1987). These components exist both formally and informally in most schools to some extent. Previous research in elementary health education (EHE) is severely limited.

Health is the missing piece to the achievement gap puzzle (Basch, 2010). Health and education are directly related and reciprocal in nature. When education is lower, health is poorer and vice versa. Men and women who graduate from college are likely to live at least five years longer than their counterparts who do not finish high school (Robert Wood Johnson Foundation [RWJF], 2008). Babies whose mothers do not complete high school are two times as likely to die before their first birthday and babies whose mothers have completed college (RWJF, 2008). In addition, higher proportions of physical inactivity and smoking are consistently related to lower educational attainment (RWJF, 2008). On the upside, "Healthier students are better learners," (Basch, 2010, p. 4).

There is compelling evidence that health education can reduce the prevalence of health risk behaviors as well as increase academic performance in students, but this potential is not being fully realized (Basch, 2010; CDC 2011b; Kann, Telljohan, & Wooley, 2007). Health behaviors and academic achievement are clearly interrelated and have far reaching consequences for students, adults, and our society (Bradley & Greene, 2013). For example, violence, tobacco and alcohol use, physical activity, unhealthy diet, and sexual behaviors have a significant inverse correlation with academic achievement. Even poor nutrition, hunger, and fears of safety are health factors integrally related to

education (Barton & Coley, 2009). Health outcomes are significantly related to education attainment, reducing absenteeism, increasing achievement and graduation rates--ultimately improving quality of life, increasing the years of healthy life, and stifling the cycle of poverty (Allensworth, Stevenson, & Katz, 2011).

Healthy People 2020 (2015) calls for an increase in the proportion of elementary schools that provide cumulative health education instruction. Providing appropriate health education to children is an effective way to improve their health (Seabert, Pigg, & Weiler, 2002). Health promotion and prevention in students is largely influenced by health education (Vamos & Zhou, 2009). Health education may increase content knowledge and create an environment supportive of healthy behaviors making an impact in a variety of health behaviors in children such as tobacco prevention, nutrition, and physical activity (Fahlman, Hall, & Gutuskey, 2013). Education empowers students with knowledge to improve health behaviors and is linked to increased income and access to quality health care (Woolf, Johnson, Phillips, & Philipsen, 2007). Inconsistencies in health education, threaten the vitality of health care, health insurance, economic security, and democracy in the United States (Basch, 2010; Kolbe 2005).

Classroom teachers are the key to delivering quality health education to students (J. Clark, Brey, & S. Clark, 2013). One of the primary responsibilities of elementary teachers in health education is implementing instruction (Patterson, Cinelli, & Sankaran, 1996). Health instruction is crucial at the elementary level, and elementary teachers are the ones charged with teaching health to students (Fahlman, Singleton, & Kliber, 2002). Efficacious teachers have great potential to positively impact the health status and academic performance of their students (Clark et al., 2013).

Current teaching practice in health education is far from ideal in elementary classrooms and current research in this topic area is virtually non-existent. Many elementary students get little health education at school with health instruction being a low priority or omitted altogether by teachers (Hausman & Ruzek, 1995). For the elementary grades, 56% of teachers reported not teaching health in the last academic year and only 42% intended to teach health during the upcoming school year (Burak, 2002). When there is only minimal health instruction at the elementary level, it leads to a dearth of health skills as students age into adolescence and adulthood (Ubbes, Cottrell, & Ausherman, 1999). Frequently, health education is provided using a crisis-response approach that includes short-term programs without allowing for a comprehensive, evidence-based curriculum (Vamos & Zhou, 2009). Health education should be taught with greater frequency using developmentally appropriate instruction at the elementary level in order to establish a strong health foundation (Ubbes et al., 1999).

Health education is not recognized nationally as an academic subject and suffers a lack of precedence and funding as a result. Health education is rarely taught as a separate subject in the elementary classroom (Thackeray, Neiger, Bartle, Hill, & Barnes, 2002). Although school districts report EHE efforts, little EHE is actually taking place at the school level and few evaluations have been conducted to monitor program progress (Burak 2002; English, 1994; Lohrman, 2011).

Many states require health education in elementary school but most teachers do not have certification in health education or any adequate training in health education (Fahlman et al., 2013). Teachers have little, if any, preservice training in the content area of health or health education methodology (Thackeray et al., 2002). Lohrmann (2011)

acknowledges that elementary health topics are being taught but not with enough time devoted to the subject to allow for any thoroughness. As further illustrated at the elementary level, health instruction is commonly reported in hours per *year*, yet language arts and math instruction are reported as hours per *day* (Lohrmann, 2011). Nearly 75% of states report policy requiring districts to follow national or state health education standards but only about 37% of school districts specify time requirements for health topics taught at elementary schools (Kann et al., 2007). Overall, little is known about school district receptivity to change in the area of health education implementation.

In the state of Alabama, health education is required in kindergarten through eighth-grade and is to be provided by certified teachers (*Alabama Course of Study*, 2009). Additionally, the guidelines suggest that for first through sixth grade, there should be 60 minutes of health instruction per week separate from physical education (*Alabama Course of Study*, 2009). For Kindergarten, there are no established time allotments for any subject areas, including health (*Alabama Course of Study*, 2009). A gap in the literature exists about the level of delivery of health education at the elementary level in the state of Alabama.

Educational Reform Efforts

Traditional efforts aimed at producing change in education have been unsuccessful. Many school health and education efforts are not strategically planned or effectively coordinated resulting in poor quality (Basch, 2010). The best strategy is to be proactive in health promotion and prevention, "rather than waiting to fix problems after they occur," (Syme, 2004, p.5)

Researchers and educators alike call for a transformative process that results in needed systemic change in education (Joseph & Reigeluth, 2005). Organizational change in schools in health education is limited by barriers such as political pressures, administrator agendas, policy gaps, limited instructional and planning time, lack of teacher professional preparation, limited resources, and competing core subjects (Burak, 2002; Fahlman et al., 2002; Fahlman et al., 2013; Lohrmann, 2011; Sanders, 2014; Thackeray et al., 2002) . Furthermore, changing the practices of teachers may be the biggest hurdle to educational reform (Johnson, 2013).

Research has identified facilitators that promote EHE. These include core subject integration, professional development, and appropriate programs, materials, and guest speakers (Seabert 2002; Thackeray et al., 2002; Vamos & Zhou 2007; Vamos & Zhou, 2009). Lohrmann (2011) acknowledged that elementary health topics are indeed being taught but not with enough time devoted to the subject to allow for any thoroughness. The quality of health instruction hinges on teacher competency, thus a significant stumbling block for EHE is the lack of training for teachers (Fahlman et al., 2002). Teacher training in health education leads to increased self-efficacy, higher intent to teach health, increased instructional time, and the establishment of healthy behaviors in students (Fahlman et al., 2013). Additionally, school districts are essential to the organizational change of schools (Sanders, 2014). Existing gaps in health education may be potentially addressed through policy and collaborations related to preservice preparation, professional development, curricula, and community engagement (Vamos & Zhou, 2007).

Transtheoretical Model

The current study used the TTM as a framework. This theory has a sound record in explaining and facilitating change in a wide variety of health behaviors in individuals and has been successfully applied to organizations (Levesque, Prochaska, Prochaska, Dewart, Hamby, & Weeks, 2001; Prochaska, Mauriello, Sherman, Harlow, Silver, & Trubatch, 2006). The TTM was developed by integrating principles from other prominent theories (Glanz, Lewis, & Rimer, 2008). Core constructs include Stages of Change (SOC) and Processes of Change (POC) with key variables that include decisional balance and self-efficacy (Glanz et al., 2008; Hayden, 2009; Prochaska, 2000).

The basic premise of the TTM is that behavior change occurs in specific and sequential stages (Hayden, 2009; Prochaska & DiClemente 1983). These SOC are described as the following:

1. Precontemplation—not intending to take action within the next 6 months
2. Contemplation—intending to take action within the next 6 months
3. Preparation—intending to take action in the next 30 days
4. Action—made overt changes less than 6 months ago
5. Maintenance—made overt changes more than 6 months ago

Individual stages are distinguished by attitudes, beliefs, and knowledge about the health behavior and determine the receptiveness to information aimed at behavior change (Whysall, Haslam, & Haslam, 2007). Furthermore, factors that influence behavior typically change over time occur during the progression of the change process.

Similar Organizational Studies Using the TTM

Despite the need for theory-based research, no previous studies were found that applied the TTM to school districts. However, the TTM has been applied successfully to organizational change and readiness in various settings. Boswell (2011) explored employee readiness to implement Electronic Health Records (EHR), pros and cons of change, and strategies to facilitate change within the framework of the TTM. Results found that behaviors such as support, managing, training, and collaboration were related to EHR adoption and provided further evidence for stage-matched interventions aimed at increasing organizational readiness.

Whysall et al. (2007) developed instruments to assess stages of an organization and its individuals within the context of reducing musculoskeletal disorder risks. They explored barriers and facilitators such as resistance to change, time, resources, and perceived control. Results showed a disparity between manager and worker perceptions and that worker stage and manager stage were not significantly related.

Levesque, Prochaska, and Prochaska (1999) applied the TTM to integrated service delivery (ISD), also known as effective department collaboration, at a university. They formulated the following steps for SOC in organizations: Identify and define desired behavior change, customize measures, administer measures, analyze data and feedback, provide stage-matched individual and organizational level interventions, and repeat measures. Findings showed a discrepancy between staff and administrator stages and recommendations were made for stage-matched interventions tailored to the university's readiness level.

Levesque et al. (2001) explored how the TTM was used to increase physician readiness for continuous quality improvement (CQI). Perceived barriers by physicians to CQI included reluctance to try new work practices, perception of limiting professional autonomy, skepticism regarding patient outcomes, inadequate training, and social norms. A staging algorithm assessed organizational readiness by defining CQI, asking providers about their hospital facilitating involvement in CQI, and classifying responses into stages. Administrators reported their organizations as being in more advanced stages than the physicians.

Prochaska et al. (2006) reported on assessing readiness of a university to take action on advancing women scientists. They developed reliable and valid readiness measures based on the TTM and provided strategies for stage progression. Similarly, Prochaska (2000) developed standardized measures of core constructs of the TTM to advance organizational change in the social service system. There was a significant difference in pros between the Precontemplation and Action stages and cons between the Precontemplation and Contemplation stages and strong evidence for assessing organizational change and readiness using the TTM.

Statement of Problem

The strong connection between elementary health instruction, content knowledge, and positive health behavior in students underscores the importance of EHE. The elementary classroom offers a potentially favorable setting to impact student health. However, research indicates that EHE is frequently omitted or haphazardly delivered. Traditional efforts in educational change have had limited success and lack a theoretical

foundation. The TTM shows promise in its application to school district readiness to administer EHE. Currently no instruments exist to gauge district readiness for EHE.

Purpose of the Study

The purpose of this study is to investigate the organizational readiness of a public school district in Alabama for the delivery of 60 minutes of weekly EHE using constructs of the TTM. An existing TTM-based instrument was modified and customized for use in assessing school district readiness for EHE. The current study was intended to identify the stage of readiness, decisional balance, self-efficacy, the extent to which the school district engaged in behaviors and practices that may facilitate progression through the SOC, and to inform the development of a stage-matched intervention for EHE.

Research Questions

This study addressed the following research questions:

1. To what extent are the Alabama Course of Study guidelines for EHE being met by the school district?
2. What is the school district's level of readiness for EHE?
3. What is the school district's decisional balance of pros and cons for EHE?
4. What is the school district's level of self-efficacy for EHE?
5. What are the school district's beliefs for EHE?
6. What are the school district's practices for EHE?
7. Are TTM constructs (decisional balance, self-efficacy) correlated with EHE readiness?

8. How are specific variables (beliefs, practices) related to EHE readiness?
9. How can the TTM guide the development of stage-matched interventions for EHE?

Hypotheses

The primary research hypotheses examined in this study were the following:

1. TTM constructs (decisional balance, self-efficacy) will be significantly correlated with readiness for EHE.
2. Specific variables (beliefs, practices) will significantly relate to readiness for EHE.

Delimitations

The study was delimited to elementary teachers, school administrators, and district administrators employed in one North Alabama school district. The data were collected in August of 2015, the beginning of the academic year, in order to align with the school district's Institute, a mandatory time for district faculty and administrators to meet prior to the first day of school.

Limitations

The study was limited by the following factors that will be beyond the control of the researcher and may potentially impact the results:

1. Participants were not randomly selected.
2. Data were self-reported by participants and may have been biased as a result.

3. Sample size was limited due to the finite nature of the school district and results may not be generalizable.
4. There was a lack of prior research studies that apply the TTM to school district readiness to deliver EHE.
5. Researcher bias, whether positive or negative, may have occured due to previous career as an elementary teacher.
6. TTM stage progression may have occurred in a matter of minutes and many individuals cannot be assigned to distinct stages (Sharma & Romas, 2012).

Assumptions

The study will assume that all participants are able to read and understand the survey. Self-reported responses will be anonymous and confidential, and therefore will be deemed to be truthful and provided to the best of the participants' abilities. The study will employ the TTM, which assumes that no single change theory can account for the complexities of behavior and that SOC are sequential and temporal (Glanz et al., 2008).

Definition of Terms

The following operational definitions of terms will be used in the study:

Health Education: The combination of planned learning experiences that are designed to help individuals and communities improve their health through increasing knowledge or influencing attitudes (WHO, 2014).

Elementary Health Education (EHE): The above definition applied to grades kindergarten through fifth grade.

Elementary Health Education Delivery (*Alabama Course of Study, 2009*):

1. 60 minutes weekly
2. Separate from Physical Education
3. Provided by a certified teacher

Measured in the current study by Section I of the EHE-DAT.

Readiness: Concept of being prepared to undertake an activity or intention to take action (Prochaska et al., 2006); corresponds with TTM Stage of Change level for EHE; as measured by the EHE-DAT, Section II.

Decisional Balance: Consideration of pros and cons of changing behavior to deliver EHE (Prochaska et al., 2006); as measured by the EHE-DAT, Section III.

Self-Efficacy: Confidence in one's ability to successfully deliver EHE in specific situations (Prochaska et al., 2006); as measured by the EHE-DAT, Section IV.

Teacher: Regular classroom teacher in grades kindergarten through fifth grade; indicated on the EHE-DAT, Section VII.

Administrator: Individuals working as administrators at the school or district level. These responses will be combined to help uphold anonymity. Positions include school principals, assistant principals, district superintendent, deputy superintendents, and curriculum directors; indicated on the EHE-DAT, Section VII.

Certification: Holding a current elementary teaching certificate issued by the state of Alabama; indicated on the EHE-DAT, Section VII.

Staff Development: Graduate courses, workshops, continuing education, conferences, or any kind of inservice on health teaching methods or health topics (Kann et al., 2007); indicated on the EHE-DAT, Section VII.

Professional Preparation: Preservice undergraduate or graduate course work in health education methods or health topics; indicated on the EHE-DAT, Section VII.

Significance of Study

The proposed study is important because of its implications for health education and positive health and academic outcomes in students. It aims to contribute to the severely limited research in addressing the integration of theory, change process of schools, and readiness for EHE. It will also address the need for an instrument to measure readiness for EHE. The results from this study will allow for the staging of readiness for EHE in school districts through the application of the TTM. School district staging for EHE will effectively inform future stage-matched intervention efforts using POC to impact professional practice. The study intends to determine if Alabama guidelines in EHE are being met and may be relevant to future district or state policy regarding EHE, instructional practices, professional development, standardized testing, and certification. It is anticipated that this study would generate interest, not only among educators and health professionals, but also among stakeholders such as parents, politicians, and community leaders.

CHAPTER II

REVIEW OF LITERATURE

The purpose for the current study is to explore the TTM in assessing the organizational readiness of a school district in North Alabama for elementary health instruction. State guidelines concerning elementary health instruction exist but may not be followed consistently. Criteria will be established that define action for this target behavior. Staging at the organizational and individual levels will be determined through assessment of administrators and teachers. To better understand, predict, and facilitate school district readiness, the pros and cons of changing and self-efficacy will be established. POC will be used to suggest how future interventions could be tailored to correspond with staging in order to minimize resistance and maximize the probability of successful change.

The author conducted a comprehensive literature review of databases encompassing EBSCO, PubMed, and PsychARTICLES. Key words such as elementary health education, health education instruction, school readiness, school reform, organizational change, TTM, and SOC were used as descriptors to guide the research. Studies related to health education and instruction at the elementary level, school and organizational readiness, school reform, and the TTM were explored.

Health Education

Healthy behaviors are easier to establish and maintain during childhood than to try to change in adulthood (CDC, 2011b). Health outcomes are significantly related to education attainment, reducing absenteeism, increasing achievement and graduation rates--ultimately improving quality of life, increasing the years of healthy life, and stifling the cycle of poverty (Allensworth, Stevenson, & Katz, 2011). Inconsistencies in health education, threaten the vitality of health care, health insurance, economic security, and democracy in the United States (Basch, 2010; Kolbe 2005). Health is the missing piece to the achievement gap puzzle (Basch, 2010).

Strong and undeniable evidence in research links academic achievement with health (Basch, 2010). Health and education are directly related and reciprocal in nature. When education is lower, health is poorer and vice versa. Men and women who graduate from college are likely to live at least five years longer than their counterparts who do not finish high school RWJF, 2008). Babies whose mothers do not complete high school are two times as likely to die before their first birthday and babies whose mothers have completed college. In addition, higher proportions of physical inactivity and smoking are consistently related to lower educational attainment. On the upside, "Healthier students are better learners," (Basch, 2010, p. 4).

Schools play a vital role in helping young people develop healthy behaviors during the formative years that can last a lifetime (CDC, 2011a). Health education is important in health promotion and prevention in students (Vamos & Zhou, 2009). Education not only empowers students with knowledge to improve health behaviors but

also potentially increases income and access to quality health care (Woolf, Johnson, Phillips, & Philipsen, 2007).

There is a current interest in health education initiatives due to this correlational relationship between academic achievement and health (Vamos & Zhou, 2007). Health education may increase content knowledge and create an environment supportive of healthy behaviors making an impact in a variety of health behaviors in children such as tobacco prevention, nutrition, and physical activity (Fahlman, Hall, & Gutuskey, 2013). For example, violence, tobacco and alcohol use, physical activity, unhealthy diet, and sexual behaviors have a significant inverse correlation with academic achievement (Bradley & Greene, 2013). Even poor nutrition, hunger, and fears of safety are health factors integrally related to education (Barton & Coley, 2009).

