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Constructing family health histories: Connecting theory and practice in the health education classroom

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CONSTRUCTING FAMILY HEALTH HISTORIES: CONNECTING THEORY AND PRACTICE IN THE HEALTH EDUCATION CLASSROOM

A Dissertation

Submitted

In Partial Fulfillment

of the Requirements for the Degree

Doctor of Education

Approved:

Dr. Joane W. McKay, Chair

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December 1997

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A part of me feels that these are the three most important pages in this entire dissertation. In the spirit of the qualitative inquiry process, the people whose names are listed here are my others, the ones who have helped me to define this point in my educational journey. It is with heartfelt thanks that I acknowledge these people who, in some way, helped me to create meaning through this research project.

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ABSTRACT

The purposes of this study were to describe how the construction of a multigeneration family health history affected health-related knowledge, attitudes, behaviors, and intentions of postsecondary students enrolled in a personal health course; and to determine pedagogical effects of utilizing a multigeneration family health history construction project within that context. This study connects constructivist theory with authentic learning and health education outcomes to better understand what knowledge is important and what instructional methods enhance development of knowledge.

Research questions shaping this investigation included:

1. How does the process of constructing a multigeneration family health history influence health-related knowledge?

2. How does the knowledge gained from constructing a multigeneration family health history influence learner's health-related attitudes?

3. What sorts of actions or intentions to act result from participating in a multigeneration family health history construction project?

4. How does the experience of constructing a multigeneration family health history affect perceptions and attitudes about health education?

A statistically nonrepresentative stratified sampling strategy supported selection of four diverse research participants. Multiple data sources and multiple analysis methods characterized the constant comparative processes leading to grounded theory.

Several plausible relationships emerged. The credibility of the multigeneration family health history construction project as an authentic learning strategy was established. Health-related knowledge construction related directly to attitude adjustment and to behavior adoption.

The relationships established among these outcomes suggests meaningful knowledge relates to active manipulation of medical and environmental data perceived to have personal value. Perceived value of the data influenced individually constructed definitions of incidence, prevalence, and relative risk. Perception of risk positively influenced identification and adoption of health-related intentions and behaviors for the research participants and their others.

The connections established between health-related knowledge, attitudes, behaviors, and intentions supports the use of this learning strategy in a personal health course. The information gained from constructing the family health history increased the value of the health education process. The indigenous information resulting from constructing a family health history is priceless and irreplaceable; the

action of constructing a multigeneration family medical history represents a set of transferable life skills.

CHAPTER ONE

INTRODUCTION

> To forget one's ancestry is to be a brook without a source, a tree without a root.
>
> Chinese Proverb

Health education represents a viable component of the college experience. Within the context of a liberal arts program of studies, health education influences and contributes to the ongoing and holistic growth and development of the college student and of the communities within which the college student lives and works.

College mission statements often indicate the intention to provide knowledge or the competence to acquire knowledge enabling participation as a citizen in a free society. Through these mission statements, the unique contribution of health education to a developmental curriculum becomes visible. If health represents an important life dimension and if college prepares students for active life in society, then the knowledge we have or gain about health can have an effect on how we live (Burns, 1990).

Colleges are recognizing the need for educational objectives that emphasize wellness, health, and body care (Boyer, 1987) and often offer wellness or personal health courses for general education or elective purposes. Burns (1990) suggested that the overall mission of higher

education cannot be achieved without dealing in some way with college health and that college health cannot be achieved without providing health education.

Health education concerns itself with the health-related knowledge, attitudes, behaviors, and intentions of people (Greene & Simons-Morton, 1984; Simons-Morton, Greene, & Gottlieb, 1995). The Association for the Advancement of Health Education (AAHE) (1992) developed a position paper that indicated health education focuses on

> liberating the individual from the confining limits of ignorance, unhealthful practice or prejudice through the insights which knowledge and understanding generate. Health education will be successful to the degree that it enables individuals to use knowledge in ways that transform aimless habits into intelligently directed actions. (p. 5)

The definitions of health education vary. Numerous authors have suggested that health education encompasses any combination of learning opportunities designed to facilitate voluntary adoption of behavior conducive to health (Hochbaum, 1981; Kolbe, Iverson, Kreuter, Hochbaum, & Christensen, 1981; Simons-Morton et al., 1995) or activities designed to move individuals and communities toward an optimal stage of wellness (AAHE, 1992).

In an effort to ground the development of social learning theory, Bandura (1977) traced the historical underpinnings of thinking and of practice in the social sciences. Highlights of that discussion have offered

insights for the planning of educational interventions focused on behavior change or adoption.

The original theoretical stance explained human behavior as a result of unconscious internal motivational forces. Empirical limits of the impulse energy theories included a general lack of explanatory power. Thinking broadened, behavior theory expanded, and the focus on causal analysis of internal determinants shifted toward a parallel examination of the relationships existing between human responsiveness and environmental forces (Bandura, 1977).

The tension that existed between the proponents of these two schools of thought led, over time, to a position that acknowledged the interaction of persons and the environment as interdependent and equally influential factors (Kolbe et al., 1981). The shape of health education practice was emerging as these opposing theoretical positions were tested in the human services.

Kolbe et al. (1981) recommended a biphasic approach to health education if adoption of health promoting behaviors was to be voluntary. This health education model was based on the belief that people first must have sufficient information and processing skills to competently decide if a particular health behavior was worth adopting. Once a decision or evaluation had been made, the individual or group would then need an enabling, supportive environment

conducive to eliciting the occurrence of the behavior on a regular basis. This model implied that both conditions would need to be present for change to occur and to be sustained.

In the past, much of our attention in health education has been focused upon behavior change, sometimes to the exclusion of examining how best to reinforce or initiate health-promoting actions (Hochbaum, 1981). Two exemplary health education paradigms, the Health Belief Model and the PRECEDE Model, sought to describe: the relationship between perceptions and likelihood of action, in the former, and the effect of enabling and reinforcing factors on effective health promotion, in the latter.

When these models were used to help define program content or to evaluate program efficacy, the quantity of occurrence of a behavior (dependent variable) usually served as the issue of concern. For example, a pregnancy prevention program might be asked to compare the number of teen pregnancies that occurred prior to and following the delivery of a prevention program.

Many programs designed to help people develop knowledge, skills, and attitudes conducive to health-promoting lifestyle decisions emphasize the premise of free choice. A freely-made choice is dependent, first, upon having enough information about the issue and its related

consequences to make a selection and, second, upon possessing the skills required to make the desired selection or to actually engage in the behavior (Kolbe et al., 1981).

Educational planners and classroom practitioners must remain cognizant of the fine line between free choice and coercion. Excessive focus on a highly-prized outcome changes the perspective of the health education process. This knowledge can be consistently applied to the curriculum and instruction decision-making process.

Health education is not merely a product; health education is also a process having far-reaching personal and societal ramifications. It concerns itself with knowledge acquisition, with the passing on of cultural values, and with the application of health-related knowledge, skills, and attitudes throughout the lifespan for the benefit of the individual and his or her family and community (AAHE, 1992).

Hochbaum (1981) supported expanding health education beyond a behaviorist view. His model emphasized the processes involved in making health-related decisions. The dependent variable of outcome or behavior would also encompass the skills needed to make a decision and the quality of the process by which the individual arrived at the decision.

The process of decision-making, what went on to get to the actual adoption stage, therefore, assumes equal or

greater importance than the actual adoption of the behavior. In the above example of the teenage pregnancy, interest now expands beyond the number of pregnancies to explore who gets pregnant, what factors influenced those occurrences, and what adaptations need to be made by the individual or in the environment to change the behavior pattern.

Examination of how people come to be able to transfer decision-making skills to real health-related life situations would further define the process. If an educational intervention teaches a teen to use decision-making and resistance skills to abstain from sexual activity, can or do those skills transfer to abstaining from drug use or other equally dangerous behaviors?

If we agree with Hochbaum's framework, our enactment of the health education process requires a critical examination of the relationship that exists between theory and practice. Practitioners often have difficulty seeing the relevance of theory to their daily routines, whereas theorists may not fully realize the contextual demands of the classroom. Hochbaum, Sorenson, and Lorig (1992) supported a view in which theories served "as tools to help health educators better understand what influences health-relevant individual, group, and institutional behaviors, and thereupon plan effective interventions directed at health-beneficial results" (p. 298).

The idea that knowledge is individually constructed was found to be widely held (Alkove & McCarty, 1992; Bodner, 1986; Guba & Lincoln, 1989; Jonassen, 1991; Schwandt, 1994; Stake, 1994; Wadsworth, 1978). Neisser (1967) suggested that what is known about reality is mediated. Piagetian theory supports the concept of constructing reality through assimilation and accommodation of previous and current experience (Wadsworth, 1978).

Bodner (1986) synthesized the ideas of Piaget and von Glaserfeld and suggested that the disequilibration, which occurs when new information counters old memory models, leads the individual to look for a new or best fit. It was further suggested that attainment of this feeling of best fit would require reorganization or recreation of previously integrated schemes that describe the individual's unique reality.