Providing appropriate health instruction to children is an effective way to improve their health (Seabert, Pigg, & Weiler, 2002). Healthy People 2020 (2015) calls for an increase in the proportion of elementary schools that provide cumulative health education instruction. Unhealthy diets, limited physical activity, sexual behaviors, and alcohol, drug, and tobacco use are examples of preventable health behaviors that become established in childhood and adolescence and persist into adulthood (CDC, 2011a; Kolbe 2005). Although there is compelling evidence that health education can reduce the prevalence of health risk behaviors and increase academic performance in students, but this potential is not being realized at the school level (Basch, 2010; CDC 2011a; Kann, Telljohan, & Wooley, 2007).

Elements of Effective Health Education

There are several basic elements common to high-quality health education programs. Strong leadership, coordination, collaboration, safe facilities, and consistent health promotion messaging, are all necessary ingredients (American Cancer Society [ACS], 1999). Commitment of resources, personnel, and time are also crucial to the viability and effectiveness of health education.

Efficacious teachers have great potential to positively impact the health status and academic performance of their students (Clark, Brey, & Clark, 2013). Characteristics of health education instruction that effectively influence student health behavior include research and theory, a specific health focus, appropriate and engaging learning activities, opportunities for practice, values and norms, sufficient duration of at least 8 lessons per topic, and teacher training (Lohrmann, 2011).

Previous efforts have identified elementary teacher responsibilities in health education: communicating concepts, assessing needs of students, planning instruction; implementing instruction, and evaluating instruction (Patterson, Cinelli, & Sankaran, 1996). Surveys administered to 79 elementary teachers in Pennsylvania revealed that 80% of participants rated the following competencies as highly important: selecting realistic goals and objectives, and utilizing information related to the needs and interests of students. The relationship between competency usage and years of teaching experience and highest degree earned was statistically significant.

Current practice is far from the ideal in elementary classrooms. Instead, health education often uses a crisis-response approach that includes short-term programs without allowing for a comprehensive, evidence-based curriculum (Vamos & Zhou,

2009). English (1994) discussed the ingredients for the success of EHE at national, state, district, and school levels. National EHE curriculum standards and assessments are a must and existing programs are limited by restricted funding. EHE curricular goals, objectives, instruction, and assessment need to be aligned. Districts need to ensure EHE implementation and develop or select curricula to bolster success.

Although districts report EHE efforts, little EHE is actually taking place at the school level and few evaluations have been conducted to monitor program progress (English, 1994). Schools should provide opportunities for instructional supervision such as adequate resources, ongoing training, and colleague coaching; peer programs such as cooperative learning, peer tutoring, and youth service projects; and family involvement such as obligations, learning activities, governance, and advocacy.

Health issues are undeniably important at the elementary level, and elementary teachers are the ones responsible for teaching health to students (Fahlman, Singleton, & Kliber, 2002). Minimal health instruction at the elementary level leads to a dearth of health skills moving into adolescent and adulthood (Ubbes, Cottrell, & Ausherman, 1999). Health education should be taught with greater frequency with developmentally appropriate instruction at the elementary level in order to establish a strong health foundation (Ubbes et al., 1999).

Barriers to Health Education

Despite the connection between health education and overall student health, health education instruction is frequently lacking or omitted at the elementary level due to a variety of limitations and barriers. Burak (2002) examined and predicted the

intentions of elementary school teachers to teach health by investigating teacher attitudes, behavioral control, and subjective norms in relation to health education. Although health education played a role in student achievement in this study, elementary students got little if any health education at school. Participants included 181 elementary teachers in Massachusetts. Through self-administered questionnaires, 56% of these teachers reported not teaching health in the last academic year and only 42% intending to teach health during the upcoming school year. Teaching health was important or very important as indicated by 93% of participants. However, less than 25% reported having adequate materials or resources to do so. Recommendations regarding health education included professional preparation, inservice, certification, statewide student testing in health education content, materials, and resource access.

Hausman and Ruzek (1995) indicated that EHE was a low priority for faculty and that health instruction was often omitted or poorly administered. Teachers revealed wide discomfort over health content, lack of resources, low confidence, and lack of preparation. Barriers exist such as political pressures, financial and time constraints, and turf issues (English, 1994).

Limited instructional time inhibits health instruction in elementary classrooms. Lohrmann (2011) acknowledged that elementary health topics are being taught but not with enough time devoted to the subject to allow for any thoroughness. As further illustrated at the elementary level, health instruction was commonly reported in hours per year, yet language arts and math instruction were reported as hours per day. Some teachers reported that health was part of a combined subject such as science and separate health grades were not given suggesting a lack of incentive to spend instructional time on

health alone (Patterson et al., 1996). Additional related barriers include competing priorities, limited time, and absence of health education questions on state examinations (Fahlman et al., 2013).

Vamos and Zhou (2009) explored K-12 health instruction and needs among teachers with the purpose of improving health through schools. Participants from British Columbia, Canada included 16 practicing K-12 teachers from one school district and 16 preservice teachers from a university. Key components of the study included teacher commitment, policy development, in-service training, parental involvement, and teacher preparation. Participants each took part in one of four focus groups. Several themes emerged centered around teacher beliefs, barriers, and perceived challenges and encompassed teaching strategies, knowledge and skills, comfort level, teaching barriers, curriculum, programs, and the role of the school. Barriers included lack of support from parents, school, and community; ambiguous role of school district in health education; limited resources; lack of access to current health information; health content conflicting with political/educational agendas; and inconsistent collaboration and coordination. Recommendations addressed the need for developing health educator roles and competencies; teacher training; active participation of community members and stakeholders to build connectedness with schools; and school support that promotes healthy values, strategies, and policies. Implications of this health instruction research may not be directly applicable to schools in the United States because it took place in Canada. In addition, the small sample size due to the qualitative design of the study, may limit the generalizability of the results.

Thackeray, Neiger, Bartle, Hill, and Barnes (2002) investigated elementary health instruction with the purpose of gleaning information to assist with the creation of an infrastructure of support. Elementary schools were randomly selected, and principals within these schools chose regular classroom teachers to participate. This qualitative research employed one-on-one interviews and focus groups for data collection. Findings suggested that policies and instructional guidelines, instructional time, and teacher preferences were themes related to elementary health instruction. Perceived importance, opportunity, teacher interest and comfort level also played a role in health instructional content. Teachers reported teaching subjects that were mandated by the state and dictated by content on standardized state tests. Lohrmann (2011) concurred that state testing and annual yearly progress drove content of instruction. Although the majority of teachers felt that health was an important subject and enjoyable to teach, there was inconsistent health instruction with health rarely taught as a separate subject (Thackeray et al., 2002). The biggest barrier to health instruction was lack of time. Teachers perceived that there was neither time to teach health nor planning time to prepare health lessons or gather resources. Teachers reported that there was no money for health textbooks or related materials. Researchers recommended public health educator and elementary teacher collaborations and made suggestions for increasing teacher effectiveness in teaching health. Suggestions included developing policy; integrating health with core subjects; providing resources such as materials, programs, and guest speakers; and providing health inservice opportunities.

Wiley (2002) gave expert response to the previous research by Thackeray et al (2002). Elementary health instruction should be given a starring role in school

curriculum. He reiterated that there were many barriers when it comes to daily health instruction at the elementary level such as time, policy, teacher interest, standardized testing, competing academic priorities, lack of training, and limited direction by state and local authorities for a health education emphasis. Health education may be best delivered by integrating it throughout core subjects, which echoed previous findings of the Thackeray et al. (2002) research. Alternatively, Seabert, Pigg, and Weiler (2002) contend that more research is needed to determine whether combining health instruction with other subjects is effective in influencing children's health knowledge, skills, and attitudes.

Professional Preparation

Teacher preparation in health education is crucial at the elementary level (Patterson et al., 1996). The quality of health instruction hinges on teacher competency, thus a significant stumbling block for EHE is the lack of training for teachers (Fahlman et al., 2002). Teachers feel inadequately prepared to teach health education; therefore it is frequently neglected in the classroom (Patterson et al., 1996). Importance of teacher preparation in meeting the health information needs of students cannot be understated with the lack of teacher training being a significant barrier to effective health education at the elementary level. (Seabert et al., 2002). Many states require health education in elementary school but most teachers do not have certification in health education or any adequate training in health education (Fahlman et al., 2013). Teachers revealed having little, if any, preservice training in the content area of health or health education methodology (Thackeray et al., 2002). States should require a health education course in

teacher preparation programs and implement statewide assessment in EHE (English, 1994).

Lack of professional preparation negatively affects implementation of health education. Patterson, Cinelli, and Sankaran (1996) examined the usage and importance of health instruction competencies and responsibilities of K-6 teachers in those who were responsible for K-6 health education. The type of methods course was less important than the amount of coursework completed; exposure to additional courses was beneficial to classroom practices. Recommendations included promoting awareness and importance of K-6 health education responsibilities and competencies, increasing professional preparation, and continuous staff development.

Teacher preservice preparation in health education is critical with the primary responsibility falling on universities (Ubbes et al., 1999). Seabert et al., (2002) examined the effects of elementary teacher preservice health education on classroom health instruction. Questionnaires were completed by 800 randomly selected third through fifth grade teachers in Indiana. Like many states, Indiana allows health education methodology coursework as an elective option but no credit hours or courses are specifically required for preservice elementary teachers. Results suggested that teachers who had completed health and physical education methods courses taught more health content areas and topics than those who had not taken the courses. Statistically significant differences existed in the number of content areas taught, depth of coverage, the number of lessons per week, and the number of minutes per week spent teaching health. Recommendations included requiring a preservice health education methods course for elementary teachers; health education university faculty taking an active role

as advocates for preservice health education preparation; advocacy through national organizations; and the collaboration between university faculty, elementary faculty, and administrators to address time allocation for elementary health instruction.

Ubbes, Cottrell, and Ausherman (1999) examined EHE preservice preparation, determined the type of health education courses required, and assessed course content for preservice elementary teachers in Ohio colleges and universities through a phone interview survey. They identified important skills for preservice EHE teachers such as using scope and sequence charts and writing lesson plans. Findings indicated that 80% of the colleges and universities offered health courses with twelve different textbooks being used statewide for the courses. Content varied from *none* to *much* of the National Health Education Standards and the K-6 Health Instruction Responsibilities and Competencies. Elementary teachers must have adequate curricula and preparation in health education development, implementation, and evaluation because they provide the health instruction at the elementary level. Recommendations included requiring at least one HE methods class and personal health class for preservice elementary teachers; employing qualified university faculty to teach these classes; using a variety of curricula, scope and sequence charts, risk behaviors, and 10 content areas as resources for these classes; providing preservice teachers with preparation in the Coordinated School Health model; and transforming health education faculty into advocates for the importance of health education classes for preservice elementary teachers.

Vamos and Zhou (2007) investigated K-12 teacher perceptions of health education professional preparation and factors associated with this preparedness such as teacher skill and practice; time and resources; and school structure and function. A

questionnaire was used to assess 78 preservice and 166 practicing teachers in British Columbia, Canada. Results showed that health education training was positively associated with practicing teachers' knowledge, skills, beliefs, and preparedness but negatively correlated with health curriculum satisfaction. Practicing teachers also reported higher positive beliefs about health education than preservice teachers. For preservice teachers, there was a significantly negative relationship between health course experiences and satisfaction with HE curriculum. Findings suggested that there is a need for training, implementation, and curricula for HE programs. Existing gaps in health education may be potentially addressed through policy and collaborations related to preservice preparation, professional development, curricula, and community engagement. Because this research was performed in Canada, it may not be generalizable to health education in the United States.

Ongoing health education professional development for elementary teachers is also vital. Professional development may be defined as "workshops, conferences, continuing education, graduate courses, or any other kind of inservice on health topics or teaching methods" (Kann et al., 2007, p. 417). Although most states and districts offer health related professional development, Kann et al. (2007) indicated that the number of states and districts requiring teachers of health to attend professional development was low.

Hausman and Ruzek (1995) reported on the effectiveness of implementing health education curriculum over a three-year period in five elementary schools and two middle schools in Philadelphia primarily serving disadvantaged minorities. They examined the relationship among K-5 teacher preparedness, comfort in teaching health, and actual self-

reported teaching practices. Extensive professional development intervention was provided because classroom teachers, as opposed to health specialists, provide health education at the elementary level. Other components included methods and materials support from on-site coordinators and university-based experts, a resource center, health promotion for faculty, and community involvement. Throughout the study, data were collected using surveys and interviews from 156 elementary faculty. Only 19% of faculty had any previous training in health education. Teacher confidence was directly related to previous training. Teachers' feelings about teaching health may have been a factor in choosing what to teach, particularly when it came to sensitive subjects. Lesson plans are limited indicators in evaluating instruction because teachers may shorten or omit lessons depending on time constraints. Therefore, self-reported teaching is an important outcome assessment. Elementary teacher preparation must include health education, and a priority of future research should include effective means for fostering elementary health instruction.

Support and Advocacy

Although there are many challenges facing EHE, there are also potential avenues of support and advocacy. Educational agencies and other organizations such as the American Cancer Society have expressed growing concern about the lack of EHE (Patterson et al., 1996). Support for health education comes from agencies such as the CDC, U.S. Department of Education, U.S. Department of Health and Human Services, state and local agencies, select nongovernmental organizations, research organizations, and even universities (Kann, Telljohan, & Wooley, 2007).

School nurses have direct access to children, families, and school faculty and are frequently given some of the responsibility for health education. In addition, they have the training and skills to understand health concepts and to promote the well-being of students. Drott (2001) described a case study that utilized nursing students to provide health education in an elementary school collaboration. Undergraduate nursing students were invited to provide health education in the form of two, 50-minute lessons a week apart. Elementary students completed pre- and post-tests to evaluate the learning process. Results suggested that using nursing students effectively provided health education to elementary students.

Wiley (2002) advised health education advocates to enlist local school boards, superintendents, and organized parent groups as potential sources of support with the link between health education and student achievement and reduced absenteeism being key issues that should be emphasized in advocacy efforts. He asserted that local school boards may be the most important group because they work with the superintendent to develop district goals. He argued that because of local control within schools, health educators and elementary teachers may first need to focus on changing individual campuses instead of an entire school district. However, Wiley neglected to consider the impact of superintendent and district administrator expectations on the priorities of school principals and teachers.

Conversely, Winnail and Bartee (2002) studied superintendent concerns and agendas at the elementary, middle, and high school levels and found that school health programs almost universally required the support of superintendents and upper level administrators in order to succeed. A modified Delphi method was used to collect

qualitative data from school district superintendents in a frontier state. Three rounds of a questionnaire were used with 40 superintendents responding. The most pressing concerns centered on funding, student education and achievement, and issues revolving around teachers. Funding was the top concern at the elementary level among the superintendents. Overall, monetary concerns such as funding, salaries, attracting quality teachers, and enrollment, which are directly linked to budgets, comprised four of the top ten concerns of superintendents. Three of the top ten issues were related to student grades. Time constraints and standards rounded out the list. District superintendent top ten concerns at the elementary level in order of importance were as follows: funding, salaries, standards and assessments, time issues, declining enrollment, staff development/inservice; content improvement; attraction and retention of quality teachers; teacher support; and Special Education. Health education advocates must be aware of top district concerns in order to positively influence health education efforts. Linking health issues such as attendance, academic achievement, attention spans, and behavior to administrator concerns may help gain administrator support for health programs and interventions. In order to provide effective health instruction, elementary teachers need school and school districts to uphold and encourage their efforts (Wiley, 2002). Perhaps policy would ensure this support.

Policy and Standards

The decentralized design of the educational system in the United States allows for discrepancies in policy and makes consistency in health education programs marginal at best. In addition, health education is not defined as a school subject by the U.S.

Department of Education which results in a lack of policy and financial support (Lohrmann, 2011). EHE needs recognition at the national level as a necessary component to achievement (English, 1994). Despite the support of many school administrators, teachers, students, and parents, with the absence of a federal mandate and little overall public demand for health education, health instruction is omitted in many elementary classrooms (Drott, 2001; Lohrmann, 2011). However, national, state, and district laws and policies may bolster health education efforts.

Long-standing recommendations call for increased policy and related attempts in approaches to health education (Golden & Earp, 2012). Gaines, Lonis-Shumate, and Gropper (2011) evaluated compliance with Alabama State Department of Education policy and wellness policies of Alabama school districts and how well minimum requirements were met. Data were also gathered and analyzed from a relevant school district superintendent survey. Results showed that 71% of school districts were in compliance with federal policy. Implementation of Alabama state mandates was 79% with only 7% of districts in complete compliance. Evidence suggested a delay between policy creation and implementation. School districts needed support from the federal and state level to meet the expectations of the mandates. Impact of these policies on student health may be limited. Thus, policy existence does not ensure its implementation or effectiveness (Gaines et al, 2011; Schwartz et al, 2012).

Even though elementary schools may be required to include health education, the amount of time and number of days it is provided differs according to district and state. This leads to wide variation in the quality or frequency of health instruction. In Alabama, health education provided by certified teachers is required in kindergarten through eighth

grade (*Alabama Course of Study*, 2009). School districts are encouraged to devise a general scheduling plan that is conducive to interdisciplinary instruction. Additionally, Alabama guidelines suggest that in first through sixth grade there should be 60 minutes of health instruction per week separate from physical education. In Alabama kindergartens, there are no established time allotments for any subject areas, including health.

Kann, Telljohan, and Wooley (2007) investigated the characteristics of K-12 health education policies and programs. Data from the CDC School Health Policies and Programs Study was collected through phone interviews and questionnaires. Participants were state education department personnel and a sampling of elementary, middle, and high school teachers. School assessment topics included standards, guidelines, objectives, instruction, staffing, professional development, collaboration between teachers and colleagues and other community members, student and family health promotion, and the credentials of the school health education coordinator. Classroom topics assessed included health education classes, content, methods, teacher credentials, and professional development. Findings showed that less than 7% of elementary schools requiring health education mandated instruction in all health topic areas. Only about 37% of districts specified time requirements for health topics taught at elementary schools. Nearly 75% of states reported policy requiring districts to follow national or state health education standards. Approximately 14% of these included health education in statewide testing. Around 6% of states and 31% of districts required a particular health curriculum at the elementary level. Results indicated that there are program and policy gaps that need to be addressed in order to galvanize health education efforts in schools throughout the United States.

It is imperative for teachers to provide standards-based learning opportunities to students. Clark, Brey, and Clark (2013) developed the Pre-service Health Education National Standards Self-efficacy (PHENSS) Scale and established its ability to make inferences based on the scores. They explored the confidence of preservice elementary and secondary teachers in health instruction using national health education standards. Results showed the PHENSS to be both reliable and valid. Authors recommended the requirement of a preservice health methods course based on standards to provide skills development, practice, and increased self-efficacy for elementary teachers because they have great potential to impact student health.

Organizational Change and Readiness in Schools and Organizations

Educators and researchers cry for a process that can be used to transform education (Joseph & Reigeluth, 2005). Systemic change is needed in education. Traditional piecemeal efforts have been unsuccessful. Systemic change in education must include aspects such as policy, school board, districts, schools, classrooms, assessment, and curriculum. School districts are essential to the organizational change of schools by providing effective policies, professional development, and infrastructures, and by linking change to broader goals such as student achievement (Sanders, 2014). Literature and research on educational systemic change is severely lacking (Joseph & Reigeluth, 2005).

Reform and Change Efforts

Nissen (2014) presented an overview of organizational readiness for change, organizational resistance to change, and implementation science with the goal of enhancing the effectiveness of policy and accreditation standards implementation in the field of social work. She reported that a climate of readiness was created through a combination of attributes such as motivation, dedication, relevance, and a sense of importance. Resources must be readily available to implement change initiatives. Unfortunately, research indicates that elementary teachers are constrained by limited time, support, and lack health educational resources such as adequate curriculum materials and textbooks (Burak, 2002; Margolis & Nagel, 2006; Thackeray, 2002; Vamos & Zhou, 2009). These limitations may create barriers that reduce readiness and slow or inhibit organizational change in schools.

Jennings, Noblit, Brayboy, and Cozart (2007) presented a history of reform in school districts and a case study of how three urban school districts implemented a school development program. History revealed that failed school reform efforts that have occurred under conditions of threat have little measurable results. School districts serve multiple masters and have abdicated their responsibilities for reform and their responsibilities for developing the whole child. Emphasis in education is narrowed to that which is being tested and many health and social issues are being ignored.

Macdonald (2004) presented a review of curriculum implementation and systemic reform in health and physical education. Traditional processes for change are ineffective and meaningful curriculum change in current school settings is challenging. Teachers are frequently only briefly engaged with new curriculum and then often return to ingrained

practices with little lasting impact on students. Collaborative curriculum reform includes collaboration, professional development, student and community input, and systematic evaluation. Although Macdonald (2004) provided insight into school reform in the United States, Australia, and New Zealand, generalizations from the review may not be applicable across all three countries due to inherent differences in their educational systems.

Sanders (2014) described how policies, expectations, and practices at the school district level affected principals' responses to reform. This multiple case study took place in two school districts. Principals are the principle agents of change, decision makers, and problem solvers at the school level. In addition, without principal leadership, reform is unlikely to succeed or to be sustained. Although leadership is a central feature of organizational change, one person cannot and should not be solely responsible (Nissen, 2014). As mentioned previously, Winnail and Bartee (2002) found that the support of superintendents and upper level administrators was necessary school health programs to succeed. District leaders can enhance capacity for school reform by providing a cohesive message, allocating resources, and creating opportunities for learning and engagement (Sanders, 2014). Findings indicated that district leaders who provided clear expectations, coherent contexts, and tangible support increased principal implementation effectiveness as well as reducing resistance and increasing buy-in. A systemic approach requires continuous district focus and may be difficult to sustain given competing priorities.

Historically, federal policy impacts funding and accountability in state and local school districts. As previously mentioned health education is not recognized nationally as an academic subject and suffers the financial fallout and lack of precedence because of

this circumstance. Johnson (2013) examined the effects of policy on science education reform over a five year period in a large urban school. Educational turbulence occurs when federal and state policies result in the creation of reactive district and school policies without consideration to what is best for high-quality instruction or favorable student outcomes. Another result of policy focused on accountability is the reduction and or elimination of subjects that are not tested. Health education has fallen victim to this phenomenon, especially at the elementary level. Findings showed that there were seven themes related to educational turbulence and policy: accountability, funding, curriculum and instruction, personnel, scheduling, learning environment, and community engagement. Recommendations included new national content standards and guidelines for assessments. Science is a core subject that frequently absorbs health education at the elementary level because teachers are prone to integrate health instruction in science lessons. However, even science is sacrificed at the elementary level to make more time for language arts and math instruction. Recall, too that National Health Education Standards exist, but accountability at the elementary level is missing.

Elfers and Stritikus (2014) presented a case study of four Washington state school districts examining support for regular classroom teachers and those working with English Language Learners (ELL). Extensive background was given related to administrative leadership, teacher support, instructional quality, and learning outcomes in general education. Current literature addressed supportive school components such as professional development opportunities, collaboration, high learning standards, effective leadership, and access to appropriate curriculum materials. These components are similar to effective health education components. Researchers in this study focused on

dimensions of support for ELL teachers and revealed five themes: high-quality instruction, a blend of district- and school-level leadership initiatives, communicating rationale, differentiating support at elementary and secondary levels, and using data to improve instruction. These themes may be relevant to the goal of improving health education.

Changing the practice of teachers may be the most difficult part of educational reform efforts (Johnson, 2013). This is significant because classroom teachers are the key to delivering quality health education instruction to students (Clark et al., 2013). Margolis and Nagel (2006) investigated educators' perceptions and integration of change, the role of administrators, and the impact on reform through a case study at the newly formed College Prep Academy. Policymakers, administrators, and teachers may view change initiatives differently. Previous literature indicated that constraints on teachers to implement change are underestimated and have a negative impact on teacher stress. Teacher barriers to adopting reforms include insufficient time, lack of professional development, state assessment alignment, and need for a common vision. Formal interviews, observations, and participant journals were used to collect data.

Findings suggested the following themes: pace of change, cumulative stress, and relationships with the administration (Margolis & Nagel, 2006). Results showed that teachers' physical exhaustion increased in proportion to the perceived scope and pace of the imposed changes and that the principal is powerful in shaping the work environment. Teachers indicated a neglect of their personal needs and circumstances including: resources, books, curriculum materials, time, support, and opportunities for growth. Teacher sense of self and school roles impacted satisfaction, self-worth, and school

reform viability. Negative staff morale can also impede change initiatives and change agents should heed what teachers perceive to be problematic. Lofty ideals without supportive relationships or adequate resources and positive relationships may undermine school and educational reforms. Teachers who are vitalized and in favor of change efforts can invigorate reforms and exceed even policy makers' expectations.

Professional development may be a fundamental avenue for instructional change. Health education is sometimes integrated with the core subject of science in the elementary classroom. Sandholtz and Ringstaff (2011) investigated the effect that professional development made on K-2 science instruction. Specifically, researchers examined teacher content knowledge, teacher self-efficacy, instructional time, and instructional strategies. They contended that instruction was limited in the elementary grades, and professional development in science for elementary teachers was almost non-existent. Teachers reported that they were not scientifically literate and feel less qualified to teach science than other core subjects. Many districts reported not having the resources to support science instruction at the elementary level. Rural school settings exacerbated these issues. Contextual factors included teacher and student characteristics, policies, curriculum, school leadership, and school/district environments. Data were collected through a teacher survey, self-efficacy assessment, tests, interviews, and observations. The findings showed increased content knowledge, self-efficacy, instructional time, and instructional strategies. Hindering or supportive related factors included administrative support, support from colleagues, curriculum demands, and available resources such as supplies, equipment, space, and time for preparation and collaboration. Professional development was a supplement to teacher preparation

programs; was particularly important for rural teachers; and resulted in positive changes in content knowledge, instructional practices, and self-efficacy. Overall, professional development may add to teacher content and pedagogical knowledge and instigate changes in classroom instruction.

Readiness

Carey, Harrity, and Dimmit (2005) developed an instrument to measure school district readiness to adopt the American School Counselor Association (ASCA) National Model of school counseling and identified program areas key to successful implementation. The model had demonstrated benefits for students and increased recognition of school counseling programs with a strong emphasis on standards and accountability. The model suggested 3 to 5 years for the transition period. Based on the researcher's professional experience, current literature, observation, and logical extrapolation, seven readiness indicators were identified: community support, leadership, curriculum, staffing/time use, school counselors' attitudes and beliefs, counselors' skills, and district resources. Authors of the ASCA National Model and 20 school counselors reviewed the indicators and gave feedback including clarity, readability, logical consistency, and perceived usefulness for the development of the instrument. The instrument was a survey designed for participants to rate district efforts and contained a total of 54 items in the aforementioned readiness domains. The authors presented three case studies from districts using the results of readiness surveys. Problems within the school districts were identified and addressed. Further research is needed to demonstrate

the effectiveness of the survey and whether it leads to effective program implementation. The seven readiness indicators may be applicable to health education readiness research.

Joseph and Reigeluth (2005) presented a qualitative study to refine processes in the Guidance System for Transforming Education (GSTE). The research took place in an Indiana school district and investigated an early stage of the change process focusing on readiness. The first step in the change process for systemic change is determining whether the school district is at a sufficient level of readiness for change stakeholders. Researchers met one-on-one with key stakeholders such as district administrators, principals, teachers, and parents to get a feel for their interest in and readiness for change stakeholders. Findings showed that focus group interviews were more productive than on-one-one and that facilitators needed more guidance with interview protocols. Students and support staff should be included as stakeholders. Vague and general terms were used to assess readiness, district's capacity for change, and establishing relationships. Overall, this study did not provide specifics on how to extrapolate district readiness from interviews or focus groups.

Claiborne, Auerbach, Lawrence, and Schudrich (2013) investigated the relationship among organizational change readiness, organizational climate, and job satisfaction among child welfare workers. Their research was based on the premise that organizations with a greater level of change readiness have better outcomes characterized by effort, persistence, and cooperation; whereas those with lower levels are fraught with resistance, conflict, and ultimately failure. Child welfare agencies were portrayed as hierarchical, rigid bureaucracies with top-down, inflexible, compliance-oriented leadership. This rigid organizational description parallels characterizations of many

public schools. Literature revealed two theoretical approaches to organizational readiness: the TTM and an individual focus on employee's attitudes, beliefs, and intentions. Factors associated with organizational readiness for change include size, external pressure, leadership commitment, financial resources, worker attributes, goal clarity, and community attitudes. Perhaps these factors would be relevant to school or school district readiness for change. Participants were given the Spector Job Satisfaction Survey, Parker Organizational Climate Survey (role, job supervision, and organizational dimensions), and nine questions derived from the Organizational Readiness for Change Survey. Workers with a clear role, effective leader communication, and higher number of years in current position, reported higher organizational readiness and perceived changed initiatives to be successful. Overall, not all job satisfaction or organizational climate factors were equally related to change. To be clear, the study addressed social workers' openness to general change, not a specific change.

McCrae, Scannapieco, Leake, Potter, and Menefee (2014) investigated the extent to which staff buy-in and readiness related to the change implementation progress in child welfare organizations. System readiness, including staff motivation or being willing and organizational capacity or being able, must be assessed. Buy-in was defined as occurring when employees believed that change is important, necessary, and beneficial. Surveys and interviews were used to collect data. Buy-in was self-reported based on four statements: heard about the innovation; good understanding of innovation; belief that innovation was a good fit; belief that the innovation was needed. Parts of the Organizational Readiness for Change Survey were used to measure readiness for change, leadership, and job stress. Results showed that buy-in was associated with tenure and

gender. Smaller agencies and those with lower job stress had higher implementation progress. Other influential themes emerged such as supervisor support, including staff in project design, and communication. Supervisors had the most influence over workers, and supervisor interpersonal communication with workers is pivotal to worker buy-in and implementation success. Manageable job stress, not buy-in, was a driving factor in change implementation. In order to strengthen future change implementation, organizations should implement strategies that address urban/rural location; staff selection, inclusion, and supervision; and job stress. Although child welfare organizations differ from school districts, the findings regarding job stress, tenure, gender, and supervisors, and their relation to system change readiness may be applicable to teachers, administrators, schools, and districts.

Transtheoretical Model

Perhaps organizational change attempts would be more successful using change related theory. The TTM was developed by integrating principles from other prominent theories as a framework to understand behavior change (Glanz, Lewis, & Rimer, 2008; Hayden, 2009). Through rigorous research and application, this theory has been proven solid in its ability to explain and facilitate change in a wide variety of individual health behaviors (Levesque et al., 2001). Additionally, the theory has been successfully applied to organizations (Prochaska, Mauriello, Sherman, Harlow, Silver, & Trubatch, 2006).

The TTM includes the basic premise that behavior change occurs over time in specific, sequential stages for individuals (Prochaska & DiClemente 1983; Hayden, 2009). The TTM systematically synthesizes dimensions fundamental to behavior change

(Levesque et al., 2001). The core constructs of the TTM include SOC and Processes of POC with a defined set of dynamic variables that include decisional balance and self-efficacy (Glanz et al., 2008; Hayden, 2009; Prochaska, 2000).

Stages of Change

SOC can be thought of as readiness or intention to take action (Levesque et al., 2001; Prochaska et al., 2006). Behavior change involves movement through five distinct stages (Prochaska & DiClemente, 1982). SOC are described as the following:

1. Precontemplation—not intending to take action within the next 6 months
2. Contemplation—intending to take action within the next 6 months
3. Preparation—intending to take action in the next 30 days
4. Action—made overt changes less than 6 months ago
5. Maintenance—made overt changes more than 6 months ago

In the Precontemplation or pre-thinking stage, individuals are resistant, in denial, or lack of recognition of problem behavior (Prochaska & DiClemente, 1982). They are not ready to change, are unaware of the consequences, or have given up trying to change (Levesque et al., 2001). Individuals are uninformed or underinformed about the consequences of their behavior and tend to avoid reading, talking or thinking about the subject (Prochaska, 2006; Glanz et al., 2008).

Individuals move into the Contemplation stage when there is recognition of the problem and thinking about changing (Prochaska & DiClemente, 1982). They are aware of the pros and cons of changing but tend to overestimate the cons causing them to be

ambivalent about change and are not ready to take action (Glanz et al.,2008; Levesque et al., 2001; Prochaska et al., 2006).

The preparation stage starts when individuals decide to change and make plans to do so (Hayden, 2009; Prochaska & DiClemente, 1982). They take steps toward the goal of behavior change and plan to take action immediately (Glanz et al., 2008; Prochaska et al., 2006). These are individuals who should be considered for traditional, action-oriented interventions (Glanz et al., 2008).

When preparation is complete and the plan for behavior change is put into action, individuals move into the Action stage (Hayden 2009). They have made definite changes to their lifestyles during the last six months (Glanz et al., 2008). Individuals are actively engaged in overt behavior modification efforts or the acquisition of new, positive behaviors (Levesque et al., 2001; Prochaska & DiClemente, 1982; Prochaska et al., 2006).

Maintenance is the final stage and includes actively working to consolidate gains and prevent relapse (Hayden, 2009; Prochaska & DiClemente, 1982). Individuals in this stage have been able to sustain behavior change for at least six months (Levesque et al., 2001). This stage may continue for years as individuals becoming increasingly confident in continuing their behavior change (Glanz et al., 2008).

Individual stages are distinguished by attitudes, beliefs, and knowledge about the health behavior and determine the receptiveness to information aimed at behavior change (Whysall et al., 2007). Furthermore, factors that influence behavior will change over time during the progression of the change process. Stage-matched interventions may have a more sizeable impact than generic programs that are frequently aimed at taking

action (Prochaska et al., 2006). Limitations to consider are that individuals may move through stages in a matter of minutes and that many individuals cannot be assigned to distinct stages (Sharma & Romas, 2012). However, this occurrence may be situational for individuals such as smokers attempting to give up the habit and relapsing (Whitelaw, Baldwin, Bunton, & Flynn, 2000). Additionally, Prochaska (2000) asserts that SOC should be applied in combination with other TTM constructs such as decisional balance and self-efficacy.

Calls have been made for the application of a SOC approach to organizational change but application in practice has been limited (Whysall, Haslam, & Haslam, 2007). The SOC approach can be used to predict future behavior among employees (Levesque et al., 1999). When most employees are found to be in the Precontemplation or Contemplation stages, organizations can create conditions conducive to change and a facilitative environment for the employees appropriate for their stages.

Decisional Balance

There is a predictable relationship between the SOC and another elemental dimension of the TTM, decisional balance (Levesque et al., 1999). Decisional balance, or the pros and cons of changing, is the consideration of potential gains and losses associated with the behavior change (Levesque et al., 2001; Prochaska et al., 2006). This involves a comparison between the perceived positive aspects and perceived negative aspects of behavior modification (Prochaska, 2000). Individual assessment weighs the costs and benefits and may take a prolonged length of time (Hayden, 2009). Decisional

balance and habit strength influence movement between stages (Whysall et al., 2007). Decisional balance is also a strong predictor of behavior change (Levesque et al., 1999).

Self-Efficacy

Another basic element of the TTM that plays a primary role in behavior change attempts is self-efficacy (Hayden, 2009). Self-efficacy is the belief in one's own ability to attain a desired goal which can affect persistence and motivation (Bandura, 1977). It includes the confidence to make and sustain changes as well as the capacity to cope with high-risk situations or temptations (Glanz et al., 2008; Levesque et al., 2001; Prochaska et al., 2006). As individuals progress through the SOC, self-efficacy generally increases as confidence builds and temptations are reduced (Levesque et al, 1999; Prochaska et al., 2006). Small steps to increase confidence, such a setting realistic goals at each stage, are recommended for increasing self-efficacy (Prochaska et al., 2006).

Processes of Change

POC explain the mechanism by which change occurs, as opposed to when it occurs (Prochaska & DiClemente, 1982). There are ten fundamental processes that are categorized as either cognitive or behavioral processes (Boswell, 2011; Glanz et al., 2008; Hayden 2009; Prochaska et al., 2006; Sharma & Romas, 2012). The POC are described as the following:

Cognitive Processes

1. Consciousness raising— increasing awareness and information of problem behavior

2. Dramatic relief— experiencing emotional arousal and express feelings
3. Self-reevaluation— assessing of one's own self-image
4. Environmental reevaluation— assessing how one's own behavior affects the social environment
5. Social liberation— increasing social opportunities or alternatives to problem behavior

Behavioral Processes

1. Helping relationships— seeking social support for behavior change
2. Reinforcement management— providing consequences or rewards for taking steps in a particular direction
3. Stimulus control— removing cues for unhealthy habits
4. Counter conditioning— learning healthy, new ways to cope
5. Self Liberation— belief that one can change, commitment and recommitment

Different POC are used to facilitate change and movement through the SOC (Hayden, 2009). The cognitive processes primarily relate to thoughts and feelings and are relevant to the early SOC with the behavioral process being action-oriented and germane to the later SOC (Boswell, 2011). These basic patterns of activity have been used to help individuals change their behaviors, cognitions, affects, and interpersonal relationships (Prochaska, 2006).