A constructivist classroom centered on student growth and development provides an environment where learning through experience prevails. An authentic learning task anchored in real-world relevance and utility provides the learner with an opportunity to apply abstract concepts to personal experience. Determining what the student knows, thinks, or can do following an educational intervention serves as the base of operations for student, teacher, and program evaluation. An educational problem often surfaces

as unfamiliar or alternative approaches are selected, and the identification and interpretation of related student outcomes must be determined.

Studies of constructivist classrooms revealed learning environments supportive of multiple perspectives, multiple interpretations of reality, knowledge construction, and context-rich, experience-based activities (Bodner, 1986; Dodd, 1995; Winn, 1991). The use of authentic learning strategies represents an opportunity to apply constructivist theory to instructional decision-making and practice in health education.

Themes central to educational practice include determining what knowledge is important or essential and identifying which teaching and learning strategies will help facilitate the development of that important or essential knowledge. Recognizing how knowledge develops over time or discovering how students construct unique, personalized schemata contributes information essential to defining those themes. Furthermore, recognizing how students use information to construct their own realities represents the type of knowledge necessary for curriculum planning, implementation, and evaluation.

Statement of the Problem

Initiating use of authentic teaching and learning strategies represents a departure from traditional modes of

delivery of health education curriculum at the postsecondary level. As alternative educational projects are selected, educational problems often arise. Problems addressed through this research project are three fold.

First, in the area of constructivism, this project set out to determine whether this method of developing family health data allowed students to construct meaning, both in terms of health risk or other family issues. Second, in the area of authentic learning, this research project addressed the problem of constructing a definition of authentic learning and then ascertaining whether the educational activity of constructing a multigeneration family health history classifies as an authentic learning strategy. Finally, in the area of health education pedagogy, this research project sought to discern whether the action of constructing a multigeneration family health history represents an essential skill or group of skills which are central to in a health education curriculum.

Purpose of the Study

This examination and description of the experiences of several undergraduate college students who actively engaged in the construction of a multigeneration family health history provides an extension to the health education curriculum and instruction research base in the areas of authentic teaching and learning and health education

pedagogy. The purposes of this study were: (a) to examine and describe how the construction of a multigeneration family health history affects health-related knowledge, attitudes, behaviors, and intentions of college students enrolled in a personal health course; and (b) to determine the pedagogical effects of utilizing a multigeneration family health history construction project as a teaching and learning strategy within the context of a personal health course at the postsecondary level.

Significance of the Study

The results of this study represent a systematic effort to investigate and document how the utilization of an authentic teaching strategy, the construction of a multigeneration family health history, affected the health-related knowledge, attitudes, behaviors and intentions of several college students. These results are important because few systematic studies were found that describe the qualitative aspects of authentic learning tasks in health education or how health-related knowledge is constructed and used. These results support the use of this authentic learning strategy within a particular contextual environment, an undergraduate personal health course.

The lack of available research connecting the areas of constructivism, authentic teaching and learning, and health education pedagogy pointed to a need to study such learning

experiences. Although studies on constructivism and health education exist, few focus systematically on the unique context of the health education classroom, on the experiences and characteristics of students who actually engaged in an authentic learning task, or on individualized structuring of health-related knowledge.

Figure 1, Gwin's curriculum and instruction model, conceptualizes the web of relationships defining the scope of this research project. Close inspection shows the link between the exploration of essential curricular questions, the selection of instructional application, and learner outcomes. Central to the model is the particular authentic learning strategy of constructing a multigeneration family health history.

These results add an extension to the research on the use of authentic teaching and learning strategies. The inclusion of information related to authentic learning supports the provision of a more complete view of the educational process. This information may assist educational planners who wish to strengthen the educational environment through comprehensive health education. It can also be used to attend to the specific needs and interests of individual students or to meet the more generalized goals of classroom or community-based groups interested in active learning strategies.

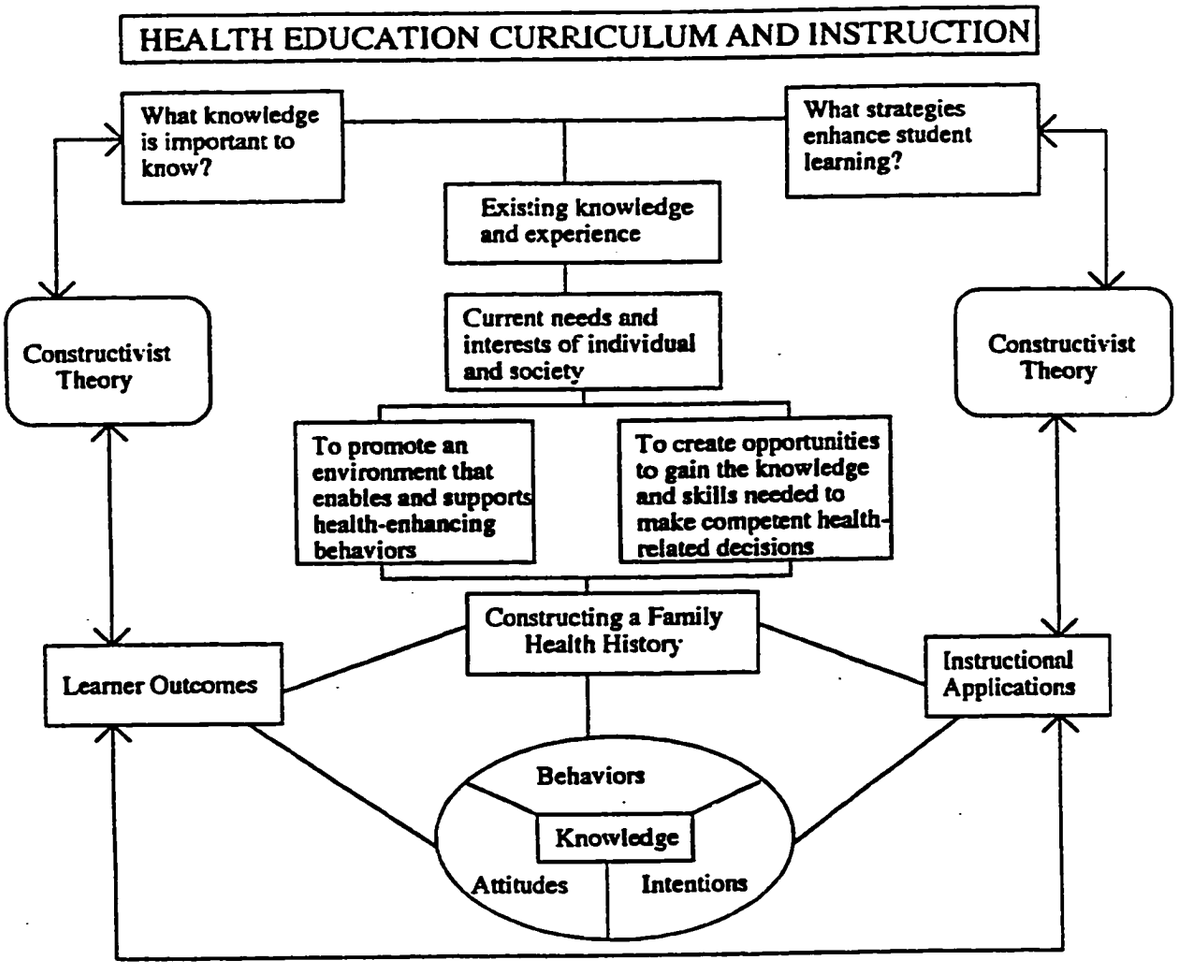


Figure 1. Gwin's curriculum and instruction model showing application of constructivist theory to health education curriculum and instruction questions to influence learner outcomes and for selection of instructional applications.

Those who support the concept of health education as process, in an intellectual manner, may find actual enactment in the classroom difficult due to the constraints of time, number of students, lack of resources, or other mitigating environmental influences. Because the literature lacks reports of successful endeavors by peers, health educators may feel unjustified in assuming a change in methodology where broad content acquisition takes a secondary position. Answering the question of equivalency serves a very real concern.

In the constructivist classroom, acquisition of general topical knowledge across usual health education content areas and subsequent objective evaluation of that knowledge gives way to in-depth discovery of a few personally significant, health-related topics and to development of selected health promotion skills. In-depth coverage of a few content areas coincides with the effects of time and maturation on student outcomes. Though less content is covered, the sacrifice of volume of information provides time for development and practice of selected skills. Identifying learning activities that provide the opportunity to develop skills essential to the ongoing study of health-related issues or to the adoption of or maintenance of health-enhancing behaviors increases in importance.

Through this study it will be possible to draw some conclusions about the ways college students construct health-related knowledge, their use of that knowledge, and some effects of the utilization of a particular authentic learning strategy within a health education classroom. Because this study occurred within the context of an undergraduate personal health course, the results offer important insights for college teachers regarding the construction of knowledge, the facilitation of meaningful classroom experiences, and the effects of that developmental process on the out-of-class experiences of those involved.

Research Questions

1. How does the process of constructing a multigeneration family health history influence health-related knowledge?

2. How does the knowledge gained from constructing a multigeneration family health history influence learners' health-related attitudes?

3. What sorts of actions or intentions to act result from participating in a multigeneration family health history construction project?

4. How does the experience of constructing a multigeneration family health history affect perceptions and attitudes about health education?

Limitations

1. The pool of potential research participants in this study was limited to undergraduate students enrolled in a personal health course at a small midwestern university during a particular semester. These students may or may not be representative of all students who might enroll in a personal health course.

2. The participants may have been affected by the response effect which Borg and Gall (1989) described as the tendency of the respondent to give inaccurate or incorrect responses. Within this definition, an answer given may have been different than the true answer. The authors also suggested that predispositions for the response effect could include a lack of comfort or motivation on the part of the respondent, a lack of information that the researcher was seeking, or a need or desire on the part of the respondent to be liked by or to please the interviewer.

Delimitation

1. The researcher was also the instructor for the course within which the authentic learning strategy was utilized. An effort was made to intertwine yet separate these roles throughout the process of the study. The instructor-researcher considered how her personal perception of the value of the learning strategy and the value of the research results might influence the response of the

research participants. A conscious attempt was made to separate, yet not devalue, the potential of either. Hereafter, the instructor-researcher will be referred to as researcher.

Definitions

Authentic--Achievement that is significant and meaningful. Students construct meaning and produce knowledge, use disciplined inquiry to construct meaning, and produce discourse, product, and performances that have value or meaning beyond success in school (Newmann & Wehlage, 1993).

Authentic Learning--Student experiences closely resemble the experiences they encounter in real life (Cronin, 1993).

Authentic Research--Working on a problem of personal interest for which there is no known answer, gathering and analyzing raw data, and reporting results to have an impact on a real-world audience (Schack, 1993).

Constructivism--A theory which posits that learners construct their own knowledge and, therefore, their own version of reality based upon their own unique experience. It was this "construction" or schema that a learner would then use to accommodate and assimilate any new experience. This process of knowledge construction was thought to be an active one (Ellis & Fouts, 1993).

Family Medical History--Comprehensive and detailed information about the subject's close relatives that notes

all significant medical conditions or disorders, plus surgical procedures and their results, and known health-related habits (Mullen, Gold, Belcastro, & McDermott, 1993).

Genogram--A map of three, four, or more generations of a family which records genealogical relationships, major family events, occupations, losses, family migrations and dispersal, identifications and role assignments, and information about alignments and communication patterns (Hartman, 1995).

Health Education--Any combination of learning experiences designed to facilitate voluntary adaptations of behavior conducive to health in individuals, groups, or communities (Green & Johnson, 1984).

Health Promotion--Any combination of educational, economic, organizational, and environmental supports for behavior conducive to health (Green & Johnson, 1984).

Indigenous--Having originated in and being produced, growing, living, or occurring naturally in a particular region or environment (Mish et al., 1993).

CHAPTER TWO

REVIEW OF THE LITERATURE

> One doesn't discover new lands without consenting to lose sight of the shore for a very long time.
>
> Andre Gide

This study extends the research on authentic teaching and learning and health education pedagogy. Examination and description of the experiences of several students who constructed a multigeneration family health history provides a view of the application of a specific authentic learning strategy in a postsecondary health education classroom. This study endeavored to: (a) examine and describe how the construction of a multigeneration family health history affected the health-related knowledge, attitudes, behaviors, and intentions of college students enrolled in a personal health course; and (b) determine the usefulness of a family health history construction project as a teaching and learning strategy within the context of a personal health course at the postsecondary level. This review of the literature highlights connections between constructivist theory, authentic teaching and learning strategies, and health education practice.

The first section of this review defines health education as a process and provides an overview of the foundations, domains, goals, characteristics, and status of

school health education programs. This section supports development of an organized response by health education practitioners to the call for curricular reform.

The second section of the review focuses on connecting theory and practice in health education through the use of authentic teaching and learning tasks. Practical application of constructivist theory in the classroom is linked to health education.

The third section defines authentic teaching and learning and describes various authentic strategies such as genograms, oral histories, student stories, and inquiry-oriented tasks. This section identifies and describes applications across a variety of disciplines. This section also specifies ethical issues to consider when using such strategies.

The final section of the review provides a discussion regarding research as a bridge between theory and practice. Use of a qualitative method in this study yielded insights that would not have been attainable through a quantitative mode. This section emphasizes the importance of considering how personally constructed knowledge about health affects health attitudes, behaviors, and intentions.

Health Education as Process

Health education responds directly to the value placed on individual and community health by society (O'Rourke,

1985, 1989; Saunders, 1988). Therefore, practitioners and recipients often consider health education through a social context. Education about health represents a process of change that is advocated in varied settings with diverse groups of people. Health educators can identify themes and descriptors that shape this process (Mullen et al., 1993; Simons-Morton et al., 1995). This section identifies foundations, domains, goals, and characteristics of health education programs. It concludes with highlights of the status of today's health education programming.

Health Education Foundations

Health education draws its foundations from the ideas, theories, and methods of many fields. These foundations of health education include the broad, interrelated, and overlapping fields of the behavioral sciences, public health, and education.

Health education professionals often find themselves closely connected to the varied traditions of sociology, psychology, anthropology, pedagogy, curriculum development, epidemiology, environmental health, and health services. These close, sometimes overlapping, connections create opportunities for utilization of a number of methods and approaches in professional practice. Simons-Morton et al. (1995) offered a model that described these foundation areas and coinciding approaches.

The behavioral sciences focus on how and why people behave as they do. Practitioners in these fields identify a multiplicity of psychosocial, sociocultural, and environmental factors thought to influence human behavior (Lamal, 1989; Skinner, 1984). This complex interplay of factors leads to utilization of a variety of approaches as a basis for health promotion/education efforts (Bender, Neutens, Skonie-Hardin, & Sorochan, 1997; Cornacchia, Olsen, & Ozias, 1996; Meeks, Heit, & Page, 1996; Scott & Carlo, 1979). These approaches include, but are not limited to, operant conditioning, information processing, social learning, organizational change, diffusion, and social change. The information that has grown from these orientations serves as the essential foundation of health education.

The public health realities of disease incidence and prevalence have strongly influenced health education (Dunnette, 1989; Olds, 1989; O'Rourke, 1985; Pigg, 1989). Concern about patterns of disease, health statistics, disease process, and services' administration has been acknowledged through the various primary, secondary, and tertiary prevention programs made available throughout our communities (Saunders, 1988). Often described as community or public health practice, this field includes such activities as planning, advocacy, community development, and

program evaluation (Green & Ottoson, 1994; McKenzie & Pinger, 1995; Miller, 1995).

Simons-Morton et al. (1995) defined education as the study and practice of teaching, learning, and change. As with the behavioral sciences and public health fields, several educational foundations have also influenced health education. Learning theory, measurement and testing, growth and development, and curriculum and instruction represent essential, influential components. Teaching, training, group process, counseling, and evaluation approaches contribute to the knowledge base guiding professional practice in health education.

Domains of Learning

Health education draws heavily from the knowledge the field of education provides regarding teaching and learning (Fodor & Dalis, 1989). It concerns itself primarily with contextual application of three domains of learning (Saunders, 1988). A brief explanation of each of these three domains of learning follows.

Concern for factual knowledge as well as the processes and skills implied for the comprehending, applying, analyzing, synthesizing, and evaluating of content loosely defines the scope of the cognitive domain (Bloom, Englehart, Furst, Hill, & Krathwohl, 1956; Bruess & Poehler, 1986; Fodor & Dalis, 1989; Greenberg, 1995). Specifically,

knowing the preventions and modes of transmission for HIV disease is considered to be important; the ability to apply those known prevention strategies to personal behavior, after determining which lifestyle behaviors increase or decrease risk of contracting the virus, constitutes holistic health-related decision-making. Accurate, timely information is vital to this domain.

The affective domain includes examination of health-related attitudes, beliefs, and values. Just as the question "What is worth knowing?" surfaces in the cognitive domain, the affective domain addresses "Which values?" and "Whose values?" We might also wish to address "Where did these values originate?" Historically, the focus in health education of influencing behavioral change has been closely tied to personal affect (Greenberg, 1995).

Greenberg (1995) and O'Rourke (1989) suggested the need for a new health education vision where active involvement in health education activities provides an opportunity for personal scrutinizing and application of life-enhancing, individualized responses. Rather than focusing on the behavior, they suggested looking at the process of decision-making that led to the behavior. This would imply examining the connection between what is known and how one feels. That information used systematically can influence the structure of health education programs.

Raths, Harmin, and Simon (1978) advocated use of an approach focused on the process of valuing rather than identification of particular values. Greene and Simons-Morton (1984) suggested the need for development of factual foundations prior to addition of values clarification emphases. Because curricular content usually represents the majority views of a community, the particular values espoused by any one group may not be expressed or recommended. In a value-free atmosphere, the student may be left to make choices on his or her own without support.

In both of the above cases, values, or the lack thereof, may represent a problematic situation (Green & Kreuter, 1991). Some authors have supported the connection of personal value or belief systems with health education outcomes. These two examples specifically illustrate how the affective domain connects to the health education curriculum.

Health-related skills and behaviors relate to the psychomotor domain. Full integration of the knowledge required to execute a skill accurately and correctly defines initial outcomes inherent in this domain. The ability to transfer use of a skill from one situation and to execute it under different conditions or to teach it to others represents greater integration of learning.