Transtheoretical Model Application

In general, a research gap has existed in addressing the integration of theory and the change process of organizations (Levesque, Prochaska, & Prochaska, 1999). There is

insufficient research addressing the series of stages that planned organizational change cycles through (Prochaska, 2000). Organizations have the potential to be powerful agents of change, and according to the TTM success may depend on readiness to change (Levesque, Prochaska, Prochaska, Dewart, Hamby, & Weeks, 2001). Implementation of change is a primary concern of administrators in organizations, and success requires more than creativity or a trial and error approach (Prochaska, 2000). Some organizations have attempted to facilitate change through policy, rules, and incentives (Levesque et al., 1999). In education, previous theory-guided change attempts have not produced long-term, systemic change (Joseph & Reigeluth, 2005). These attempts focused on changing the individual school as opposed to the school district or community.

The TTM is a systematic and empirical approach to behavior change extensively tested with individuals but has been nascent in application to organizational behavior change (Boswell, 2011). TTM processes and stages are widely applicable and valuable in the assessment and facilitation of organizational change (Aten, Strain, & Gillespie, 2008). The TTM is able to have an unprecedented effect on all employees by using individualized interventions based on organizational readiness thus minimizing resistance and maximizing the probability of successful change (Levesque et al., 1999). Empirical evidence consistently supports the application of the TTM to organizational change (Prochaska et al., 2006; Levesque et al., 1999). Theorists are encouraged by the potential to use the TTM at the institutional level (2002).

Organizational Change

Aten, Strain, and Gillespie (2008) introduced a model of clinical supervision based on the TTM. They explored and applied the SOC and POC to clinical supervision. They reviewed current literature and introduced the elements of supervisee SOC and supervisor POC. Supervisee SOC and supervisor POC mirror their SOC and POC counterparts when applied in the context of the supervisory relationship describing the roles of supervisees and supervisors at each stage. This supervisory relationship parallels the roles of teachers and principals. Supervisee SOC and supervisor POC may be germane to the teacher-principal affiliation.

Boswell (2011) presented a case study of the application of the TTM to the process of successful electronic health records (EHR) adoption. He explored employee readiness to implement EHR, pros and cons of change, and strategies to facilitate change within the framework of the TTM. He designed interview questions with the goal of identifying actions related to successful EHR implementation, readiness, pros and cons, and POC classification. Results revealed four behaviors related to EHR adoption: support, managing, training, and collaboration. Findings also indicated that almost 70% of employees classified their organization as in the preparatory stage of the TTM. Pros included improved patient care and safety (most common benefit), remaining competitive, and excitement; and cons included fear (most common drawback), cost, frustration, and being impersonal. More cons were identified than pros which is consistent with the preparatory stage and supported by previous decisional balance research. There were also nine POC reported as being utilized to implement EHR.

Results supported the application of TTM in EHR implementation and provide further evidence for stage-matched interventions aimed at increasing organizational readiness.

Levesque, Prochaska, and Prochaska (1999) presented a case study of the application of the TTM with the goal of integrated service delivery (ISD) through organizational change at a university. Researchers identified variables related to successful ISD based on existing literature. Stage-matched interventions are more successful in fostering behavior change than ubiquitous programs. Change is best managed through stage-matched interventions that are applied to the appropriate individual and organizational SOC levels. SOC and decisional balance measures were developed to determine the university's readiness for ISD. Levesque et al. (1999) identified the following steps to SOC in organizations: Identify and define desired behavior change, customize measures, administer measures, analyze data and feedback, provide stage-matched individual and organizational level interventions, and repeat measures. Findings indicated that 50% of employees were in the Maintenance stage for ISD. However, only 35% of staff compared with 100% of administrators were in the Maintenance stage. Based on the findings, stage-matched intervention recommendations were created and tailored to the university's readiness level. Unaccounted for was the disparity between the percentage of staff versus the administrators in the Maintenance stage. It is conceivable that similar differences exist in staging when comparing teachers, principals, and district administrators.

Levesque, Prochaska, Prochaska, Dewart, Hamby, and Weeks (2001) explored how the TTM was be used to increase physician's readiness for continuous quality improvement (CQI) by developing stage-matched interventions. They described the

development of SOC and POC measures that assessed facilitating activities by hospitals. Perceived barriers by physicians to CQI included reluctance to try new work practices, perception of limiting professional autonomy, skepticism regarding patient outcomes, inadequate training, and social norms. Individuals not prepared to take action, such as those in the Precontemplation and Contemplation stages, are likely to be resistant and defensive. Stage-matched interventions give the opportunity for all individuals to participate, increase the likelihood of taking action, and reduce stress and resistance. Researchers identified and defined the behavioral targets for change by consulting CQI literature. A set of decision rules, known as a staging algorithm, assessed organizational readiness. This staging algorithm defined CQI, asked providers about their hospital facilitating involvement in CQI, and classified responses into stages. Findings indicated that 57% of the participants staged their organizations at the Maintenance level. In addition, hospitals in the Maintenance stage used the POC the most and those in the Precontemplation stage used them the least. Administrators reported their organizations as being in more advanced stages than the physicians. Administrators may provide more accurate appraisal of their organizations but physician reports gauge to what extent the organizational efforts are reaching their intended audience. Organizational based SOC and POC measures and activities may be useful in understanding change readiness and facilitating stage progression for CQI. Although this study took place with physicians, similar barriers to health education, such as lack of professional preparation and training, have been reported with elementary teachers (Fahlman et al., 2013; Kann et al., 2007; Seabert et al., 2002). Again, there were staging gaps between staff and administrators that may be predictive of differences between teachers and administrators.

Prochaska, Mauriello, Sherman, Harlow, Silver, and Trubatch, (2006) reported on assessing readiness of a university to take action on advancing women scientists. They developed new measures based on three components of the TTM: SOC, decisional balance, and self-efficacy. The TTM was applied to organizational change by assessing faculty readiness and strategies were provided for stage progression. Initially researchers identified elements to define the action criteria for the targeted behavior. They reviewed literature, conducted focus groups, and interviewed university faculty. Four key behaviors were extracted and the current research sought to determine their relationship. The SOC algorithm consisted of the participants reading a definition of the action criteria, rating how much they participated in the four key action behaviors, and self-reporting their readiness using the SOC stages. The Decisional Balance Inventory, consisting of two scales: the Pros of Change and the Cons, is one of the best predictors of future change and was adapted to advancing women scientists. Self-efficacy was measured with a self-reported scale in which participants were asked how confident they were to carry out the key behaviors in specific situations. Measures were shown to be reliable and valid for assessing SOC, decisional balance, and self-efficacy. Surprisingly, 81% of participants were in the Action or Maintenance stages and results did not significantly vary due to gender.

Prochaska's (2000) cross-sectional research aimed to make advances in the organizational change of the social service system using the TTM to develop standardized measures of core constructs. The author examined how well the TTM encapsulated the dynamics of organizational change related to time-limited therapy. Relationships between the change pros and cons and SOC were assessed. Additionally,

the author looked at how the POC are emphasized in specific stages of readiness. Experts in TTM and time-limited therapy rated staging questions and items that led to the action criteria of providing time-limited therapy to more than 75% of clients for less than a year. Findings showed that 37% saw their agency in the Maintenance stage. There was a significant difference in pros between the Precontemplation and Action stages and cons between the Precontemplation and Contemplation stages. The researcher found a solid framework of POC in relation to various change stages. Findings also suggest strong evidence for assessing organizational change readiness using the TTM. Intervention programs may be tailored to correspond with various organizational SOC, not just those in the Action stage. Future areas for study include other types of organizational change and other types of organizations. This recommendation provides justification for the application of the TTM to school districts.

Whysall, Haslam, and Haslam (2007) were interested in improving the effectiveness of previously unsuccessful musculoskeletal interventions among factory workers. Instruments were developed to assess the stage of change in which individuals and the organization were stationed within the context of reducing risks of musculoskeletal disorders. Both worker and managerial attitudes should be an integral component of organizational assessment. Questionnaires given to managers were used to assess organizational SOC and given to workers to assess individual SOC. Questionnaires included three sections: general information, SOC assessment, and descriptive statements. A section was added for the worker questionnaire that asked about musculoskeletal pain in the previous 12 months. Specific barriers and facilitators such as time, resources, resistance to change, and perceived control that influence

musculoskeletal risk were also explored. Findings supported using a SOC approach in occupational settings and revealed a discrepancy between manger and worker perceptions of actions. This result reiterates similar findings regarding differences in worker and supervisor SOC (Levesque et al., 1999; Levesque et al, 2001). Additionally, worker stage was not significantly related to manager stage (Whysall et al., 2007). Organizational intervention efficacy may be improved by matching the readiness of change of stakeholders and needs of individuals according to their SOC. In addition, tailoring efforts to promote change may be achieved by addressing specific barriers, attitudes, beliefs, and knowledge.

Teacher Self-Efficacy

Elementary teacher self-efficacy in health education is predictive of time spent on health instruction. Fahlman, Hall, and Gutuskey (2013) examined the impact of a preservice health education class on preservice elementary teachers' self-efficacy and intention to teach a skill-based health curriculum. Participants were 513 undergraduate preservice teachers enrolled in a K-5 health methods course that comprised the intervention group or a math methods course that served as the control group. The intervention class met for approximately 3 hours per week for 8 weeks. Results indicated that teachers who took the class were more likely to report an intention to teach health than those who did not take the course. Self-efficacy was highest in the intervention group. There was also a significant relationship between intention and outcome expectations, as well as between self-efficacy, and outcome expectations. Preservice instruction effectively increased self-efficacy, intention, and outcome expectancy.

Appropriate curricula are vital for future elementary teachers and increased self-efficacy leads to an increased intent to teach, time spent teaching, and ultimately the establishment of healthy behavior patterns in students.

Fahlman, Singleton, and Kliber (2002) examined the connection between health instruction self-efficacy and teacher preparation in K-12 preservice teachers. A survey instrument was adapted, reviewed by a panel of experts, pilot tested, and deemed valid and reliable. Results revealed that elementary majors scored lower than secondary education majors in their self-efficacy to teach health. Students enrolled in health education courses had higher self-efficacy and felt they could make an impact on their students' health behavior. Many preservice elementary teachers indicated that they are not confident to teach health adequately or make an impact on student health behaviors. Fahlman et al. (2002) asserted that if health teaching self-efficacy is low, then strong curricula are imperative.

In the TTM, self-efficacy is an important mediator for behavior change. Derscheid, Kim, Zittel, Umoren, and Henry (2014) developed the Confidence about Activity and Nutrition (CAN) Teach Questionnaire to measure preschool teacher self-efficacy related to the nutrition and physical activity of children. They also examined the relationship between the knowledge of nutrition and physical activity to teacher self-efficacy. Researchers recognized the difference between knowledge and health behavior but emphasized that teachers must understand health content in addition to believing in their capability to implement behavior change. For the CAN Teach instrument design, researchers completed a literature review and consulted subject matter experts. A total of 273 early childhood educators completed a 58 item questionnaire addressing healthy

practices for preschool classrooms. Findings showed evidence of validity for the instrument and reinforced the link among all three constructs--knowledge, self-efficacy, and behavior, as seen in the TTM. Caution must be exercised when generalizing the results to elementary teachers because the population of this study was comprised of early childhood educators.

Summary

Findings from research indicate a current interest in EHE due to the connections among instruction, content knowledge, positive health behavior in students, and even academic achievement. At the elementary level, the regular classroom teacher is responsible for health instruction which is often omitted or poorly administered due to a variety of barriers. These include limited instructional time, lack of professional preparation and ongoing training, limited or no certification requirements, competing core subjects, absence of health education standardized testing, and limited financial or instructional resources. Political pressures, district and superintendent agendas, policy gaps, and standards and accountability issues are also pivotal in the wide variation of quality and frequency of EHE instruction. Facilitators exist to promote EHE including core subject integration, health inservice opportunities, and access to resources such as appropriate materials, programs, and guest speakers.

Researchers and educators alike call for a transformative process that results in needed systemic change in education (Joseph & Reigeluth, 2005). The TTM asserts that change occurs over time in stages. The TTM has been proven to facilitate change and has been successful when applied to organizations. There is a call for future research using the TTM in a variety of organizational settings.

Research has not been identified that applies the TTM to school district change. Additionally, no studies were found that address readiness for elementary health instruction. These gaps support the need for the proposed research to explore the TTM in assessing the organizational readiness of a public school district in Alabama for elementary health instruction.

CHAPTER III

METHODOLOGY

Non-experimental quantitative research is highly important and frequently employed in the field of health education (Cottrell & McKenzie, 2011). Not only is this design used for answering critical questions in the profession, it also examines participant attitudes, beliefs, behaviors, and knowledge. The purpose of this quantitative, non-experimental case study was to investigate the organizational readiness of a public school district in Alabama for the delivery of 60 minutes of weekly elementary health education (EHE) using constructs of the TTM. The current study was intended to identify the stage of readiness, decisional balance, self-efficacy, the extent to which the school district is engaging in behaviors and practices that may facilitate progression through the SOC, and to inform the development of a stage-matched intervention for EHE.

The current study addressed the following research questions:

1. To what extent are the Alabama Course of Study guidelines for EHE being met by the school district?
2. What is the school district's level of readiness for EHE?
3. What is the school district's decisional balance of pros and cons for EHE?
4. What is the school district's level of self-efficacy for EHE?
5. What are the school district's beliefs for EHE?
6. What are the school district's practices for EHE?

7. Are TTM constructs (decisional balance, self-efficacy) correlated with EHE readiness?
8. How are specific variables (beliefs, practices) related to EHE readiness?
9. How can the TTM guide the development of stage-matched interventions for EHE?

The hypotheses examined in this study included the following:

1. TTM constructs (decisional balance, self-efficacy) will be significantly correlated with readiness for EHE.
2. Specific variables (beliefs, practices) will significantly relate to readiness for EHE.

Theoretical Framework

The study used the TTM as a framework. The basic premise of the TTM is that behavior change occurs in specific and sequential stages (Hayden, 2009; Prochaska & DiClemente 1983). These SOC are described as the following:

1. Precontemplation—not intending to take action within the next 6 months
2. Contemplation—intending to take action within the next 6 months
3. Preparation—intending to take action in the next 30 days
4. Action—made overt changes less than 6 months ago
5. Maintenance—made overt changes more than 6 months ago

The TTM is a systematic and empirical approach to behavior change that has been extensively tested with individuals but is nascent in application to organizational behavior change (Boswell, 2011). A comprehensive review of existing literature showed

that the TTM has been successfully applied to organizational change and readiness in various settings on a limited basis. However, despite the need for theory-based research in health education, no previous studies were found that applied the TTM to school districts.

Levesque, Prochaska, and Prochaska (1999) presented a case study of the application of the TTM with the goal of ISD through organizational change at a university. Researchers identified variables related to successful ISD based on existing literature. SOC and decisional balance measures were developed to determine the university's readiness for ISD. According to Levesque et al. (1999), applying the TTM to an organization involves the following steps:

1. Identifying and defining target behavior changes.
2. Customizing TTM measures.
3. Administering TTM measures.
4. Analyzing data and feedback.

Based on the findings, stage-matched intervention recommendations were created and tailored to the university's readiness level.

Identifying and Defining Target Behavior

Health Education is the combination of planned learning experiences that are designed to help individuals and communities improve their health through increasing knowledge or influencing attitudes (WHO, 2014). EHE is the above definition applied to students in Grades K-5. The target behavior for the school district was to provide EHE

that requires 60 minutes of weekly delivery separate from physical education by a certified teacher (*Alabama Course of Study,* 2009).

Customizing Measures

Prochaska, Mauriello, Sherman, Harlow, Silver, and Trubatch, (2006) reported on assessing readiness of a university to take action on advancing women scientists. They developed new measures based on three components of the TTM: readiness, decisional balance, and self-efficacy (Prochaska et al., 2006). The TTM was applied to organizational change by assessing faculty readiness, and strategies were provided for stage progression (Prochaska et al., 2006). A TTM-based portion of the University of Rhode Island Advance Academic Work Environment Survey was the measure included in the above research (L. Harlow, personal communication, October 31, 2014). With written permission from the author, the University of Rhode Island Advance Academic Work Environment Survey from 2004 was modified to assess EHE readiness, decisional balance, self-efficacy, beliefs, practices, and demographic components in the current study.

The modified version of the University of Rhode Island Advance Academic Work Environment Survey was referred to as the Elementary Health Education District Assessment Tool (EHE-DAT) (see Appendix A for original draft). Table 1 illustrates the EHE-DAT sections and related TTM component that was used for each research question.

Table 1

Research Questions, EHE-DAT Sections and TTM Components

Research Question	EHE-DAT	TTM Component
1. To what extent are the Alabama Course of Study guidelines for EHE being met by the school district?	Section I	Current Delivery
2. What is the school district's level of readiness for EHE?	Section II	Readiness
3. What is the school district's decisional balance of pros and cons for EHE?	Section III: pros-subscale (even items); cons-subscale (odd items)	Decisional Balance
4. What is the school district's level of self-efficacy for EHE?	Section IV	Self-Efficacy
5. What are the school district's beliefs for EHE	Section V	Beliefs
6. What are the school district's practices for EHE?	Sections VI	Practices
7. Are TTM constructs (decisional balance, self-efficacy) correlated with EHE readiness?	Sections II-IV	Decisional Balance, Self-Efficacy
8. How are specific variables (beliefs, practices) related to EHE readiness?	Sections II, V, VI	Beliefs, Practices
9. How can the TTM guide the development of stage-matched interventions for EHE?	Sections I-VII	Processes of Change

In the state of Alabama, health education is required in kindergarten through eighth grade (*Alabama Course of Study*, 2009). Current delivery of EHE was determined in Section I of the EHE-DAT. It was comprised of the following criteria (*Alabama Course of Study, 2009*):

1. 60 minutes weekly
2. Separate from Physical Education
3. Provided by a certified teacher

Readiness was assessed by using a staging algorithm that is robust across populations and behaviors (Levesque et al., 1999). The staging algorithm applied to EHE read as follows in Section II of the EHE-DAT: *Given your role in the school district, are you ensuring the delivery of elementary health education?*

a.) NO, and I do not intend to in the next 6 months.

b.) NO, but I intend to in the next 6 months.

c.) NO, but I intend to in the next 30 days.

d.) YES, I have been, but for less than 6 months.

e.) YES, I have been for more than 6 months.

Multiple choice responses correspond to the TTM SOC as seen in Table 2.

Table 2

EHE-DAT Section II Responses and Corresponding Stage of Change

EHE-DAT SECTION II Response	TTM Stage of Change (Readiness Level)
NO, and I do not intend to in the next 6 months.	Precontemplation
NO, but I intend to in the next 6 months.	Contemplation
NO, but I intend to in the next 30 days.	Preparation
YES, I have been, but for less than 6 months.	Action
YES, I have been for more than 6 months.	Maintenance

Decisional balance is the consideration of the pros and cons of performing the target behavior (Prochaska et al., 2006). For the purposes of this study, decisional

balance was the weighing of the pros and cons of delivering EHE. Section III of the EHE-DAT measured decisional balance. Specifically, the even-numbered items were the pros-subscale, and the odd-numbered items were the cons-subscale.