For example, the ability to describe or demonstrate rescue breathing can be measured or graded for accuracy. Giving rescue breathing to a victim in an emergency situation would be the true test of this integrated knowing, yet most people will never encounter such an emergency situation and, therefore, may never be asked to apply the knowledge within its "situated context" (Prawat, 1992). Teaching those skills to peers in the workplace or youth in the community allows one to apply the skills at a higher level in related contexts.

Placing an action or participatory component into the learning continuum supports holistic presentation of educational content. Inclusion of a combination of visual, auditory, and kinesthetic components optimizes learning. Learning the process of rescue breathing cannot be sufficiently accomplished by merely watching a videotape or reading print materials. Hands-on practice of the rescue breathing process enhances and verifies acquisition of the skill through individual demonstration of knowledge.

Health Education Goals

The release of Healthy People 2000: National Health Promotion and Disease Prevention Objectives by the United States Department of Health and Human Services (USDHHS) (1990) placed emphasis on a national agenda that would strive to (a) increase the span of health life for

Americans, (b) reduce health disparities among Americans, and (c) achieve access to preventive services for all Americans. These overarching goals represent a vision and a "challenge . . . to use the combined strength of scientific knowledge, professional skill, individual commitment, community support, and political will to enable people to achieve their potential to live full, active lives" (p. 6).

These goals serve as a platform for action, a framework for all health promotion and disease prevention work, based on a set of shared values. The idea of shared values, implies shared responsibility for attainment of the health national agenda. Educational and community-based programs provide a forum for that platform through health education and health promotion activities.

The health promotion, health protection, and preventive services goals outlined by the national health objectives represent a huge economic and political commitment. We know that healthcare costs are rising and that poor health influences the economy. "Mobilizing the considerable energies and creativity of the Nation in the interest of disease prevention and health promotion is an economic imperative" (USDHHS, 1990, p. 6). Mobilizing that energy in individuals as they make small, daily choices represents the type of action needed to move toward community-wide progress in achieving improved national health status.

Health promotion relates to one's individual lifestyle and to the personal choices made within social contexts (USDHHS, 1990). If the global function of health education is promotion of health, the powerful influence of personal choice must be emphasized. Formalized health education efforts provide an educational context within which personal responsibility for individual and community health can be addressed comprehensively. Voluntary adoption of health-promoting and disease-preventing attitudes and behaviors in the social context of real life represents assimilation of that responsibility.

Personal and community health are complex constructs best approached conceptually through a variety of learning experiences (Bender et al., 1997; Cornacchia et al., 1996; Fodor & Dalis, 1989; Greenberg, 1995). A basis for selecting the combination of learning activities that facilitates voluntary adaptation of behavior conducive to health follows (Fodor & Dalis, 1989; Greenberg, 1995; Saunders, 1988).

Health educators help individuals and groups work toward increasing competencies for making decisions and adopting behaviors related to a healthy lifestyle. They create learning environments rich with opportunities selected to optimize development of the skills and attitudes required to select and execute healthy behaviors and to

maintain a healthy lifestyle. The specific goals of health education may vary with the local settings, yet most programs center around attainment of health-related knowledge, examination of health-related attitudes or intentions, and demonstration of health-related decision-making skills (Greenberg, 1995).

Health educators select learning experiences that provide opportunities for achieving the overarching goal of improving personal and community health through voluntary adaptation of health-promoting behaviors. This relationship implies a need to view health education as a process that involves discovery and change.

The process of health education enhances personal connection to health-related lifestyle choices. Because personal responsibility underpins attainment of the broad goals of health education, recognition of diverse needs remains important. Use of planned sequential interventions, selected with the target group's needs and interests in mind, offer the best chance for achievement of desired outcomes among the target population (Downey & Feldman, 1986; Fodor & Dalis, 1989; Gorham & Christophel, 1992; McKeachie, 1990; Sass, 1989).

Status of Postsecondary Health Education

A number of authors identified issues pertinent to the postsecondary health education curriculum. The examples

that follow support comprehensive inclusion of health education within the postsecondary curriculum and point to the relationships that exists between attaining improved health status, economics, and quality of life.

Pruitt, Kingery, Buckner, Jibaja-Ruth, and Holcomb (1993) indicated that "significant preventable health problems and potentially harmful behaviors persist among young people in this country" (p. 17). Burns (1990) discussed the importance of inclusion of college health in the overall curricular mission from developmental perspectives. A curriculum supportive of health promotion and disease prevention can contribute to overall human growth and development.

Various authors suggested that education does affect chronic disease incidence and prevalence rates and that morbidity and mortality rates are altered among people who adhere to a healthy lifestyle plan (Greenberg, 1995; Greene & Simons-Morton, 1984; McKenzie & Pinger, 1995). Dearmond et al. (1991) promoted an interrelationship between college health and the actively developing lives of students to attain long-range health goals such as those indicated by Healthy People 2000: National Health Promotion and Disease Prevention Objectives (USDHHS, 1990). O'Rourke (1985, 1989) discussed the necessity of considering the political and

economic implications of health education when planning and executing programs.

Review of college health texts and professional journals showed an increase in topical concerns reflective of current health-related societal issues. The inclusion of topical coverage dealing with campus violence and sexual harassment are examples of new foci that attend to the current needs and realities of postsecondary students.

Discussion of preservice issues also indicated a connection between the postsecondary curriculum and attainment of general health goals. These varied studies do not represent an inclusive view of the issues surrounding postsecondary health education; they did point to the wide range of concerns which exist.

M. L. Jackson (1990) presented results of a study designed to confirm contentions about the future and necessity of health education as based on ratings gathered from potential health educators. Downey and Feldman (1986) supported a diagnostic approach for integrating the needs and interests of target populations into the health education planning process. Willcox (1988) offered connections between the Holmes Report and preservice training in health education. Cleary (1991) recommended action plans regarding the use of the newly published National Health Education Standards.

The future of health education seems well established (Miller, 1995). Health education holds a place in the curriculum because the outcomes of school health curriculum and instruction and the alleviation of national health problems have been perceived as interdependent (Bruess & Poehler, 1986; Cornacchia et al., 1996; Fodor & Dalis, 1989; Green & Kreuter, 1991; Greenberg, 1995). Green and Ottoson (1994) cautioned planners to recognize the intersectoral and multidisciplinary collaborations needed to create coalitions and teambuilding between and among school health, public health, and community health programs.

Lavin, Shapiro, and Weill (1992), in a review of pertinent health education materials, identified themes pervasive to the practice of health education. Their findings suggested that the curricular-based prevention efforts that result from a comprehensive integrated approach to health promotion and health education provide the most cost-effective approach to the social morbidities which are of concern today.

Dearmond et al. (1991) offered five themes that characterize the strength and viability of the college health field. Those themes include: (a) creative prevention and intervention programs; (b) dedication to quality; (c) cost effectiveness; (d) active engagement with the higher education community; and (e) commitment to student

involvement. These findings provide support for college health education and preservice development in health education as the 21st century approaches.

Curricular Reform, Change, and Health Education

Ornstein and Hunkins (1993) reported

> although research in education may be impressive in quantity, very few noticeable changes have resulted in schooling since our days as students. We are basically using the same instructional methods in the classroom that we were using 50 years ago. (p. 154)

The interdependence of parts and the hierarchical nature of traditional schooling, along with the expectations or the memories of the public, strongly influence how the school and curriculum operates.

Practitioners seeking to implement new educational approaches face a number of dilemmas. Anderson (1995) outlined several key messages echoed throughout the change and reform literature. The perspectives and recommendations of such reform efforts typically shared a concern for

> (1) integrating themes in the subject matter, (2) teaching for understanding by focusing in some depth on major concepts rather than covering lots of detail, (3) making connections between subject matter and its applications, and (4) reaching all students--not just the elite--with rigorous content and attention to critical thinking. (p. 34)

The literature further suggested that, if enactment of these concepts occurs through a type of restructured curriculum, new roles and outcomes for teacher and student would emerge. Active learning situations, where students

engage in hands-on work and group process, would prevail. The following applications describe a newly visioned learning environment and expanded student outcomes.

Serving as a facilitator of learning in a place where each student becomes engaged in learning would place a new value on the pedagogical continuum (Dodd, 1995). Different skills would be required as a teacher-centered format gives way to student-centered curriculum. Focusing on student outcomes, empowerment, and engagement would foster active learning (Jones, Miller, & Tritsch, 1994).

For example, Brandt (1993) reported a conversation with Howard Gardner that centered around teaching for understanding and what that would imply for educational planners, deliverer, and evaluators. Shulman (1987) offered a strategy for teaching reform that emphasized comprehension and reasoning, transformation, and reflection. He further supported the idea that research and policy development have not sufficiently addressed these issues.

Angelo (1994) addressed the concept of additive limits. He suggested that squeezing more content into an already overloaded curriculum may increase quantity of knowledge in the short-term; it does not necessarily promote life-long learning or long-term development and maintenance of life skills. Angelo also maintained that planning efforts cannot be successful if curricular change at the postsecondary

level places heavier focus on teacher behavior rather than on student learning.

To move beyond a "medieval view of curriculum," Wiggins (1989a, p. 44) suggested the need to recognize the futility of trying to teach everything of importance and, instead, to focus on reorganizing the curriculum in a way that would enable students to see how knowledge grows. In this new paradigm, teachers would become inventors, leaders, and creators of situations designed to result in learning the things valued by society. Success would be measured through attainment of those prized values (Schlecty, 1990). Essential knowledge and skills implied by that measurement of success would be revealed as part of the learning process.

School mirrors culture by reflecting its values in and through educational practice. The opportunities students are given provide shape to that reflection and determine what will be learned. Therefore, what is taught and how it is taught is of utmost importance.

Polanyi (1958) suggested that all knowledge is personal. Helping students learn what they need to know to function in the society of the future is, therefore, a curricular necessity. Fostering an environment where the learner constructs knowledge (Bodner, 1986), rather than making rote application of knowledge others have formalized,

provides a curricular focus and planning goal. People who know how to learn were recognized as intrinsic to the ongoing emergence of an information-based society.

These ideas represent radical change in thought and action. Several issues that contribute to the complexity of the change process follow.

Looking at how curriculum is delivered represents one aspect of the change process. Anderson (1995) suggested that concern about coverage of content versus depth of understanding causes teachers to worry about the effects of omission and about the actuality of creating learning experiences that go beyond simply adding more. Bodner (1986) suggested "a shift from teaching by imposition to teaching by negotiation . . . [because] active students learn more that passive students" (p. 876).

Not everyone agrees with the principles inherent in the constructivist stance. The work ethic of many adults supports a positivist view. Moving people from a quantity-based memorization mode to one that requires the learner to take responsibility through critical thinking, connection of ideas, and application of learning represents an arduous process with resistance often coming from various levels and directions. The fact that there never seems to be enough time for planning, for consideration of new approaches, or for collaborative work makes change even more difficult.

Brandt (1993) reported a conversation with Howard Gardner that indicated students do not understand; students lack the capacity to take knowledge and apply it appropriately in other settings. Gardner based his comments on 20 to 30 years of educational studies. As the interview continued, he elaborated on how the development of engraved scripts occurs and emphasized the necessity of altering these scripts if transfer and real use of knowledge is to occur.

Support for reform and restructuring at all points on the curriculum has been clearly established in the literature (Bracey, 1990, 1995; Brandt, 1993; Cross, 1987; Cuban, 1990; Goodlad, 1990; Levin, 1994; Sebren, 1994). What is going on in the whole of education should also be reflected in health education curriculum and instruction.

Jones et al. (1994) summarized the ideas of Adler, Sizer, and others regarding the development of the restructured curriculum. By supporting a curriculum that "produces students who can think, solve problems, pose questions, and transfer their knowledge to challenging work and life settings" (p. 602) productive potential is unleashed. Health education should do no less.

Specific support for change in health education exists (Fodor & Dalis, 1989; Greenberg, 1995), yet research findings have not been well-delineated. Jones et al. (1994)

recommended vocal and visible voicing of the following to enhance and restructure public school curriculum efforts:

> (a) individual and collective health of students and staff must be a . . . priority; (b) health education must be skill-based to assist students in becoming responsible for their own health; (c) health curriculum content and activities should be based on input from students; (d) sufficient health instruction time must be provided to allow for developing and changing behavior; and (e) health teachers need to be skilled, enthusiastic, caring people who place a high priority on health in their own lives. (p. 615)

Common sense would suggest that even though the recommendations above were written with the restructuring of K-12 public school programs in mind, these same tenets also apply to the postsecondary curriculum.

In many instances health education plays a minor role in the total curriculum, yet health education advocates are able to see connections to a variety of curricular and instructional areas. Hochbaum et al. (1992) suggested that if the field is to survive and prosper, health education professionals must be able to identify and respond to the new problems that our ever-changing world presents.

Cleary (1991) outlined specific challenges and opportunities that have presented themselves to the field of health education as a result of the reform movement. Organizational changes, changes in governance, redesign of teacher work, reallocation of resources, and improvement in teaching and learning processes represent major areas of

concern. Use of interdisciplinary teaming, concerns about coverage of the traditional health education content areas, utilization of peer teachers, and service learning are but a few of the issues and applications that can be considered.

An increasing spirit of professionalism also affects current restructuring in health education. The recent release of the jointly constructed National Health Education Standards (Joint Committee on National Health Education Standards, 1995) also created an opportunity for curricular reform. These standards "identify what knowledge and skills students should know and be able to achieve" (p. 9). How the standards are enacted is the responsibility of teachers and curriculum developers at the local level.

Additionally, graduates of health education professional preparation programs may seek credentialing as health education specialists. This credentialing process is based on the role delineation study completed by the National Task Force on the Professional Preparation and Practice of Health Education that identified competencies inherent in successful professional practice in health education (Greenberg, 1995).

The results of these processes generally meet two purposes. First, gaining recognition through attainment of program approval points to generalized improvement of teacher preparation programs at the baccalaureate level.

Second, development of practitioners who possess the technical and emotional skills described through the study increases the potential for delivery of quality community-based and school-based health education programs.

Restructuring of curriculum and improving preservice programs alone does not guarantee improved teaching (Elmore, 1992). Cross (1987) invited individual teachers to enact the change process from the bottom up. A vision for the future discussed by Meeks, Heit, and Page (1996) placed student learning through the development of health literacy at the core of health education. This particular vision required a convergence between what is known about learning and what is known about teaching. Defining, expanding, and sharing the knowledge base and related cadre of skills, strategies, and methods will be necessary for meeting these challenges.

The Potential of Connecting Theory and Practice

Three schools of thought have shaped the evolution and form of health education These schools of thought include the content school, the process, school, and the research school. The brief descriptions of each that follow summarize the conclusions suggested by Timmreck, Cole, James, and Butterworth (1987).

Timmreck et al. (1987) suggested that the content school historically focused on answering the question, "What

is important to know?" Various health education predecessors included hygiene instruction, physical fitness and a bit of alcohol and tobacco instruction, to address the concerns of the temperance movement, in the curriculum. These original topical areas have evolved into an expanded list that has been debated, studied, and refined over the years. Consideration of scope, sequence, and age-appropriateness of information represent potential or typical examples of concerns for the content school.

Timmreck et al. (1987) continued their discussion by suggesting that the process approach focuses on identifying the methods, techniques, and strategies that effectively influence, educate, or motivate people toward health. Answering the questions, "What is important to be able to do?" and "How can this be learned?," frames current health education process efforts. Further, the authors suggested that the process of health education is influenced by a variety of independent and interdependent environmental and cultural variables. Those charged with selection and development of learning strategies must, therefore, recognize the effects of these numerous variables and goals when building, delivering, or evaluating curriculum.

Finally, Timmreck et al. (1987) suggested that the research school encourages use of research-verified approaches for educational planning and evaluation.

Verification of processes and the relationship of process and content has been the focus of most research designs in health education. If health education represents a way to provide knowledge, influence attitudes, or change behavior and intentions, then accessing the research regarding best practice needs to be encouraged. The information describing this school of thought emphasized training people to locate and use research findings to shape health curriculum and support instructional practice choices.

A swell of concern regarding the lack of a distinct theoretical school exists within the health education profession. As a fairly new profession, health education has made inroads toward developing theory and professionalism (O'Rourke, 1989). A fundamental reason health education continues to struggle is due to a lack of a specific body of knowledge or theoretical base (Hochbaum, 1981; Hochbaum et al., 1992; Timmreck et al., 1987). A call for a ways and means approach that makes theory more useful and practice more research-based has been voiced (D'Onofrio, 1992).

Constructivism

Constructivism represents one of a number of cognitive models and teaching approaches currently seen in the literature (Alcove & McCarty, 1992; Jonassen, 1991; Rainer & Guyton, 1994; Wadsworth, 1978; Winn, 1991). Constructivists

believe "knowledge is constructed in the mind of the learner" (Bodner, 1986, p. 873) and that "learners approach each learning task with a set of personal beliefs, motivations and conceptions about the subject area and about knowledge itself" (Holmes & Leitzel, 1993, p. 28).

Wheatley (1991) suggested that two main principles underpin constructivist theory when it is applied in the classroom. The first principle, which is fairly well received, links knowledge development with active involvement. Meaning is built through active involvement as the individual interacts with content and environment. Practitioners and planners cannot put ideas into learners' heads. They, instead, facilitate provision of environments and opportunities that allow the learner to evoke meaning.

Wheatley (1991) summarized ideas first suggested by von Glaserfeld in 1987 to explain the second, less accepted, principle. His summary suggested that because no collective reality exists, truth cannot be found; therefore, one's view of the world depends upon personal experience. It is the lack of a confirmed reality that makes this principle suspect or controversial.

Wheatley (1991) further described a perspective in which knowledge originated in the "learner's activity performed on objects" and was "intimately related to the action and experience of a learner--it is always contextual

and never separated from the knower" (p. 10). If Wheatley was correct, meaning cannot be transmitted, nor can a student be made to learn.