Self-efficacy, in context of the TTM, is the confidence in one's own ability to perform the target behavior in difficult circumstances (Prochaska et al., 2006). Applied to the current study, it is the confidence in one's ability to successfully deliver EHE in specific situations. Self-efficacy was addressed in Section IV of the EHE-DAT.

School district beliefs and practices related to EHE were measured in Sections V and VI of the EHE-DAT, respectively. Finally, Section VII included demographic items.

The overall layout and Likert scale format of the EHE-DAT originated with the University of Rhode Island (URI) Advance Academic Work Environment Survey. Table 3 shows EHE-DAT sections and items and their origins in the URI survey or current literature.

Table 3

Item Origins in EHE-DAT Sections

EHE-DAT Section	Originating in URI Survey	Originating in Literature
Section I Current Delivery	Directions	All items
Section II Readiness	Directions, staging algorithm, all items	
Section III Decisional Balance	Directions, items 1, 9, 15	Items 2-8, 10-14, 16-20
Section IV Self-Efficacy	Directions, items 11, 12	Items 1-10, 13-18
Section V Beliefs	Directions, items 1, 2	Items 3-11
Section VI Practices	Directions	Items 1-6
Section VII Demographics	Age, Sex, Job Description, Race/Ethnicity	Degree, Years in Position/Profession

Content Validity

The EHE-DAT is a printed form to be completed by pencil and paper. Once an initial draft was written, content validity was established by selecting a jury of experts, performing a qualitative review, performing a quantitative review, and revising according to feedback (McKenzie, Wood, Kotecki, Clark, & Brey, 1999). Jury selection criteria were based on job position, experience, and availability (McKenzie et al., 1999). Specifically, this included ten individuals with expertise in education, health education, or instrumentation; a willingness to serve on the jury; and the ability to complete the task in the researcher's time frame. Six of the jurors were professors at the University of Alabama in Birmingham, Two were professors at the University of Alabama, one was a retired school administrator, and one was a retired elementary teacher. A minimum of

five jurors was needed to meet the minimum requirements for the content validity ratio (McKenzie et al., 1999).

Qualitative review of the EHE-DAT was completed by the jury of ten experts. The review was based on McKenzie's table of specifications for qualitative review (McKenzie et al., 1999). It included appropriateness, completeness, and clarity of the instrument title, directions, content areas, and instrument items. Each component of the instrument was analyzed and consensus was determined. Based on juror responses, a revision to the Likert scale choices for the Confidence section of the EHE-DAT was made. Originally, the choices ranged from *Not at all Important* to *Extremely Important*. Revised choices were worded *Not at all Confident* to *Extremely Confident*. The wording was changed for consistency with the Confidence section.

For the quantitative review of the EHE-DAT, jurors rated each item's appropriateness by indicating if the item was essential, useful but not essential, or not necessary. A content validity ratio (CVR) was calculated for each instrument item using quantitative responses from the jury of experts. Lawshe (1975) employs the following formula for CVR calculation:

$$CVR = \frac{(n_e{}^{1} - N/2)}{N/2^{2}}$$

[1] n_e = number of jurors essential

[2] N = total number of jurors

Table 4 shows the minimum values of the CVR for items to be significant at the $p < .05$ level (Veneziano & Hooper, 1997). Based on the jury size of 10, the minimum CVR value for the instrument items was .62. There were 31 items that not meet the minimum CVR value of .62. Those items were removed from the instrument.

Table 4

Minimum Values of CVR for an Item to be Significant at $p < .05$.

Number of Jurors	Minimum Value
5	.99
6	.99
7	.99
8	.78
9	.75
10	.62

After jurors performed both qualitative and quantitative review, a focus group with six elementary teachers from a variety of elementary schools and an interview with an elementary administrator were conducted in a school district different from the target school district of the subsequent study. They provided further open-ended feedback on clarity, readability, and relevance for the revised version of the instrument. Teachers reached consensus that the survey format should be revised so that the participant would not feel overwhelmed by the length. As a result, extra spaces were deleted and the EHE-DAT page length went from four pages to three. One teacher suggested shortening or deleting the directions because "teachers are busy and won't read them anyway." Another teacher concurred that she "only skimmed the top of the directions." Consensus was reached that during the actual administration reading the directions carefully should be emphasized. The administrator who was interviewed offered no suggestions for improvement, but suggested that 20 minutes allowed for EHE-DAT administration might be an over-estimate.

Reliability

Even if only small changes are made to an existing instrument, the psychometric properties will change and new data should be collected through a pilot study with at least 30 participants (Cottrell & McKenzie, 2011). To assess reliability, the instrument for the study was piloted with 31 elementary teachers and administrators in Alabama outside of the school district involved in the study. Two types of reliability were assessed: test-retest reliability and internal consistency reliability.

The instrument was administered to the pilot group on two occasions, one week apart in order to establish evidence of stability through test-retest reliability (Cottrell & McKenzie, 2011). The relevant scales and subscales included in these analyses were current delivery, readiness, pros, cons, self-efficacy, beliefs, and practices.

Test-retest reliability using the Pearson reliability coefficient (r) provided evidence of stability over time (Creswell, 2014). Table 5 shows the reliability coefficients for the scales and sub-scales of the EHE-DAT. Correlations (n = 31) ranged from .759 to .978 with the lowest score being the beliefs scale (r = .759) and the highest being the readiness scale (r = .978). Scores are considered reliable at .6 (Creswell, 2014). Correlations showed that the scales and subscales were reliable and significant at the $p <$ .01 level.

Table 5

Test-retest Reliability of the Scales and Sub-scales of the EHE-DAT

EHE-DAT Scale/Subscale	Number of Items	Pearson's Correlation Coefficient
Currently Delivery	3	.860
Readiness	1	.978
Decisional Balance		
Pros	3	.802
Cons	3	.841
Self-Efficacy	6	.808
Beliefs	6	.759
Practices	6	.815

The first administration provided data to assess internal consistency reliability. A scale is considered reliable if items that comprise the scale are internally consistent (Creswell, 2014). Internal consistency reliability of the EHE-DAT was assessed by Cronbach's alpha (α) for relevant scales and sub-scales of the instrument based on the participant responses from week one. These scales and subscales included current delivery, pros, cons, self-efficacy, beliefs, and practices (See Table 6).

Recommended good to excellent levels of internal consistency are .70 and higher (DeVellis, 2003; Kline, 2005). Table 6 shows the internal consistency reliability (n = 31) for the sections and sub-sections of the EHE-DAT. Coefficient α increased from .671 to .701 for the beliefs scale after items #3 and #6 were deleted due to low item-total correlations. (See Appendix B for final version).

Table 6

Internal Consistency Reliability of EHE-DAT Scales and Sub-scales

EHE-DAT Scale/Subscale	Number of Items	Cronbach's Alpha	Cronbach's Alpha after deleting two items
Currently Delivery	3	.762	
Decisional Balance			
Pros	3	.852	
Cons	3	.752	
Self-Efficacy	6	.897	
Beliefs	6	.671	.701
Practices	6	.818	

Administering Measures

Setting and Sample

The appropriate sample size for correlational research is at least 30, with larger sample sizes better able to produce meaningful results such as less error variance and increased representativeness (Cottrell & McKenzie, 2011; Creswell 2014; Fraenkel & Wallen, 2003). Convenience sampling consists of enlisting any willing and available participants from an intact group (Cottrell & McKenzie, 2011; Creswell 2014). It is frequently used because it saves time and money (Neutens & Rubinson, 2010). The researcher may gain valuable information using a convenience sample but may not confidently state that the sample is representative of the population (Creswell, 2014). In the current study, the sample consisted of approximately 200 elementary teachers and

administrators who were employed by the school district and were willing and available to be studied.

The school district was solicited because of its geographical location in Alabama, and it was large enough in size to accommodate the parameters of the study. It was selected because of school district administration interest in the research and willingness to participate. To protect anonymity and confidentiality, no additional description will be disclosed regarding the school district. Permission was gained from the district central office through a formal letter that included the purpose of the study, the estimated amount of time for data collection from participants, and the way data and results would be used. This correspondence served as a foundation for expectations and showed respect for potential workplace intrusion (Creswell, 2014). As an incentive, the researcher offered to present a summary at the conclusion of the study showing results and offering recommendations.

Protection of Human Subjects

Permission was sought from the Institutional Review Board (IRB) at the University of Alabama at Birmingham (UAB) for review and approval of the current study (See Appendix C). Permission was granted and the study qualified as an exemption. The current study caused no more than minimal risk to participants. The researcher gained consent from participants through a cover letter distributed with the EHE-DAT (see Appendix D). Return of the instrument implied consent. The cover letter described the purpose of the study, outlined participant rights, and stated that involvement in the research was voluntary (Creswell, 2014). Participants were

guaranteed confidentiality and anonymity by not providing names or other identifying information on questionnaires. Researcher and UAB IRB contact information were provided.

Data Collection

The researcher attended the school district's inservice at the beginning of the school year in August for collection of data. Inservice was a mandatory time for the district faculty and administrators to meet together prior to the first day of student arrival. This event provided the researcher the opportunity to gather data at one time from the largest possible audience. This dedicated time of preparation was ideal for the cross-sectional nature of the study. The EHE-DAT and cover letter were distributed to attendees. Completed surveys took less than ten minutes to complete and were immediately collected by the researcher. Because of the sensitive nature of the information, confidentiality and anonymity was ensured. Completed EHE-DATs were stored in a locked cabinet in the researcher's office. Data from the completed surveys were entered into a password-protected digital spreadsheet accessed only by the principal investigator. Once the research findings were complete, the original paper-and-pencil surveys were destroyed.

Analyzing Data and Feedback

The current study was intended to identify the stage of readiness, decisional balance, self-efficacy, the extent to which the school district is engaging in behaviors that may facilitate teacher progression through the SOC, and to inform the development of a

stage-matched intervention for EHE. Table 7 illustrates each research question, corresponding EHE-DAT scales/subscales, and data analysis plan.

Table 7

Data Analysis for Research Questions and EHE-DAT Scales/Subscales

Research Question	Scales/Subscales	Data Analysis
1. To what extent are the Alabama Course of Study guidelines for EHE being met by the school district?	Current Delivery	Descriptive Statistics
2. What is the school district's level of readiness for EHE?	Readiness	Descriptive Statistics
3. What is the school district's decisional balance of pros and cons for EHE?	Decisional Balance: Pros, Cons	Descriptive Statistics
4. What is the school district's level of self-efficacy for EHE?	Self-Efficacy	Descriptive Statistics
5. What are the school district's beliefs for EHE	Beliefs	Descriptive Statistics
6. What are the school district's practices for EHE?	Practices	Descriptive Statistics
7. Are TTM constructs (decisional balance, self-efficacy) correlated with EHE readiness?	Readiness, Decisional Balance, Self-Efficacy	ANOVA, Kruskal-Wallis, post-hoc tests
8. How are specific variables (beliefs, practices) related to EHE readiness?	Readiness, Beliefs, Practices	Kruskal-Wallis, post-hoc tests
9. How can the TTM guide the development of stage-matched interventions for EHE?	All Scales/Subscales	TTM Processes of Change

Descriptive statistics were used to summarize the responses to the first six research questions. Research Questions 1, 3, 4, and 5 were addressed with a Likert-style rating system and were analyzed using means and standard deviations. Frequency and

percentage statistics were used to answer Research Questions 2 and 6, which dealt exclusively with nominal information (Privitera, 2012). A one-way ANOVA and Kruskal-Wallis H test were used to analyze the data related to Research Questions 7. Kruskal-Wallis H tests were conducted to analyze the date for Research Question 8.

For Research Question 9, the data gleaned from the other eight research questions was synthesized and applied to the TTM POC. Strategies were recommended for EHE readiness and stage progression based on these results to inform future interventions. The POC explain the mechanism by which change occurs, as opposed to when it occurs (Prochaska & DiClemente, 1982). They are categorized as either cognitive or behavioral processes (Boswell, 2011; Glanz et al., 2008; Hayden 2009; Prochaska et al., 2006; Sharma & Romas, 2012). Different POC are used to facilitate change and movement through the SOC (Hayden, 2009). Cognitive processes primarily relate to thoughts and feelings and are relevant to the early SOC with the behavioral process being action-oriented and germane to the later SOC (Boswell, 2011). These basic patterns of activity have been used to help individuals change their behaviors, cognitions, affects, and interpersonal relationships (Prochaska et al., 2006). The intervention recommendations were based on the application of the findings to the POC which correspond directly to the SOC (i.e. readiness). For example, if the school district was found to be in the early stages of readiness, cognitive POC were recommended. If the school district was found to be in the later stages of readiness, the action-oriented POC were recommended.

Additionally, ANOVA and Kruskal Wallis H tests were used to determine if the following null hypotheses related to this study were rejected:

1. TTM constructs (decisional balance, self-efficacy) will not be significantly correlated with readiness for EHE.
2. Specific variables (beliefs, practices) will not significantly relate to readiness for EHE.

Because this was a non-experimental study, EHE readiness served as the independent variable with each level (as determined by the staging algorithm in Section II of the EHE-DAT) serving as an independent group. TTM constructs and variables each served as dependent variables. Post-hoc analysis was conducted as needed. Alpha levels were set at .05. This significance level is typical for research involving the social sciences.

Delimitations

The study was delimited to elementary teachers, school administrators, and district administrators in one Alabama school district. Data were collected in August 2015, the beginning of the academic year, in order to align with the school district's inservice, a mandatory time for district faculty and administrators to meet prior to the first day of school.

Limitations

As with any research, there were potential limitations that may have impacted study findings. The study was limited by the following factors that were beyond the control of the researcher and may have potentially impacted the results:

1. Participants were not randomly selected.
2. Data were self-reported by participants and may be biased as a result.

3. Sample size was limited due to the finite nature of the school district and results may not have been generalizable.
4. There was a lack of prior research studies that applied the TTM to school district readiness to deliver EHE.
5. Researcher bias, whether positive or negative, may have occurred due to a previous career as an elementary teacher.
6. TTM stage progression may have occurred in a matter of minutes and many individuals cannot always be assigned to distinct stages (Sharma & Romas, 2012).

CHAPTER IV

ANALYSIS OF DATA AND RESULTS

The purpose of this study was to investigate the organizational readiness of a public school district in Alabama for the delivery of 60 minutes of weekly elementary health education (EHE) using constructs of the TTM. The current study was intended to identify the stage of readiness, decisional balance, self-efficacy, the extent to which the school district was engaging in behaviors that may facilitate teacher progression through the SOC, and to inform the development of a stage-matched intervention for EHE.

Sample Participants

The school district was solicited because of its geographical location in Alabama and was large enough in size to accommodate the parameters of the study. It was selected because of school district administration interest in the research and willingness to participate. To protect anonymity and confidentiality, no additional description will be disclosed regarding the school district.

The researcher attended the school district's inservice at the beginning of the school year in August to collect data. Inservice was a mandatory time for the district faculty and administrators to meet together prior to the first day of student arrival. This event provided the researcher the opportunity to gather data at one time from the largest

possible audience. Attendees were provided with the EHE-DAT and cover letter. Participation was voluntary and consent implied with the return of the survey.

There were 174 EHE-DAT respondents. However, 13 surveys were incomplete and excluded from the study. Surveys missing demographic data were included in the study as long as the rest of the sections were complete. A total of 161 participants completed the survey. Demographic variables in the sample included in the study were age, gender, highest degree earned, race/ethnicity, job, number of years in profession, and number of years in current position. The majority of the participants were female (94.6%), white (82.3%), and regular classroom teachers (83.3%). Age ranges were somewhat evenly distributed with the exception of under the age of 25 (.7%) and 65 and over (0%). The highest degree earned for most of the participants was a Master's degree (53%). Approximately 80% of participants reported being in their profession for at least ten years. The number of years spent in their current position varied from 0 to 3 years (25.5%), 10 to 14 years (25.5%), to 30 years and up (2.8%). Table 8 presents a summary of the demographic variables of the sample.

Table 8

Summary of Demographic Variables of Sample

Demographics	*f*	%
Gender		
Male	8	5.4%
Female	140	94.6%
Total	148	100%
Race/Ethnicity		
Black or African American	24	16.3%
White/Caucasian	121	82.3%
Other	2	1.4%
Total	147	100.0%
Age (in years)		
Under 25	1	.7%
25-29	7	4.6%
30-34	22	14.5%
35-39	23	15.1%
40-44	24	15.8%
45-49	29	19.1%
50-54	21	13.8%
55-59	19	12.5%
60-64	6	3.9%
Total	152	100.0%
Highest Degree Earned		
Bachelor's	51	34.2%
Master's	79	53.0%
Ed.S	13	8.7%
Ed.D	5	3.4%
Ph.D	1	.7%
Total	149	100.0%
Job Description		
Administrator	9	6.0%
Teacher (K)	29	19.3%
Teacher (1st)	26	17.3%
Teacher (2nd)	25	16.7%
Teacher (3rd)	15	10.0%
Teacher (4th)	14	9.3%
Teacher (5th)	16	10.7%
Other	16	10.7%
Total	150	100.0%

Table 8 (continued)

Summary of Demographic Variables of Sample

Demographics	*f*	%
Years in Profession		
0-3	9	6.1%
4-9	18	12.2%
10-14	37	25.0%
15-19	34	23.0%
20-24	26	17.6%
25-29	16	10.8%
30 and Up	8	5.4%
Total*	148	100.1%
Years in Current Position		
0-3	37	25.5%
4-9	28	1.3%
10-14	37	25.5%
15-19	22	15.2%
20-24	12	8.3%
25-29	5	3.4%
30 and Up	4	2.8%
Total	145	100.0%

*Total does not sum to 100% due to rounding error

Additionally, three EHE related items were included at the end of the Demographics section. Respondents were asked to indicate *yes* or *no* to questions related to their teaching certification, professional preparation, and training in the last year. Table 9 contains the frequencies and percentages for each response choice for each of the three EHE-related demographic items. All of the participants completing the first item indicated that they hold current teaching certification in the state of Alabama. Nearly 65% reported that they had at least one Health methodology class during their professional preparation. Just over 18% of respondents had participated in health education training during the last year.