Various other authors provided additional insights that affect this research project. Pankratius and Young (1995) suggested that learners use preexisting knowledge structures to construct schemata that are refined repeatedly over time. In a study investigating the phenomenon of learning mathematics, Cobb and Steffe (1983) noted the importance of teacher and student attempts to make sense of one's others' verbal and nonverbal activities. Prawat (1992) suggested we need to "rethink not only what it means to know subject matter but also what it takes to foster this sort of understanding in students" (p. 361).

Winn (1991) suggested increased emphasis on learning through the application of the tenets of constructivism particularly for the acquisition of advanced knowledge. In a constructivist environment, a particular way to learn is not imposed; the student uses innate, creative abilities to determine what to learn and how to learn it. He also suggested that this posture requires planners to discard traditional or mechanical application of instructional design procedures.

Ongoing learning requires value judgments on the part of the individual; therefore, total objectivity is not

possible. In the constructivist view, education should be student-centered with teacher as facilitator rather than transmitter of knowledge. By creating environments that encourage a variety of experiences and activities, teachers enable students to articulate personal goals and to assume ownership and responsibility for learning (Alcove & McCarty, 1992).

To extend this view, it would be possible to promote the development of even more powerful and effective constructions when students challenge their own knowledge and beliefs. This occurs through active development of an encouraging classroom culture (Pankratius & Young, 1995). Noddings (1990) stated, "the great strength in constructivism is that it leads us to think critically and imaginatively about the teaching-learning process" (p. 18). When teachers and students alike reveal attitudes, assumptions, and beliefs, an interactive exchange that leads to even greater assimilation and accommodation of structures occurs.

Jonassen (1991) suggested learners interpret information in the context with which they are familiar. This contextual factor will affect the enactment and results of the learning process. Within the constructivist paradigm, the learning process, not the extant behavior or product of that behavior, is of most importance. Creating a

classroom environment conducive to determination and actualization of flexible, individualized objectives is indicative of the constructivist facilitator.

Brooks and Brooks (1993) outlined a number of distinguishing characteristics defining the constructivist classroom. In this classroom, the teacher encourages and accepts autonomy and initiative as students engage in dialogue that promotes elaboration, hypothesis development, and questioning. The teacher ascertains student responses and uses that information to drive lessons, to alter content, and to determine instructional strategy. Common resources include raw data and primary sources, along with manipulative, interactive, and physical materials.

Additionally, in the constructivist classroom development of relationships and metaphors encourages an atmosphere where determination of student understanding of concepts precedes sharing of the teacher's view. Frequent use of the learning cycle model nurtures natural curiosity. Constructivist teachers ask thoughtful open-ended questions and use cognitive terminology such as classify, analyze, predict, and create.

The constructivist model emphasizes individual choice, multiple methods, and alternative approaches. It nurtures the possibility of diversity in process and product through evaluation. For these reasons, total objectivity would not

be assumed, nor would it necessarily be desired. How well one internalizes knowledge rather than the quantity amassed would constitute value.

Even the language of constructivism differs. Words such as cooperation, interaction, and communication represent common terminology. The focus is on the student and on creating an environment where mutual respect and risk-taking flourish and where culture is of paramount importance (Holmes & Leitzel, 1993).

When initiating this paradigm, a type of perturbation (Doll, 1993) occurs. Doll suggested that Piaget would call this unsettlement or disequilibrium the driving force that leads to reconstruction of old or naive schemas. When a curriculum that is rich in diversity, problematics, and heuristics exists in an atmosphere where exploration is fostered, the perturbation often leads to self-induced reorganization. It is through this reorganization process that webs of meaning are created. The constructivist teacher intentionally encourages such transformation within and among the students in the classroom.

Traditionally, purveying a closed set or body of knowledge constituted the major goal of teaching. Following the educational intervention, the body of knowledge transmitted would be measured objectively to determine how much of the curricular content the student had learned. The

deficit gap was actualized through depiction of placement on the normal curve.

Within the postmodern curriculum Doll (1993) advocated, different measurement terminology surfaced. Goodness would be measured through four R's. Richness refers to depth, layers, and multiple possibilities. Recursion provides a repetitive looping phenomenon which leads to the making of meaning. Relations emphasizes the importance of linking pedagogy and culture in the curricular framework. Rigor recognizes the need for interpretation and interdeterminacy within the transformative curriculum.

Cognitive Development

Bruer (1993) advocated the use of cognitive research as a basis for instructional improvement. The claim that the human mind and computers share common characteristics has led to an emerging research base. Asking questions such as "Are cognitive skills context-bound?" led Perkins and Salomon (1989) to support belief in a type of synthesis where general and specialized knowledge function in partnership. Although these represent only two of the ideas from this exploding research area, a need for grounded change in the way students and teachers interact is indicated.

The Piagetian perspective on education offers a theory on cognitive development that can be easily applied in the

classroom. Wadsworth (1978) suggested an ongoing process of equilibration where structures are formed and reformed as new information challenges the existing base. The organism assimilates and accommodates to allow for specific and general applications. From the learning standpoint, readiness occurs when the student reaches a place where cognitive conflict or system disequilibrium surfaces. Only when this dissonance occurs will the individual be able to move to a higher level of cognitive development.

Wadsworth (1978) summarized Piaget's four classic stages of development which various writers have also used to describe student abilities and accomplishments. Phillips (1982) suggested college teachers have a tendency to assume that most of their students might be classified consistently in the formal operations stage yet few actually are. In his own pondering about this idea, he also stops to wonder why anyone would care. Consolidation of existing and incoming structures becomes a goal for which to strive if the needs of both formal and concrete thinkers are to be met.

The onslaught of criticism unleashed by the release of various reports pointed to a mismatch of societal expectations and the realities of student achievement. It would seem that what students were able to do, failed to be enough. As a result of the call for reform, new expectations have been articulated. This movement also

resulted in a wave of research revolving around the development of modern learning theory.

Cognitive research and its new theory of learning have numerous educational implications. Bruer (1993) suggested that the theory of performance change has challenged the practice of intelligence and achievement testing. He referred to the need to recognize the power of students' naive beliefs regarding motivation and performance and how that information can affect planning and implementation of programs. Classroom teaching can be seen as a form of problem-solving as more information on the interaction of knowledge, processes, and skills surfaces.

Research on Teaching

In the past 15 years a plethora of research, reports, warnings, and legislation on teaching and learning issues has surfaced (Cizek, 1991; Cleary & Birch, 1996; Elmore, 1992; Madaus & Kellaghan, 1993). Confronting our professional knowledge represents a difficult task (Glickman, 1991) in that our enthusiasm for doing the right thing is often clouded by the need to do things right.

Treating students as active agents of their own learning necessitates a change in the traditional teaching and learning paradigm and requires a broader, more comprehensive view of the research on teaching. Elmore (1992) presented a case for a change in thinking about the

relationship between teaching and learning and suggested that teaching and learning may be greatly affected by the content implied by a subject area.

Review of research on effective teaching showed that the concept student learning often referred to or was measured by performance in standardized test situations. The research on learning also pointed to a current, broader conception of learning that cannot necessarily be measured through a standardized testing format.

Shulman (1987) noted that

> teaching necessarily begins with a teacher's understanding of what is to be learned and how it is to be taught. It proceeds through a series of activities during which the students are provided specific instruction and opportunities for learning, though the learning itself ultimately remains the responsibility of the students. Teaching ends with new comprehension by both the teacher and the student. (p. 7)

The traditional image of teaching often implies the teacher "knows something the students don't" rather than supporting a cooperative learning effort. Shulman (1987), on the other hand, suggested that the exemplary teacher purposely presents ideas to provoke the constructive processes of his or her students in order that they develop independence in thinking and behavior. In this paradigm, collaborative interactions between teacher and students prevail.

In an historical review of the research on college teaching, McKeachie (1990) related the following varied yet kindred findings. Class size affected the teacher's ability to know students and personalize instruction based on their needs. High quality personal connection strongly influenced activity and responsibility levels. Lecture tended to work best for short-term recall; discussion promoted the elaboration and deep processing that commonly linked to long-term retention.

Characteristics of good teaching were connected to additional processes known to influence learner outcomes. The study of student-centered classrooms pointed to a broader range of outcomes that included affective domain-related factors such as motivation and attitudes. The preparation involved for peer teaching resulted in deeper learning and greater retention. Technology was seen to advance learning but only in conjunction with student activity and thought. The above ideas all point toward active learning where students immerse in subject matter and take responsibility for their own learning.

Looking at these factors, it is possible to construct a framework of influence for postsecondary health education practice. Recognizing that the number of variables influencing learning are countless justifies assessment that describes ongoing processes as well as those that enumerate

pre and post-test scores. If we agree thinking skills can be taught, then it is possible to move beyond discipline-specific skills to transferable intelligence. If we acknowledge the identified skills and strategies that usually help students learn effectively, then selection of processes that lead toward desired educational outcomes will be enhanced. Recognition that intrinsic motivation and self-efficacy affect learning points to selection of curricular methods that facilitate development of those qualities.

Gorham and Christophel (1992) coded and categorized motivators and demotivators as identified by college students. Sass (1989) reported findings regarding students' perceptions of the classroom characteristics that motivate students. Palmer (1990) talked about the transaction called knowing and why some strategies fit or fail. Willcox (1988) provided implications of the Holmes Report for teacher training and health education.

The literature reviewed has provided a snapshot view of the developing profession of health education. Teaching research specific to health education on the college level offered important information regarding characteristics of successful programs and practitioners as well as the value of pursuing individual and program certification (Hayden, 1992; Lohrman & DeJoy, 1988; Patterson, Vitello, &

Sliepcevich, 1990; Varnes, Bolin, Waters, & Beach, 1989). Much attention has also been given to training at the preservice and professional levels (M. L. Jackson, 1990; Wiley, 1993). Finally, numerous authors addressed the issues of health education's place in the curriculum (Burns, 1990; Cleary, 1991; Furney, 1989; Perry & Stone, 1990). A base of knowledge about the specific connections between teaching and learning in health education was not so prolific.

Prawat (1992) provided connections between teacher beliefs and learning. In a constructivist teaching and learning situation, the traditional telling-listening relationship takes on a more complex and interactive form. Neither the learner nor the content can remain fixed entities under this paradigm. When we no longer see students or content as static entities, we can move from a preoccupation with delivery of content toward the selection of content and construction of meaning as they relate to students.

Prawat (1992) cautioned against "naive constructivism" (p. 357) where activity is equated with learning. An interactive and dynamic approach to curriculum likened to a road map with students entering at various points and traveling different routes toward expected outcomes was used to describe the social interaction that can occur in a

classroom. The term negotiation was applied to the process of overcoming obstacles or, in keeping with the above analogy, of "negotiating the winding road" (p. 380). He further suggested that, through negotiation, a learning community can emerge in the classroom and related environments.

The norms and agreement on truths negotiated in the classroom provide stability, payoff, or closure as work progresses. Students seek and reach consensus on important matters through an idea-oriented approach to situated learning.

Applying Constructivism in Health Education

The process-oriented nature of health education offers a type of learning lab situation for teacher and student. As the goals of health education are pursued, very personal application of content and skills may occur vicariously or as a result of carefully planned interventions. Learning whether use of an authentic learning task helps students to construct health-related knowledge represents a central concern for this study.

Making sense of health-related information depends upon having certain amounts and types of knowledge, attitudes, and skills. Authentic tasks that help students construct knowledge can serve as a bridge between theory and practice.

Authentic Teaching and Learning Strategies

Discussion of alternative methods of teaching and assessment in the literature related to a need to increase student understanding (Cizek, 1991; Holmes, & Leitzel, 1993; Madaus & Kellaghan, 1993; Wiggins, 1989b). Methodological strengths and limitations of several authentic teaching and learning strategies pertinent to this research study follow. Cross-disciplinary uses and ethical considerations are noted when appropriate.

Newmann and Wehlage (1993) defined authentic as that which distinguishes between what is significant and meaningful and what is trivial and useless. Krovetz, Casterson, McKowen, and Willis (1993) identified criteria that distinguish an authentic learning situation:

> When engaged in authentic learning, all students are able to: (1) articulate purpose of activity; (2) analyze and practice what they do know; (3) acknowledge what they do not know; (4) formulate questions that lead to further knowledge; (5) synthesize connections between knowledge and life experience now and in the future; (6) evaluate what was learned, and how it could be more effectively learned as a formal part of the assignment. (p. 73)

Many viewed conventional schooling as inauthentic, in that student work often does not allow for deep thinking and related critical processes. The student also may ascribe no intrinsic value to the work beyond achieving a particular grade. Newmann and Wehlage (1993) suggested a vision where students would construct meaning and would produce knowledge

through disciplined inquiry resulting in discourse, products, or performances having intrinsic value beyond the confines of the schoolroom.

The use of authentic learning tasks created an opportunity to develop a type of resonance whereby learning in one place can be used or seen in another (Brandt, 1993). The teacher selecting an authentic learning task should ask several questions to provide multiple entry points for the learning experience. Questions such as "Why am I doing this?" or "Do I think it is important?" or "How can this be accomplished?" create windows that allow for verification of the selection of the assignment and for determination of relationships that might be pursued.

Newmann and Wehlage (1993) proposed a framework of five criteria for measurement of the quality or goodness of authentic learning strategies. The premise behind these criteria was determining if the activity caused the learner to use his or her mind well. Higher order thinking requires the learner to manipulate information so that facts and ideas are synthesized and explained or that hypotheses or generalizations result. With these criteria, depth or thickness of knowledge would be indicated by ability to make distinctions, develop arguments, problem-solve, or manipulate ideas relationally. If an activity provided personal experiences which could be connected to a real

world context in a way that others were positively affected, it met a third criteria. An authentic task would provide opportunity for substantive conversation leading to collective understanding of the inclusive ideas or findings. Authentic learning also creates an environment of social support where high expectations and mutual respect encourages risk-taking among teacher and learners.

This suggested matrix has not been sufficiently tested, yet it offers a beginning point for discourse regarding the efficacy of authentic teaching and learning strategies. Review of several strategies matching all or some of the criteria proposed by Newmann and Wehlage (1993) follows.

Problem-Based Learning

Stepien and Gallagher (1993) discussed the value of problem-based learning. In a problem-based assignment, students use an iterative process to assess their position, to determine what other knowledge is needed, to identify how to find it, to do the actual information gathering, and then to evaluate their own hypotheses. In this scenario, the teacher acts as a coach or tutor modeling the inquiry process and supporting student efforts. Substantial knowledge builds through a process of self-directed study. As data accumulates, the learner defines what is going on and ascribes meaning. Because the student takes on responsibility for the problem, he or she also accepts

responsibility for evaluating the outcomes of the process. The problem-based scenario resembles apprenticeship for real life.

Family Medical Histories

A number of authors advocated the construction of a family health history. Adato (1995), Papazian (1994), and SerVaas (1995) told personal stories of several families affected by genetically transmittable medical conditions. Each author encouraged the creation of a medical family tree as an individual and family health prevention tool.

Skills and processes similar to those suggested for completing a genealogical search (Lichtman, 1978; Linder, 1978) were also utilized when completing a family health history. Krause (1995) created a resource for use by the general public that teaches the process of collecting a family medical and behavioral history. The Mullen et al. (1993) text provided the family health tree assignment that stimulated this researcher's interest in studying authentic teaching and learning.

Common to all of the above authors were strong convictions regarding the necessity of examining personal records to determine relative risk for familially-grounded disease. In the constructivist tradition, Krause (1995) suggested that once the family tree is created, life can suddenly make more sense. Personal stories by each of the

authors provided verification of the actual use of collected medical information for prevention, intervention, and early treatment of chronic disease. In each case, use of multiple information sources enhanced the systematic multigeneration data collection process. The authors encouraged use of primary sources such as family face-to-face interviews and examination of original family documents and artifacts. All authors acknowledged the potential of emotional pain and missing data as actualities of the process yet all agreed that the final product merits the time and effort intrinsic to collecting the information. Papazian (1994) provided specific tips for interpreting findings accurately.

The following brief descriptions are also included in this review because they relate to the construction of a family health history. Although none is used in its entirety, each represents an overlapping contribution to the knowledge or skills needed to complete a family health history effectively or to understand the qualitative research processes described in the next chapter.

Brief Interviews

Branch and Malik (1993) and Novack, Volk, Drossman, and Lipkin (1993) addressed the use of brief interviews as a means to increase the skills of medical students. The medical school aspect of these reports does not relate to

this project; the window of opportunity that presents itself through the brief interview process does.

Both authors advocated the use of a systematic and iterative interview process that attended to the contextual aspects of the interaction between doctor or medical student and client. In other words, someone collecting a family medical history can benefit from using some sort of interview schedule but should also consider asking probing questions when interesting, disturbing, or surprising information surfaces. Playing the detective may lead to a more complete result.

Oral History Projects

Oral history projects appeal to many because the oral tradition so ingrained in our school, home, and work cultures is emphasized. Interviewing people and using the data to create a narrative emphasizes numerous student skills. The personal dimension of the oral history provides an emotional connection that serves to motivate as it teaches about history, sociology, or science from the bottom up. Long's (1991) narrative illustrated a specific application to the area of history. Wolff (1993) focused on oral history as a family communication tool. Payne and Lyman (1994) described use of oral histories as a means to develop questioning skills with students enrolled in basic adult education programs.

Potential benefits of oral history projects include participating in deep research about a topic of interest, interacting with people known to the student, learning directly about the validity and reliability of primary sources of information, improving writing and listening skills, gaining a heightened sense of the past, present and future, and connecting with family. In all cases reviewed, students ranked oral history projects highly because of their perceptions of the value of active engagement in learning.

Portfolios

The literature offered much documentation regarding the use of portfolios in various disciplines (Arter & Spandel, 1992; Cleary & Birch, 1996; Hamp-Lyons & Condon, 1993; Paulson & Paulson, 1991). Arter and Spandel (1992) demonstrated strengths and limitations of portfolios as a student assessment strategy. They suggested that the use of portfolios has the potential to tell a detailed story of student development and accomplishments.