Table 9

Frequency of Elementary Health Education Demographics Items

Item	Response Choice			
	Yes		No	
	f	%	*f*	%
I hold current teaching certification in the state of Alabama.	148	100.0%	0	0.0%
I had at least one Health methodology class during my professional preparation.	95	64.6%	52	35.4%
During the last year I participated in health education training.	27	18.4%	120	81.6%

Reliability

A scale is considered reliable if items that comprise the scale are internally consistent (Creswell, 2014). Internal consistency reliability of the EHE-DAT was measured by Cronbach's alpha (α) for relevant scales and sub-scales of the instrument based on participant responses (n = 161). Recommended good to excellent levels of internal consistency are .70 and higher (DeVellis, 2003; Kline, 2005). Table 10 shows the internal consistency reliabilities for the scales and subscales of the EHE-DAT. All scales and subscales were determined to have high levels of internal consistency with coefficient α ranging from .739 to .927. Findings were similar to the pilot study reliability analyses.

Table 10

Internal Consistency Reliability of the EHE-DAT Scales and Sub-scales

EHE-DAT Scale/Subscale	Number of Items	Chronbach's Alpha
Currently Delivery	3	.741
Decisional Balance		
Pros	3	.814
Cons	3	.878
Self-Efficacy	6	.927
Beliefs	4	.813
Practices	6	.739

Results

The Statistical Package for the Social Sciences was used to perform analysis of descriptive statistics to summarize the responses to the first six research questions. Research Questions 1, 3, 4, and 5 were addressed with a five-point Likert-style rating system and were analyzed using means and standard deviations. Frequency and percentage statistics were used to answer Research Questions 2 and 6, which dealt exclusively with nominal information (Privitera, 2012).

Research Question 1

To what extent are the Alabama Course of Study guidelines for EHE being met by the school district?

In the state of Alabama, health education is required in kindergarten through eighth grade (*Alabama Course of Study*, 2009). Current delivery of EHE was determined in Section I of the EHE-DAT. The three questions from the Current Delivery section of the EHE-DAT asked respondents about the extent that EHE in their school district is being delivered 60 minutes weekly, separate from physical education, and provided by a certified teacher. Likert scale response choices included *Not at All, A Little, Moderately, Quite a Bit,* and *Completely*. Each ranked response choice was assigned a value of 1.00 to 5.00, respectively.

Scores for each of the three items ranged from 1.00 to 5.00. Mean delivery of "60 minutes of weekly" was 2.17 (*SD* = 1.21), "Separate from physical education" was 2.20 (*SD* = .89), and "Provided by a certified teacher" was 2.76 (*SD* = 1.40). "Provided by a certified teacher" had the highest mean and standard deviation. Composite Likert scores for current delivery included data from all three items ("60 Minutes Weekly", "Separate from physical education", and "Provided by certified teacher"). The composite scores ranged from 3.00 to 15.00, with a mean composite score of 7.13 (*N* = 161, *SD* = 2.85). Table 11 provides a summary of the school district's current delivery of EHE.

Table 11

Summary of Current Delivery of Elementary Health Education

Item	N	*M*	*SD*
60 Minutes Weekly	161	2.17	1.21
Separate from Physical Education	161	2.20	0.89
Provided by Certified Teacher	161	2.76	1.40
Composite	161	7.13	2.85

Percentages of respondents (n = 161) for each item of current delivery of EHE are shown in Table 12. For delivery of "60 minutes weekly," the majority of the respondents indicated *Not at All* (37%) or *A Little* (30%); and a combined 12% selecting *Quite a Bit* (4%) or *Completely* (8%). For delivery "Separate from Physical Education", 52% of the respondents chose *A Little* and 3% chose *Completely*. Responses were somewhat evenly distributed for "Provided by a certified teacher" with the exception of *A Little* (37%) and *Quite a Bit* (6%).

Table 12

Percentages of Elementary Health Education Current Delivery Items

Item	% Not at All	% A Little	% Moderately	% Quite a Bit	% Completely
60 Minutes Weekly	36.6%	30.4%	20.5%	4.3%	8.1%
Separate from Physical Education	19.3%	51.6%	21.7%	5.0%	2.5%
Provided by Certified Teacher	17.4%	37.3%	18.0%	6.2%	21.1%

Research Question 2

What is the school district's level of readiness for EHE?

Readiness was assessed by using a staging algorithm that is robust across populations and behaviors (Levesque et al., 1999). The staging algorithm applied to EHE read as follows in Section II of the EHE-DAT: "Given your role in the school district, are you ensuring the delivery of elementary health education?"

a.) NO, and I do not intend to in the next 6 months.

b.) NO, but I intend to in the next 6 months.

c.) NO, but I intend to in the next 30 days.

d.) YES, I have been, but for less than 6 months.

e.) YES, I have been for more than 6 months.

Multiple choice responses for the item correspond to the TTM SOC readiness levels: Precontemplation, Contemplation, Preparation, Action, and Maintenance.

Table 13 contains the frequencies and percentages for each response choice of the readiness item and corresponding TTM stage. Nearly 65% of the respondents were classified in the Precontemplation or Contemplation stages. The remainder were classified at various stages with almost 20% in the Maintenance stage.

Table 13

Frequency for Readiness Item Response and Stage of Change

Response Choice	TTM Stage	f	%
NO, and I do not intend to in the next 6 months.	Precontemplation	83	51.6%
NO, but I intend to in the next 6 months.	Contemplation	21	13.0%
NO, but I intend to in the next 30 days.	Preparation	8	5.0%
YES, I have been, but for less than 6 months.	Action	17	10.6%
YES, I have been for more than 6 months.	Maintenance	32	19.9%

Research Question 3

What is the school district's decisional balance of pros and cons for EHE?

Decisional balance is the consideration of the pros and cons of performing the target behavior (Prochaska et al., 2006). For the purposes of this study, decisional balance was the weighing of the pros and cons of delivering EHE. Section III of the

EHE-DAT measured decisional balance. Specifically, the even-numbered items were the pros-subscale, and the odd-numbered items were the cons-subscale.

Respondents (n = 161) were asked to rate on a five-point, Likert-style scale how important each of the items was in their decision to ensure the delivery of EHE. Likert scale response choices for the importance of each item in ensuring the delivery of EHE included *Not at All Important*, *Somewhat Important*, *Moderately Important*, *Very Important*, and *Extremely Important*. Each ranked response choice was assigned a value of 1.00 to 5.00, respectively.

Composite scores for the pros-subscale ranged from 4.00 to 15.00 with a mean of 11.44 (*SD* = 2.47). Cons-subscale composite scores ranged from 3.00 to 15.0 with a mean of 8.93 (*SD* = 3.39). A summary of descriptives for the pros and cons composite scores is presented in Table 14.

Table 14

Summary of Pros and Cons Composite Scores Descriptives

Subscale	N	*M*	*SD*
Pros	161	2.17	1.21
Cons	161	2.20	0.89

For all three of the pros items, the majority of responses (n = 161) were in the *Very* or *Extremely Important* scale choices. Over 76% of respondents indicated *Very* or *Extremely Important* for "Students will be healthier as adults," and approximately 7% selected *Not at All* or *Somewhat Important*. Nearly 60% responded *Very* or *Extremely Important* for "Students will be less likely to get sick," and approximately 17% indicated *Not at All* or *Somewhat Important*. More than 65% of respondents selected *Very* or

Extremely Important for "Students will be more knowledgeable about health", and just fewer than 9% chose *Not at All* or *Somewhat Important*. See Table 15 for the response choice percentages for each pros item.

Table 15

Pros Items and Percentages of Each Response Choice

Item	% Not at All Important	% Some what Important	% Mod erately Important	% Very Important	% Ex tremely Important
Students will be healthier as adults.	1.2%	6.2%	16.1%	44.1%	32.3%
Students will be less likely to get sick.	1.9%	15.5%	23.0%	36.0%	23.6%
Students will be more knowledgeable about health.	.6%	8.1%	25.5%	42.2%	23.6%

Table 16 contains the cons items and corresponding percentages of response choices. Responses to "My workload will increase" were evenly distributed overall with the exception of *Somewhat Important* at over 28%. "It will take away instructional time from other subjects" responses were also evenly distributed with the exception of *Not at All Important* at approximately 11%. Over 30% of respondents indicated *Somewhat Important* and more than 9% indicated *Extremely Important* for "It will take a lot of planning."

Table 16

Cons Items and Percentages of Each Response Choice

Item	% Not at All Important	% Some what Important	% Mod erately Important	% Very Important	% Ex tremely Important
My workload will increase.	18.6	28.6	19.9	16.8	16.1
It will take away instructional time from other subjects.	10.6	21.1	22.5	22.4	20.5
It will take a lot of planning.	10.6	30.4	28.0	21.7	9.3

Research Question 4

What is the school district's level of self-efficacy for EHE?

Self-efficacy, in context of the TTM, is the confidence in one's own ability to perform the target behavior in difficult circumstances (Prochaska et al., 2006). Applied to the current study, it is the confidence in one's ability to successfully deliver EHE in specific situations. Self-Efficacy was addressed in Section IV of the EHE-DAT.

Respondents (n = 161) were asked to rate on a five-point, Likert-style scale how confident they were that they could ensure the delivery of EHE in specific difficult situations. Likert scale response choices for confidence in ensuring the delivery of EHE included *Not at All Confident, Somewhat Important Confident, Moderately Confident, Very Confident,* and *Extremely Confident*. Each ranked response choice was assigned a value of 1.00 to 5.00, respectively.

Composite scores for self-efficacy ranged from a minimum of 6.00 to a maximum of 30.00. The mean for the self-efficacy composite was 14.37 with a standard deviation of 6.14. See Table 17 for a summary of self-efficacy descriptives.

Table 17

Summary of Self-Efficacy Descriptives for Elementary Health Education

Item	N	*M*	*SD*
There was limited instructional time.	161	2.47	1.15
There was no health teacher's manual provided.	161	2.34	1.20
There were no health curriculum materials provided.	161	2.34	1.17
You had no professional preparation in health education.	161	2.43	1.16
You had no training in the last year in health education.	161	2.41	1.18
Your workload was heavy.	161	2.39	1.32
Composite	161	14.37	6.14

Table 18 shows self-efficacy items and the percentages of response choice. For all six of the self-efficacy items, the majority of responses (n = 161) were in the *Not at All* or *Somewhat Confident* scale choices. For all items, the percentages for *Very* or *Extremely Confident* were under 9% with the exception of "There was limited instructional time" (11% *Very Confident*) and "Your workload was heavy" (13% *Extremely Confident*).

Table 18

Self-Efficacy Items and Percentages of Each Response Choice

Item	% Not at All Confident	% Some what Confident	% Mod erately Confident	% Very Confident	% Ex tremely Confident
There was limited instructional time.	23.6%	28.6%	31.1%	10.6%	6.2%
There was no health teacher's manual provided.	28.6%	32.3%	24.2%	6.2%	8.7%
There were no health curriculum materials provided.	28.0%	31.1%	28.6%	4.3%	8.1%
You had no professional preparation in health education.	23.6%	32.3%	30.4%	5.0%	8.7%
You had no training in the last year in health education.	25.5%	31.1%	29.2%	5.6%	8.7%
Your workload was heavy.	31.1%	30.4%	20.5%	5.0%	13.0%

Research Question 5

What are the school district's beliefs for EHE?

Beliefs related to EHE were measured in Section V of the EHE-DAT. Respondents (n = 161) were asked to use a five-point, Likert-style scale to rate how much they agreed or disagreed with statements related to EHE. Likert scale response choices for the importance of each item in ensuring the delivery of EHE included *Strongly Disagree*, *Somewhat Disagree*, *Neither Agree or Disagree*, *Somewhat Agree*, and *Strongly Agree*. Each ranked response choice was assigned a value of 1.00 to 5.00, respectively.

Composite belief scores ranged from 4.00 to 20.00 with a mean of 10.62 (*SD* = 3.93). Table 19 shows a summary of the school district's EHE beliefs. All four of the means for the beliefs items were below 3.00.

Table 19

Summary of Beliefs Descriptives for Elementary Health Education

Item	N	*M*	*SD*
It is my responsibility to ensure the delivery of EHE.	161	2.93	1.25
I am accountable for the delivery of EHE.	161	2.87	1.20
There is adequate instructional time in the elementary grades.	161	2.37	1.23
There is adequate planning time for elementary teachers.	161	2.45	1.22
Composite	161	10.62	3.93

Table 20 shows the beliefs items and percentages for each response choice (n = 161). *Strongly Agree* had the lowest percentages for each item; ranging from 3% to 9%. Approximately 30% and 29% of respondents indicated *Somewhat Agree* for "It is my responsibility to ensure the delivery of EHE" and "I am accountable for the delivery of EHE", respectively. More than 31% and 29% of respondents indicated *Strongly Disagree* for "There is adequate instructional time in the elementary grades" and "There is adequate planning time for elementary teachers."

Table 20

Beliefs Items and Percentages of Each Response Choice

Item	% Strongly Disagree	% Some what Disagree	% Neither Agree or Disagree	% Some what Agree	% Strongly Agree
It is my responsibility to ensure the delivery of EHE.	16.1%	23.6%	20.5%	30.4%	9.3%
I am accountable for the delivery of EHE.	16.8%	22.4%	24.8%	29.2%	6.8%
There is adequate instructional time in the elementary grades.	31.1%	29.2%	15.5%	19.9%	4.3%
There is adequate planning time for elementary teachers.	29.2%	26.7%	17.4%	23.6%	3.1%

Research Question 6

What are the school district's practices for EHE?

Practices related to EHE were measured in Section VI of the EHE-DAT. Respondents were asked to answer *yes* or *no* to questions related to the school district's EHE practices. For all of the items, over 75% of responses were reported as *no*. Over 95% of the respondents indicated *no* for "Lists Health as a separate subject on elementary report cards". Almost 94% responded *no* to "Requires lesson plans to be submitted for Health in the elementary grades." More than 92% responded *no* to "Provides Health textbooks for elementary students." Table 21 contains the frequencies and percentages for each response choice for each of the six practices items.

Table 21

Frequency of Elementary Health Education Practices Items

Item	Response Choice			
	Yes		No	
	f	%	*f*	%
Provides a teacher's manual for Health in the elementary grades.	29	18.6%	132	82.0%
Provides Health curriculum materials in the elementary grades.	38	23.6%	123	76.4%
Provides Health textbooks for elementary students.	12	7.5%	149	92.5%
Requires lesson plans to be submitted for Health in the elementary grades.	10	6.2%	151	93.8%
Lists Health as a separate subject on elementary report cards.	7	4.3%	154	95.7%
Offers professional development in Health.	19	11.8%	142	88.2%

Research Question 7

Are TTM constructs (decisional balance, self-efficacy) correlated with EHE readiness?

Decisional balance was measured in Section III of the EHE-DAT with the pros-subscale and cons-subscale. Kruskal-Wallis H tests were run to determine if there were differences in the pros score or cons score among the five groups of EHE readiness levels. This test is sometimes referred to as the one-way ANOVA on ranks. It is a nonparametric test that may be used to indicate significant differences between two or more groups of an independent variable with one dependent variable. This test was

selected as an alternative to using a one-way ANOVA because the assumption of normality was not met for the pros and cons data (Laerd Statistics, 2013).

Table 22 shows a summary of descriptive statistics for pros and cons at each level of readiness. Pros increased from the Precontemplation (n = 83, M = 11.06, SD = 2.58), to Contemplation (n = 21, M = 12.29, SD = 2.00) and from the Action (n = 17, M = 11.29, SD = 2.34) to Maintenance (n = 32, M = 11.87, SD = 2.80) readiness levels. Cons decreased from the Contemplation (n = 21, M = 9.57, SD = 3.11) to Preparation (n = 8, M = 8.00, SD = 4.28) and from the Action (n = 17, M = 9.41, SD = 3.39) to Maintenance (n = 32, M = 7.81, SD = 3.56) readiness levels. The pros means in each readiness level were higher and standard deviations lower than the cons means and standard deviations in each corresponding readiness level, respectively.

Table 22

Summary of Pros and Cons Descriptives for each Level of Readiness

Subscale	Readiness Level	N	*M*	*SD*
Pros	Precontemplation	83	11.06	2.58
	Contemplation	21	12.29	2.00
	Preparation	8	11.75	1.98
	Action	17	11.29	2.34
	Maintenance	32	11.87	2.80
Cons	Precontemplation	83	9.19	3.27
	Contemplation	21	9.57	3.11
	Preparation	8	8.00	4.28
	Action	17	9.41	3.39
	Maintenance	32	7.81	3.56

Distributions of pros, as well as cons, were similar for all groups, as assessed by visual inspection of a boxplot. Group differences in median pros scores were not statistically significant, $\chi^2(4) = 12.00$, $p = .123$. Group differences in median cons scores were also not statistically significant, $\chi^2(4) = 9.00$, $p = .158$.

A One-way ANOVA test was used to determine if there were any statistically significant differences between the means of each of the five levels of readiness and self-efficacy. A one-way ANOVA is used to determine if there are significant differences between the means of independent groups (Laerd Statistics, 2013). Because this was a non-experimental study, EHE readiness served as the independent variable with each level (as determined by the staging algorithm in Section II of the EHE-DAT) serving as an independent group. Self-efficacy served as the dependent variable and was measured in Section IV of the EHE-DAT.

Inspection of a boxplot revealed no outliers in the data. Self-efficacy scores were normally distributed for the Contemplation, Preparation, Action, and Maintenance levels of readiness as assessed by a Shapiro-Wilk's test ($p > .05$). A Normal Q-Q Plot determined that self-efficacy scores were normally distributed at the Precontemplation level of readiness. Homogeneity of variances was indicated by Levene's test for equality of variances ($p = .073$).

Table 23 shows a summary of descriptive statistics for self-efficacy at each level of readiness. Self-efficacy increased from the Precontemplation ($n = 83$, $M = 13.30$, $SD = 6.70$), to Contemplation ($n = 21$, $M = 13.90$, $SD = 4.64$) to Preparation ($n = 8$, $M =$

14.25, *SD* = 3.15) to Action (*n* = 17, *M* = 14.47, *SD* = 4.43), to Maintenance (*n* = 32, *M* = 17.43, *SD* = 6.06) readiness levels, in that order.

Table 23

Summary of Self-Efficacy Descriptives for each Level of Readiness

Readiness Level	N	*M*	*SD*
Precontemplation	83	13.30	6.70
Contemplation	21	13.90	4.64
Preparation	8	14.25	3.15
Action	17	14.47	4.43
Maintenance	32	17.43	6.06

Results of the one-way ANOVA showed there was statistically significant difference in self-efficacy among different levels of readiness, $F(4, 156) = 2.776$, $p < .05$, $\eta^2 = .066$. Tukey-Kramer post hoc analysis revealed that the increase from Precontemplation to Maintenance (4.14, 95% CI [0.7, 7.6], $p = .01$) was statistically significant, but no other group differences were statistically significant. See Table 24 for a one-way ANOVA summary.

Table 24

Summary of Self-Efficacy One-Way Analysis of Variance

Readiness Level	Sum of Squares	*df*	Mean Square	F	Sig.
Between Groups	400.75	4	100.19	2.78	.029
Within Groups	5630.89	156	36.10	---	---
Total	6031.64	160	---	---	---

Research Question 8

How are specific variables (beliefs, practices) related to EHE readiness?

Beliefs were assessed in Section IV of the EHE-DAT. The one-way ANOVA assumption of normality was not met, so a Kruskal-Wallis H test was conducted to determine if there were differences in beliefs scores among readiness level groups: Precontemplation (n = 83), Contemplation (n = 21), Preparation (n = 8), Action, (n = 17), and Maintenance (n = 32). Distributions of beliefs scores were similar for all groups, as assessed by visual inspection of a boxplot.

Table 25 shows a summary of descriptive statistics for beliefs at each level of readiness. Beliefs increased from the Precontemplation (n = 83, M = 9.18, SD = 3.21), to Contemplation (n = 21, M = 10.33, SD = 4.27) to Preparation (n = 8, M = 12.88, SD = 4.45) readiness levels, in that order. Beliefs also increased from the Action (n = 17, M = 11.94, SD = 3.33) to Maintenance (n = 32, M = 13.28, SD = 3.63) readiness levels.

Table 25

Summary of Beliefs Descriptives for each Level of Readiness

Readiness Level	N	*M*	*SD*
Precontemplation	83	9.18	3.21
Contemplation	21	10.33	4.27
Preparation	8	12.88	4.45
Action	17	11.94	3.33
Maintenance	32	13.28	3.63

Group differences in median beliefs scores were significant, $\chi^2(4) = 29.337$, $p < .0005$. Subsequently, pairwise comparisons were performed using Dunn's procedure

with a Bonferroni correction for multiple comparisons. Adjusted *p*-values for the pairwise comparison are presented in Table 26. This post hoc analysis revealed statistically significant differences in beliefs scores between the Precontemplation (*Mdn* = 9.00) and Maintenance (*Mdn* = 14.50) ($p < .0005$) readiness groups, with no other group differences being statistically significant.

Table 26

Pairwise Comparison of Readiness Level for Beliefs

Readiness Level Pairs	Adjusted Significance
Precontemplation – Contemplation	1.000
Precontemplation – Preparation	.110
Precontemplation – Action	.110
Precontemplation – Maintenance	.000*
Contemplation – Preparation	.937
Contemplation – Action	1.000
Contemplation – Maintenance	.059
Preparation – Action	1.000
Preparation – Maintenance	1.000
Action – Maintenance	1.000

*$p < .0005$

Practices were measured in Section VI of the EHE-DAT. A Kruskal-Wallis H test was run to determine if there were differences in practices scores among the five levels of readiness because the ANOVA assumption of normality was not met for the practices data. Distributions of practices scores were not similar for all groups, as assessed by visual inspection of a boxplot.

Table 27 shows a summary of descriptive statistics for practices at each level of readiness. Practices increased from the Precontemplation (n = 83, M = 6.47, SD = .97), to Contemplation (n = 21, M = 7.00, SD = 1.22) to Preparation (n = 8, M = 7.38, SD = 2.20) readiness levels, in that order. Practices also increased from the Action (n = 17, M = 6.41, SD = .80) to Maintenance (n = 32, M = 7.25, SD = 1.65) readiness levels.

Table 27

Summary of Practices Descriptives for each Level of Readiness

Readiness Level	N	*M*	*SD*
Precontemplation	83	6.47	.97
Contemplation	21	7.00	1.22
Preparation	8	7.38	2.20
Action	17	6.41	.80
Maintenance	32	7.25	1.65

The group differences mean ranks of practices scores were statistically significant, $\chi^2(4) = 12.636$, $p = .013$. Pairwise comparisons were performed using Dunn's (1964) procedure with a Bonferroni correction for multiple comparisons. This post hoc analysis revealed that there were no statistically significant pairwise comparisons.

Research Question 9

How can the TTM guide the development of stage-matched interventions for EHE?

POC explain the mechanism by which change occurs, as opposed to when it occurs (Prochaska & DiClemente, 1982). They are categorized as either cognitive or behavioral processes (Boswell, 2011; Glanz et al., 2008; Hayden 2009; Prochaska et al., 2006; Sharma & Romas, 2012). Different POC are used to facilitate change and movement through the SOC (Hayden, 2009). Cognitive processes primarily relate to thoughts and feelings and are relevant to the early SOC with the behavioral process being action-oriented and germane to the later SOC (Boswell, 2011). These basic patterns of activity have been used to help individuals change their behaviors, cognitions, affects, and interpersonal relationships (Prochaska et al., 2006).

Intervention and practice recommendations were based on the application of the findings to the POC which correspond directly to the SOC (i.e. readiness). Almost 65% of the participants were classified in the Precontempation and Contemplation stages of readiness (see Table 13). Because the school district was found to be in the two earliest stages of readiness, cognitive POC were recommended. Cognitive processes proven to facilitate progression to higher SOC include consciousness raising, dramatic relief, environmental reevaluation, and self-reevaluation (Glanz et al., 2008).

Hypotheses 1

TTM constructs (decisional balance, self-efficacy) will be significantly correlated with readiness for EHE.

A Kruskal-Wallis H and ANOVA tests were used to determine if the null hypothesis involving TTM constructs was rejected. As reported above in Research Question 7, the group medians were not statistically significant ($p > .05$) for pros or cons,

both of which contribute to decisional balance. Group means were statistically significantly different for the construct of self-efficacy ($p > .05$), therefore the null hypothesis should be rejected.

Hypotheses 2

Specific variables (beliefs, practices) will significantly relate to readiness for EHE.

Kruskal-Wallis H tests assessed whether or not the null hypothesis addressing specific variables was rejected. As indicated above in Research Question 8, group medians were statistically significant for beliefs, $p < .0005$. Mean ranks of practices scores were statistically significantly different among groups, $\chi^2(4) = 12.636$, $p = .013$. Therefore the null hypothesis should be rejected.

CHAPTER V

CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

Introduction

The purpose of this study was to investigate the organizational readiness of a public school district in Alabama for the delivery of 60 minutes of weekly EHE using constructs of the TTM. The current study was intended to identify the stage of readiness, determine decisional balance, self-efficacy, and the extent to which the school district was engaging in behaviors and practices that may facilitate progression through the SOC, and to inform the development of a stage-matched intervention for EHE.

A review of current literature indicates that there are connections among health instruction, content knowledge, and positive health behavior in students. However, EHE is often omitted or poorly administered due to a plethora of barriers including limited instructional time, lack of professional preparation, lack of ongoing training, and competing core subjects. The TTM has been proven to facilitate change and has been successful when applied to organizations. However, no studies were found applying the TTM to school change nor were there any studies related to readiness for elementary health instruction. These gaps supported the need for research to apply the TTM in assessing the organizational readiness of a public school district in Alabama for elementary health instruction.

The non-experimental, quantitative research design of the current study is frequently employed in the field of health education (Cottrell & McKenzie, 2011). An existing TTM-based instrument was modified and customized for use in assessing school district readiness for EHE. The modified version was referred to as the Elementary Health Education District Assessment Tool (EHE-DAT). Content validity was established by a quantitative and qualitative jury review, a focus group, and administrator interview. Quantitative data gathered from the jury of experts was used to calculate the content validity ratio (CVR) for instrument items. Internal consistency reliability was measured and scales were considered to have adequate internal consistency reliability. Test-retest procedure was used to establish stability over time.

Conclusions and Discussion

Cross-sectional data were gathered from participants (n= 161) who attended a school district inservice at the beginning of the school year. Demographic data indicated that majority of the participants were female (94.6%), white (82.3%), and regular classroom teachers (83.3%). For most of the participants, the highest degree earned was a Master's degree (53%). Approximately 80% of participants reported being in their profession for at least ten years. All respondents indicated that they hold current teaching certification in Alabama. Nearly 65% reported that they had at least one health methodology class during their professional preparation. Just over 18% of respondents had participated in health education training during the last year. Demographic data indicating that the respondents were overwhelmingly female was expected in the profession of elementary education. Demographic data specified that all of the

respondents held current teaching certification. However, as shown in Research Question1, current delivery data suggested that EHE was provided by a certified teacher only between *A Little* and *Moderately*.

Research Question 1

To what extent are the Alabama Course of Study guidelines for EHE being met by the school district?

In the state of Alabama, health education is required in kindergarten through eighth-grade (*Alabama Course of Study*, 2009). The target behavior for the school district was to provide EHE that requires 60 minutes of weekly delivery separate from physical education by a certified teacher (*Alabama Course of Study,* 2009).

Composite Likert scores for current delivery of EHE ranged from 3.00 to 15.00, with a mean composite score of 7.13 (N = 161, SD = 2.85). The current delivery composite Mean corresponded on the Likert-style scale between *A Little* and *Moderately*. Furthermore, not a single respondent answered *Completely* for all three of the currently delivery items.

According to participant responses, EHE is being delivered less than *Moderately* in all three areas (60 minutes weekly, separate from physical education, provided by a certified teacher) and overall current delivery. Study results indicate that the school district is not *completely* fulfilling the state requirements for EHE in part or whole. This finding is congruent with current literature that indicates that health education is inconsistent and infrequently taking place at the elementary level (Burak 2002; Lohrman, 2011; Thackeray et al., 2002).

Research Question 2

What is the school district's level of readiness for EHE?

Readiness is the intention to take action for the delivery of EHE. For readiness of EHE, a majority of the respondents were classified in the two earliest stages: Precontemplation (52%) and Contemplation (13%).

In the Precontemplation or pre-thinking stage of EHE, teachers and administrators are resistant, in denial, unmotivated, or have a lack of recognition of the problem (Prochaska & DiClemente, 1982). They are not ready to change, are unaware of the consequences, or have given up trying to change (Levesque et al., 2001). Teachers and administrators may be uninformed or underinformed about the consequences of their behavior, such as failure to meet state guidelines and negative impact on student health outcomes and academic performance. At this stage, they tend to avoid reading, talking or thinking about EHE (Glanz et al., 2008; Prochaska, 2006).

Teachers and administrators move into the Contemplation stage when there is recognition of the problem and thinking about changing (Prochaska & DiClemente, 1982). They are aware of the pros and cons of changing but tend to be profoundly ambivalent about change and are not ready to take immediate action toward ensuring the delivery of EHE (Glanz et al.,2008; Levesque et al., 2001; Prochaska 2006).

Research Question 3

What is the school district's decisional balance of pros and cons for EHE?

Decisional balance, or the pros and cons of changing, is the consideration of potential gains and losses associated with the behavior change (Levesque et al., 2001; Prochaska,

2006). This involves a comparison between the perceived positive aspects and perceived negative aspects of behavior modification (Prochaska, 2000).

Decisional balance for EHE was determined by the pros- and cons- subscales. Composite scores for the pros-subscale ranged from 4.00 to 15.00 with a mean of 11.44 (*SD* = 2.47). The pros-scale composite mean corresponded on the Likert-style scale between *Moderately Important* and *Very Important*, the highest ranking categories. Con-scale composite scores ranged from 3.00 to 15.0 with a mean of 8.93 (*SD* = 3.39). The cons-subscale composite mean corresponded on the Likert-style scale between *Somewhat Important* and *Moderately Important*.

Overall, the pros composite scores ranked higher on the Likert-style scale than the cons composite scores. This contradicts the TTM which theorizes that in the Precontemplation stage the pros outweigh the cons and in the Contemplation stage pros and cons are equally weighted (Glanz et al., 2008). In other words, based on the TTM placement in the lower two levels of readiness, respondents would be expected to rate cons (increased workload, decreased instructional time, planning) higher than pros (student health, health of students as adults, and increased student knowledge). This outcome could be reflective of the uniqueness of the educational process because frequently students, not only teachers or administrators, are the ones directly affected by the gains of the behavior change to deliver EHE. Perhaps even teachers and administrators at the lowest levels of readiness place high value in student outcomes.

Research Question 4

What is the school district's level of self-efficacy for EHE?

Self-efficacy is an important mediator for behavior change in the TTM. In the context of the current study, self-efficacy is the ability to successfully deliver EHE in specific situations. Composite scores for self-efficacy ranged from a minimum of 6.00 to a maximum of 30.00. The mean for the self-efficacy composite was 14.37 with a standard deviation of 6.14. The self-efficacy composite mean corresponded on the Likert-style scale between *Somewhat Confident* and *Moderately Confident*.

Respondents indicated that they were only *Somewhat Confident* and *Moderately Confident* in their ability to successfully deliver EHE. This is consistent with the TTM premise that the readiness stage is positively correlated with self-efficacy. These results also reinforce current research findings that elementary teacher self-efficacy in health education is predictive of their intent to teach health, time spent on health instruction, and ultimately the establishment of healthy behavior patterns in students (Fahlman et al., 2013).

Research Question 5

What are the school district's beliefs for EHE?

The composite belief scores ranged from 4.00 to 20.00 with a mean of 10.62 (*SD* = 3.93). The belief composite mean corresponded on the Likert-style scale between *Somewhat Disagree* and *Neither Agree or Disagree*. Approximately 30% and 29% of respondents indicated *Somewhat Agree* for "It is my responsibility to ensure the delivery of EHE" and "I am accountable for the delivery of EHE", respectively. More than 31%

and 29% of respondents indicated *Strongly Disagree* for "There is adequate instructional time in the elementary grades" and "There is adequate planning time for elementary teachers." *Strongly Agree* had the lowest percentages for each item; ranging from 3% to 9%.

Findings concur with current studies that highlight a lack of instructional and planning time as two of the biggest barriers to EHE (Lohrmann, 2011; Thackeray et al., 2002; Wiley, 2002). This lack of time in combination with limited accountability and perceived responsibility create a significant barrier for EHE in this school district.

Research Question 6

What are the school district's practices for EHE?

For school district practices for EHE, each of the six questions had over 75% of responses as *no*. Over 95% of the respondents indicated *no* for "Lists health as a separate subject on elementary report cards". Almost 94% responded *no* to "Requires lesson plans to be submitted for health in the elementary grades." More than 92% responded *no* to "Provides health textbooks for elementary students."

Results are consistent with current literature indicating that teachers do not have access to adequate EHE materials, professional development, and resources (Burak, 2002; Vamos & Zhou, 2009). The lack of EHE lesson plan submission and the omission of health listed as a separate subject on report cards is related accountability. If teachers are not required by administrators to turn in EHE lesson plans or grades, then the district is limited in ensuring the delivery of EHE.

Research Question 7

Are TTM constructs (decisional balance, self-efficacy) correlated with EHE readiness?

The TTM construct of self-efficacy was significantly related to EHE readiness. Analysis revealed that differences among group means were statistically significant for the construct of self-efficacy as related to readiness for EHE. For the construct of decisional balance, group differences in median pros scores and median cons scores were not statistically significant. Also related to EHE readiness, differences among group medians were statistically significant for beliefs and group differences in mean ranks of practices scores were statistically significant. Additionally, the mean ranks of practices scores were statistically significantly different between groups.

Findings support the application of the TTM construct of self-efficacy to EHE organizational change in a school district. However, the TTM construct of decisional balance may not be applicable because of the lack of significant results of pros and cons to readiness. In other words, the teachers and administrators already score higher in pros than cons regardless of EHE readiness level (see Research Questions 3).

Research Question 8

How are specific variables (beliefs, practices) related to EHE readiness?

The variables of practices and beliefs were significantly correlated with EHE readiness. The study results provided evidence for the use of the TTM to facilitate readiness level progression through school district EHE beliefs and practices. School district beliefs about responsibility, accountability, instructional time, and planning time

are related to EHE readiness level. School district supportive practices that may facilitate readiness level progression include providing EHE teachers manuals, textbooks, curriculum materials, and professional development. Funding by the State Department of Education and/or the school district for EHE resources and training is a must. Without these resources, delivery of EHE is unlikely to be successful or sustained. Examples of school district EHE accountability practices include requiring the submission of health lesson plans and listing health as a separate subject on report cards. The school district and/or State Department should not only require accountability through guidelines or policy in these areas of EHE but also stipulate evidence of compliance.

Given the importance of health professional development, the low number of respondents that had participated in health education training during the last year is troubling (Kann et al., 2007). However, perhaps training participation would rise if the school district offered EHE professional development in-house. Alternatively, the school district should provide financial support to enable teachers to attend conferences for professional development in health education.

Research Question 9

How can the TTM guide the development of stage-matched interventions for EHE?

Results from this study allow for the staging of readiness for EHE in school districts through the application of the TTM. Stage-matched interventions may have a more sizeable impact than generic programs that are frequently aimed at the action phase

of the TTM (Prochaska et al., 2006). School district staging for EHE effectively informs future stage-matched intervention efforts using POC to impact professional practice.

Readiness intervention recommendations are based on the application of the findings to the POC which correspond directly to the stages of readiness. POC explain the mechanism by which change occurs, as opposed to when it occurs (Prochaska & DiClemente, 1982). Different POC are used to facilitate change and movement through the SOC (Hayden, 2009). They are categorized as either cognitive or behavioral processes (Boswell, 2011; Glanz et al., 2008; Hayden 2009; Prochaska et al., 2006; Sharma & Romas, 2012).

The cognitive processes primarily relate to thoughts and feelings and are relevant to the early SOC with the behavioral process being action-oriented and germane to the later SOC (Boswell, 2011). Because the school district was found to be in the two earliest stages of readiness, cognitive POC were recommended for effective interventions. Cognitive processes proven to facilitate progression to higher SOC include consciousness raising, dramatic relief, environmental reevaluation, and self-reevaluation (Glanz et al., 2008).

Consciousness raising is the process of increasing awareness and information of EHE (Boswell, 2011). It would involve the school district becoming more aware of the responsibility to deliver EHE according to the Alabama State Department guidelines, the benefits, the facilitators, and the barriers of EHE. To facilitate increased readiness, the school district might gather and disseminate information about how EHE and its delivery are defined, who is responsible, and how it is related to student achievement and health outcomes. Interventions using this process may include feedback from the current study,

a review of the *Alabama Course of Study*, sharing relevant literature and research, and professional development provided by health education experts and/or health professionals geared toward EHE awareness.

Dramatic relief involves increasing and experiencing the feelings and emotions associated with EHE (Glanz et al., 2008). Initially this includes arousing negative emotions such as fear, worry, and anxiety followed by a lessening of those feelings or relief corresponding to the anticipation of action. Personal testimonies of students, families, health professionals, sharing compelling stories of educational and health outcomes may move the school district closer to action. Similarly, evidence of best practices and success stories from neighboring school districts or states may provide affirmation of the relief that comes with action. Additionally, teachers and administrators may benefit from participating in role playing or simulations to move them emotionally and gain empathy towards their students. For example, administrators and teachers could be invited to shadow elementary students for a day as role play. Local health professionals or pre-professional nursing or medical students could be asked to provide health simulation activities related to pediatric health behavior at a faculty meeting.

Environmental Reevaluation considers how EHE affects the school and learning environment, including students and faculty. The school district might take the opportunity to evaluate how the delivery of EHE impacts student health outcomes, health behaviors, and student achievement. Teachers and administrators could evaluate the impact of EHE delivery from a standpoint of social determinants and levels of influence that affect their students' families, community, employment opportunities, and local economy. For example, health factors such as poor nutrition, hunger, and fears of safety

that are integrally related to education (Barton & Coley, 2009). Health outcomes are significantly related to education attainment, graduation rates, improving quality of life, increasing the years of healthy life, and stifling the cycle of poverty (Allensworth, Stevenson, & Katz, 2011). Finally, teachers and administrators might consider how they serve as positive or negative role models considering their own actions toward EHE.

Self-Reevaluation is the process of the school district creating a new self-image in relation to the delivery of EHE. It considers how the district's long- and short- term identity and success can be enhanced through EHE (Boswell, 2011). Teachers and administrators should engage in value clarification to explore their personal values and those of the school district and how EHE delivery is related to those values. For instance, as a part of their teacher portfolios, teachers could evaluate their effectiveness as a teacher with and without EHE delivery. During board or faculty meetings, administrators and teachers could examine how EHE delivery is related to the achievement of school and district mission statements. Positive role models for EHE delivery could be identified and recognized within and outside of the school district for comparison and to foster self-reevaluation.

Recommendations

The current study was important because of its implications for improving health education policy and practice. It aimed to contribute to the severely limited research in addressing the integration of TTM theory, change processes of schools, and readiness for EHE.

Recommendations for Practice and Policy

In addition to readiness stage intervention based on the POC, the following recommendations serve to improve current EHE practice:

1. Elementary teacher preparation programs should include a health methodology class.
2. School districts need to provide ongoing health education professional development for elementary teachers and administrators. One of the goals of EHE training should be to increase EHE self-efficacy.
3. School districts should engage in supportive EHE practices such as providing resources; specifically textbooks, curriculum materials, teacher's manuals, and training.
4. School districts could schedule increased planning time for elementary teachers.
5. School districts might increase instructional time for elementary school schedules. Alternatively, academic subjects could be integrated to maximized instructional time.
6. School districts need to engage in accountability practices such as including EHE as a separate subject on report cards and requiring teachers to submit EHE lesson plans.
7. School districts should require elementary teachers to follow the guidelines for health education in the *Alabama Course of Study*.
8. State departments of education that require EHE should provide EHE funding to and EHE accountability from school districts.

Recommendations for Improving Research

The study was delimited to elementary teachers, school administrators, and district administrators in one Alabama school district. Data were collected in August 2015, the beginning of the academic year, in order to align with the school district's inservice, a mandatory time for district faculty and administrators to meet prior to the first day of school. This study was delimited to those who attended the inservice.

As with any research, there were potential limitations that may have impacted study findings. This study was limited by the following factors that were beyond the control of the researcher and may have potentially impacted the results:

1. Participants were not randomly selected. Those who did not attend the mandatory school district inservice, may have introduced selection bias to the study.
2. Study participation was voluntary, so the data collected may not equally represent non-participating teachers and/or administrators.
3. Data were self-reported by participants and may be biased as a result.
4. Sample size was limited due to the finite nature of the school district and results may not be generalizable.
5. There was a lack of prior research studies that applied the TTM to school district readiness to deliver EHE.
6. Researcher bias, whether positive or negative, may have occurred due to a previous career as an elementary teacher.
7. TTM progression through readiness levels may have occurred in a matter of minutes and many individuals cannot always be assigned to distinct readiness

levels (Sharma & Romas, 2012). However, study results indicated distinct readiness levels and test-retest reliability results obtained during instrument development established stability over time for all scales, including readiness.

Based on the findings of this study, the following recommendations are suggested to improve research. First, the timing of the survey might be improved by administering it in the middle or at the end of the academic year. Typically, teachers and some administrators have a month or two away from school during the summer. This absence may affect perceptions upon returning to a new academic year. However, it could be that end-of-year administration could prove to be a stressful time for teachers and administrators. Secondly, survey administration conditions may be more favorable if teachers and administrators were surveyed in separate settings. It is feasible that teacher participation and/or responses may be affected by an awareness of their principal or district administrator's presence in the room.

Recommendations for Future Research

The study intended to determine if Alabama guidelines in EHE were being met and results may be relevant to future research regarding district or state EHE policy, policy accountability, instructional practices, professional development, professional preparation, standardized testing, and certification. Future research could assess EHE readiness in other school districts in Alabama. The EHE-DAT could also be applied on a broader scale; for example, with state professional organizations. Beyond Alabama, the EHE-DAT could be customized and applied to school districts in states that also require EHE.

More research is needed in the application of the TTM in school districts and the organizational level, in general. Further research is recommended on the relationship between the TTM construct of decisional balance and EHE school district readiness.

Additionally, the POC recommended above for this school district could be implemented as an intervention. After the intervention, the EHE-DAT could be re-administered to evaluate stage progression in the school district. This could potentially provide additional confirmation to the effectiveness of TTM application to EHE at the organizational level.

Dissemination of Research

Highlights of the dissertation research will be presented to the school district that participated in the study. Results will be reported in aggregate. An executive review will be provided for the school district contact and any interested stakeholders. The dissemination plan also includes sharing the research at state and/or district conferences and publishing methodology and results in peer-reviewed journals.

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APPENDIX A

EHE-DAT DRAFT

Elementary Health Education District Assessment Tool (EHE-DAT)

This survey asks questions about elementary health education. Keep this definition and these criteria in mind as you answer the questions.

Health Education is the combination of planned learning experiences that are designed to help individuals and communities improve their health through increasing knowledge or influencing attitudes.

Elementary Health Education Delivery:

1. 60 minutes weekly
2. Separate from Physical Education
3. Provided by a certified teacher

I. Current Delivery

Please respond to the following questions by placing an "x" or check in the appropriate space:

In your experience with this school district, to what extent is elementary health education delivered…

	Not at All	A Little	Moderately	Quite a Bit	Completely
60 minutes weekly?					
separate from Physical Education?					
provided by a certified teacher?					

II. Readiness

Keeping the entire definition in mind and given your role in the school district, are you ensuring the delivery of elementary health education? (Select one of the following.)

- O NO, and I do not intend to in the next 6 months.
- O NO, but I intend to in the next 6 months.
- O NO, but I intend to in the next 30 days.
- O YES, I have been, but for less than 6 months.
- O YES, I have been for more than 6 months.

III. Pros and Cons

Next are some thoughts and feelings people might have about elementary health education. Please tell us **how important** each one is in <u>your decision</u> about whether or not to ensure the delivery of elementary health education.

My decision to ensure the delivery of elementary health education means that…	**Not at all Important**	**Somewhat Important**	**Moderately Important**	**Very Important**	**Extremely Important**
1. My workload will increase.					
2. Students will be healthier as adults.					
3. It will take away instructional time from other subjects.					
4. Student academic performance would increase.					
5. There will be too much I would have to learn.					
6. Student behavior will improve.					
7. It will take a lot of planning.					
8. Students will be more likely to maintain a healthy weight.					
9. It will take too much effort.					
10. Students will be less likely to use tobacco products.					
11. It will strain resources.					
12. Student attendance will improve.					
13. It will add to my stress level.					
14. Students will be less likely to get sick.					
15. I will not directly benefit.					
16. Student standardized test scores will increase.					
17. It will be too expensive.					
18. Students will be more knowledgeable about Health.					
19. The National Health Education Standards will have to be met.					
20. Parents will be supportive					

IV. Confidence

Next are some situations that might make it hard to provide elementary health education. Please tell us how confident you are that you could ensure the delivery of elementary health education.

How confident are you that you could ensure the delivery of elementary health education if…	**Not at all Confident**	**Somewhat Confident**	**Moderately Confident**	**Very Confident**	**Extremely Important**
1. There was limited instructional time.					
2. There was no Health teacher's manual provided.					
3. There were no Health curriculum materials provided.					
4. Students had no Health textbooks.					
5. You had no professional preparation in health education.					
6. You had no training in the last year in health education.					
7. There was limited planning time.					
8. You were not accountable for health education.					
9. Lesson plans were not required to be submitted for Health.					
10. Grades in Health were not required to be submitted.					
11. Your workload was heavy.					
12. Your stress level was high.					
13. Students' parents were not supportive of health education.					
14. Health was not integrated into other subjects.					
15. Health was not included in standardized testing.					
16. You were not familiar with the National Health Education Standards.					
17. You were not familiar with the Alabama Course of Study guidelines.					

18. Health was not a subject listed separately on report cards.					

IV. Beliefs

Please tell us how much you DISAGREE or AGREE with each of the following statements. Base your answers on how you are feeling at this time.

How much do you agree or disagree with each statement?	**Strongly Disagree**	**Somewhat Disagree**	**Neither Agree or Disagree**	**Somewhat Agree**	**Strongly Agree**
1. It is my responsibility to ensure the delivery of elementary health education to students.					
2. I am accountable for the delivery of elementary health education to students.					
3. Other subjects are more important than health.					
4. Health is integrated into other subjects.					
5. Students will suffer if they are not provided with health education.					
6. Students' parents are supportive of elementary health education.					
7. There is adequate instructional time in the elementary grades.					
8. There is adequate planning time for elementary teachers.					
9. I am familiar with the National Health Education Standards.					
10. I am familiar with the Alabama Course of Study guidelines for Health.					
11. I believe that health education is important.					

V. Practices

Next are some questions related to practices that might occur related to the delivery of elementary health education. Please answer by indicating Yes or No.

My school district…	**Yes**	**No**
1. Provides a teacher's manual for health in the elementary grades.		
2. Provides health curriculum materials in the elementary grades.		
3. Provides health textbooks for elementary students.		
4. Requires lesson plans to be submitted for health in the elementary grades.		
5. Requires grades in health to be submitted for the elementary grades.		
6. Lists health as a separate subject on elementary report cards.		

VI. Demographics

Please indicate the following by checking the appropriate boxes.

Age

Under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 & Over

Sex

Male	Female

Highest degree earned

Bachelor's	Master's	Ed. S	Ed. D	Ph. D	Other (specify)

What is your race/ethnicity? (Select all that apply.)

- □ Black or African American
- □ White/Caucasian
- □ American Indian or Alaska Native
- □ Hispanic or Latino
- □ Native Hawaiian/Pacific Islander
- □ Other

Job description (Select all that apply.)

Administrator	Teacher (K)	Teacher (1^{st})	Teacher (2^{nd})	Teacher (3^{rd})	Teacher (4^{th})	Teacher (5^{th})	Other (specify)

Number of years in your profession

0-3	4-9	10-14	15-19	20-24	25-29	30 & Up

Number of years in your current position

0-3	4-9	10-14	15-19	20-24	25-29	30 & Up

Please indicate Yes or No…	**Yes**	**No**
1. I hold current teaching certification in the state of Alabama.		
2. I had at least one Health class during my professional preparation.		
3. During the last year I participated in health education training.		

Thank you very much for taking the time to complete this survey. Your insights will make valuable contributions toward increased understanding.

APPENDIX B

EHE-DAT FINAL VERSION

Elementary Health Education District Assessment Tool (EHE-DAT)

This survey asks questions about elementary health education. Keep this definition and these criteria in mind as you answer the questions:

Health Education is the combination of planned learning experiences that are designed to help individuals and communities improve their health through increasing knowledge or influencing attitudes.

Elementary Health Education Delivery:

1. 60 minutes weekly
2. Separate from Physical Education
3. Provided by a certified teacher

I. Current Delivery

Please respond to the following questions by placing an "x" in the appropriate space:

In your experience with this school district, to what extent is elementary health education delivered…	Not at All	A Little	Moderately	Quite a Bit	Completely
60 minutes weekly?					
Separate from Physical Education?					
Provided by a certified teacher?					

II. Readiness

Keeping the entire definition and criteria in mind and given your role in the school district, are you ensuring the delivery of elementary health education?

- O NO, and I do not intend to in the next 6 months.
- O NO, but I intend to in the next 6 months.
- O NO, but I intend to in the next 30 days.
- O YES, I have been, but for less than 6 months.
- O YES, I have been for more than 6 months.

III. Pros and Cons

Please tell us **how important** each item is in <u>your decision</u> about whether or not to ensure the delivery of elementary health education.

My decision to ensure the delivery of elementary health education means that…	Not at all Important	Somewhat Important	Moderately Important	Very Important	Extremely Important
1. My workload will increase.					
2. Students will be healthier as adults.					
3. It will take away instructional time from other subjects.					
4. Students will be less likely to get sick.					
5. It will take a lot of planning.					
6. Students will be more knowledgeable about Health.					

IV. Confidence

Next are some situations that might make it hard to provide elementary health education. Please tell us **how confident** you are that you could ensure the delivery of elementary health education.

How confident are you that you could ensure the delivery of elementary health education if…	**Not at all Confident**	**Somewhat Confident**	**Moderately Confident**	**Very Confident**	**Extremely Confident**
1. There was limited instructional time.					
2. There was no Health teacher's manual provided.					
3. There were no Health curriculum materials provided.					
4. You had no professional preparation in health education.					
5. You had no training in the last year in health education.					
6. Your workload was heavy.					

V. Beliefs

Please tell us how much you DISAGREE or AGREE with each of the following statements. Base your answers on how you are feeling at this time.

How much do you agree or disagree with each statement?	**Strongly Disagree**	**Somewhat Disagree**	**Neither Agree or Disagree**	**Somewhat Agree**	**Strongly Agree**
1. It is my responsibility to ensure the delivery of elementary health education to students.					
2. I am accountable for the delivery of elementary health education to students.					
3. There is adequate instructional time in the elementary grades.					
4. There is adequate planning time for elementary teachers.					

VI. Practices

Next are some statements related to practices that might occur related to the delivery of elementary health education. Please answer by indicating Yes or No.

My school district…	**Yes**	**No**
1. Provides a teacher's manual for Health in the elementary grades.		
2. Provides Health curriculum materials in the elementary grades.		
3. Provides Health textbooks for elementary students.		
4. Requires lesson plans to be submitted for Health in the elementary grades.		
5. Lists Health as a separate subject on elementary report cards.		
6. Offers professional development in Health.		

VII. Demographics

Please indicate the following by checking the appropriate boxes.

Age

Under 25	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65 & Over

Sex

Male	Female

Highest degree earned

Bachelor's	Master's	Ed. S	Ed. D	Ph. D	Other (specify)

What is your race/ethnicity? (Select all that apply.)

- □ Black or African American
- □ White/Caucasian
- □ American Indian or Alaska Native
- □ Hispanic or Latino
- □ Native Hawaiian/Pacific Islander
- □ Other

Job description (Select all that apply.)

Administrator	Teacher (K)	Teacher (1st)	Teacher (2nd)	Teacher (3rd)	Teacher (4th)	Teacher (5th)	Other (specify)

Number of years in your profession

0-3	4-9	10-14	15-19	20-24	25-29	30 & Up

Number of years in your current position

0-3	4-9	10-14	15-19	20-24	25-29	30 & Up

Please indicate Yes or No…	**Yes**	**No**
1. I hold current teaching certification in the state of Alabama.		
2. I had at least one Health methodology class during my professional preparation.		
3. During the last year I participated in health education training.		

Thank you very much for taking the time to complete this survey. Your insights will make valuable contributions toward increased understanding.

APPENDIX C

INSTITUTIONAL REVIEW BOARD LETTER

THE UNIVERSITY OF ALABAMA AT BIRMINGHAM

Institutional Review Board for Human Use

Form 4: IRB Approval Form
Identification and Certification of Research
Projects Involving Human Subjects

UAB's Institutional Review Boards for Human Use (IRBs) have an approved Federalwide Assurance with the Office for Human Research Protections (OHRP). The Assurance number is FWA00005960 and it expires on January 24, 2017. The UAB IRBs are also in compliance with 21 CFR Parts 50 and 56.

Principal Investigator: TOTH, SARAH E.

Co-Investigator(s):

Protocol Number: **E150128002**

Protocol Title: *Addressing School District Readiness for Elementary Health Education Using the Transtheoretical Model*

The above project was reviewed on 2/19/15. The review was conducted in accordance with UAB's Assurance of Compliance approved by the Department of Health and Human Services. This project qualifies as an exemption as defined in 45CF46.101, paragraph 1.

This project received EXEMPT review.

IRB Approval Date: 2/19/15

Date IRB Approval Issued: 2/19/15

Cari Oliver
Assistant Director, Office of the
Institutional Review Board for Human Use
(IRB)

Investigators please note:

IRB approval is given for one year unless otherwise noted. For projects subject to annual review research activities may not continue past the one year anniversary of the IRB approval date.

Any modifications in the study methodology, protocol and/or consent form must be submitted for review and approval to the IRB prior to implementation.

Adverse Events and/or unanticipated risks to subjects or others at UAB or other participating institutions must be reported promptly to the IRB.

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APPENDIX D

INFORMED CONSENT

Addressing School District Readiness for Elementary Health Education Using the Transtheoretical Model

The following information is provided to help you decide whether you wish to participate in the present study. You should be aware that you are free to decide not to participate or to withdraw at any time without consequence.

The purpose of this study is to investigate the organizational readiness of a public school district in Alabama for delivery of 60 minutes of weekly elementary health education using constructs of the Transtheoretical Model.

Data will be collected using a brief paper and pencil survey. The survey is being used for research purposes. Participation is voluntary, and you do not have to answer all of the questions. Responses are confidential.

There are no known risks, costs, or discomforts associated with this study. Your alternative is not to participate in this research project.

The approximate time of participation is 10 minutes.

Please return the survey to the collection box. This cover letter is yours to keep.

If you are a UAB student or employee, taking part in this research is not a part of your UAB class work or duties. You can refuse to enroll, or withdraw after enrolling at any time before the study is over, with no effect on your class standing, grades, or job at UAB. You will not be offered or receive any special consideration if you take part in this research.

The principal investigator is Sarah E. Toth, MEd. She may be contacted at (256) 883-1521 or stoth@uab.edu.

If you have questions about your rights as a research participant, or other concerns or complaints about the research, you may contact the UAB Office of the IRB (OIRB) at (205) 934-3789 or toll free at 1-855-860-3789. Regular hours for the OIRB are 8:00 a.m. to 5:00 p.m. CT, Monday through Friday. You may also call this number in the event the principal investigator cannot be reached or you wish to talk to someone else.