When done well, the portfolio serves a variety of functions. Students select artifacts from a larger folio of materials with the purpose of demonstrating competency in a desired area or for showing overall skills and abilities. A student's reflection skills are also demonstrated as it is customary to use captions or clarifying statements

indicating the meaning and justification of each item. The student portfolio offers a look at an individual's development over time.

Student Writing

Student reflection through writing is an often included strategy that takes on many forms. Pankratius and Young (1995) suggested the use of "learning logs or learning journals" (p. 367) to evaluate student learning and to create a means for dialogue between student and instructor. Concept maps, invented dialogue, or development of a prospectus offer writing alternatives that encourage students to demonstrate higher order thinking (Holmes & Leitzel, 1993).

Although many other forms exist, the heart of any of these strategies rests in the resulting narrative. When a student recounts an event, he or she creates a narrative that is "uniquely built on the particular" (Kramp & Humphreys, 1993). Writing personal stories provides a forum for student reflection and for demonstration of knowledge.

Active, authentic learning makes the "basic unit of a modern curriculum the 'question.' Assessment organized around essential questions puts students into the habit of thoughtful inquiry. Ascertaining the degree to which the student understands the question" (Wiggins, 1989a, p. 47) becomes the main concern.

Genograms

A genogram is defined as "a diagram that provides basic demographic knowledge about family members over at least three generations and creates a 'map' of family relationships" (Reed, 1994, p. 255). The review of the literature offered similar definitions and varied uses. Reed (1994) referred to genogram use in sociology class as a means to define axes of variation within a family system. Others (Beck, 1987; Humes, 1994) detailed its use for enhancing communication among persons engaged in mental health counseling. Bahr (1990) summarized similar uses of the genogram including use as a clinical technique in health care, a career counseling strategy, a strategy for marriage and family therapy, and a teaching strategy in family science.

Bahr (1990) called attention to a critical difference for use of the genogram in education. She stated that a major purpose for its use would be "to help students visualize and understand their family system, and their own place within it, rather than to change it" (p. 243). Through construction of the genogram, family relationships are defined and key components of the family experience are revealed. The suggested process could provide an opportunity to deepen awareness of social transmission of family patterns (Reed, 1994) or serve as a catalyst for

change. Additional benefits included increased communication, familiarity, and solidarity between student and instructor.

Genogram projects that were reviewed seemed to have similar characteristics (Bahr, 1990; Humes, 1994; Reed, 1994). Following an introductory instructional component regarding data collection, students identified family informants, met with those informants to collect desired data, and used that data to describe the family. An assignment asking students to use the information they gained in some related way accompanied each description. All the writers suggested the importance of process, the impact of the visual representation of the family, and the personalizing factor of the assignment.

The authentic teaching and learning tasks described above represent intriguing and potentially dangerous educational strategies. The following ethical concerns must be considered prior to initiating any of these tasks. Humes (1994) suggested student comfort level, counselor comfort level, and time as mitigating factors. Adato (1995) considered the emotional toll related to delving into the family history only to find devastating information. Beck (1987) referred to an emotional and potentially painful experience that might prove to be intrusive or enlightening.

Bahr (1990) referred specifically to the ethical considerations of using a genogram as an educational strategy and highlighted the issues of confidentiality, privileged communication, and fairness in grading. Bahr indicated the benefits of the assignment outweighed any ethical concerns but also offered equivalent alternative assignments for those who would not or could not do the research for constructing a genogram. In addition, in the interest of the student-participant, the necessity of planning and implementing an information and referral process was discussed.

Summary

The purpose of this review has been to summarize findings in the literature that would support the need to study what occurs when authentic learning and teaching strategies are utilized in the health education classroom. It was also meant to support a qualitative approach to the study of this issue.

The concept of constructivism represents a theory and an approach which are interwoven in the literature. Learners approach a learning task with certain knowledge, attitudes, and experiences related to the subject and to knowledge, itself. Teachers create an environment that provides an opportunity for the learner to construct individual meaning related to the material. This

transaction occurs through the use of multiple methods, alternative approaches, and student choice. Although this framework for teaching and learning are well documented in the literature, very little specific information is available regarding how a constructivist philosophy might affect the health education classroom or curriculum.

Authentic learning and authentic teaching strategies fit well with the constructivist philosophy. Health is such a complex concept that it must be approached in ways that allow the individual to make some personal application. Health education lends itself to a process-driven approach that facilitates the development of knowledge, attitudes, behaviors, and intentions that can be applied to real living. Constructivist design provides an opportunity to interpret what has been learned.

Holmes and Leitzel (1993) suggested that qualitative inquiry fits with the constructivist paradigm. Qualitative research is not based upon a fixed set of rigid procedures, but the researcher does need to develop a set of strategies and tactics to define the process. In the constructivist classroom, teacher and learner work together to identify a question to be answered and potential strategies to get to the answer or to identify additional questions.

Most of the authentic strategies discussed in the third section of this chapter were incorporated into this

multigeneration family health history construction project. Students constructed their family medical histories using an oral history collection method. The use of a predetermined interview schedule that allowed for probing questions was encouraged.

The students analyzed personal data and made sense of it by constructing a family medical tree. The medical tree served as a concept map describing relationships, conditions, and risks inherent in the individual and his or her family.

Students used the medical tree and interview notes to create a reflective summary describing personal findings, feelings, and actions. Research participants' conclusions were verified through semistructured interviews with the researcher and campus nurse. Although long-term behavior is not the focus of this study, the folio of personal findings and conclusions can be applied beyond the confines of the class.

The following chapter outlines the methodological procedures utilized in this research project. Procedures were selected to illuminate how construction of health-related knowledge occurs and to show the resulting effects of the use of an authentic teaching and learning strategy in the health education classroom.

CHAPTER THREE

METHODOLOGY

> A man may learn a great deal of the general from studying the specific, whereas, it is impossible to know the specific by studying the general.
>
> Rawlings (1942, p. 359)

Educational research represents a careful and diligent search for answers to specific curricular questions. Methods selected for this careful and diligent search provide an opportunity to collect data that can influence instructional practice. Because each type of research has its own virtues, the researcher must be careful to adhere to methodology consistent with his or her personal world view. Glesne and Peshkin (1992) suggested that the method a researcher chooses indicates how he or she interprets reality and what he or she believes qualifies as knowledge. They added that qualitative research focuses on understanding socially-constructed realities and on interpreting how others construct knowledge about the world around them.

With researcher as instrument and words as data, the qualitative process addresses the assimilation of subjective, contextual qualities and interactions. The open emergent format of the qualitative method sets a stage for discovery that can lead to tangible understanding of phenomena at a particular place in time.

This study represents a purposeful effort to extend the research on authentic teaching and learning and health education pedagogy. This documentation resulted from examining and describing the experiences of a group of undergraduate health education students who constructed a multigeneration family health history as part of the requirements for a personal health course. This study endeavored to: (a) describe how the construction of a multigeneration family health history affected the health-related knowledge, attitudes, behaviors, and intentions of college students enrolled in a personal health course; and (b) determine the usefulness of a multigeneration family health history construction project as a teaching and learning strategy within the context of a personal health course at the postsecondary level.

This study operated from a constructivist perspective. It employed qualitative and interpretive methodologies in an effort to extend understanding of authentic teaching and learning within a health education context. Schwandt (1994) suggested that constructivists "emphasize the instrumental and practical function of theory construction and knowing" (p. 125) Jacob (1992) stressed the importance of attending to the "meanings humans create and use to guide behavior" (p. 295) and advocated an approach cognizant of the value of detailed understanding of the specific.

This chapter describes the contexts from which this research emerged. It provides a rationale for the use of qualitative methods, outlines the design of the study, and describes the setting and actors around which the research occurred, supplies information about data sources, explains data collection and data analysis techniques and processes, and provides assurance of trustworthiness for this research.

Rationale for the Method

Janesick (1994) suggested that curriculum and instruction questions are often well-suited for qualitative study. A list of examples she deemed appropriate include:

> (a) questions concerning the quality of a given curriculum, innovation or program; (b) questions regarding meaning or interpretations about some component of curriculum; (c) questions that relate to curriculum in terms of its sociolinguistic aspects; (d) questions related to the whole system, as in a classroom, school or school district; (e) questions regarding the political, economic, or sociopsychological aspect of schooling; (f) questions regarding the hidden curriculum; (g) questions pertaining to the social context of schooling; (h) questions pertaining to teachers' implicit theories about teaching and curriculum. (p. 210)

Practical insights regarding the use of a particular learning strategy, the construction of a multigeneration family health history by particular students enrolled in a personal health course at the postsecondary level, emerged through this study. Ellis and Fouts (1993), in their discussions of research on educational innovations, might have called this level two or applied research because this

study sought to apply a theoretical construct in a real setting. They implied that, although applied research may be limited in generalizability, it is necessary for explaining and validating programs and methods. In this sense, they suggested that it provides an avenue for the instrumentation of specific educational methodology.

Health education practitioners who believe students learn best through active involvement seek strategies that motivate personal investment in learning activities (Greenberg, 1995). Studying the apparent and obvious does not necessarily measure the degree of student engagement in the health education process. Knowing how many times a person does or considers doing a particular action measures one type of health education outcome. Looking at the subtle processes that occur when health-related knowledge is assimilated, when previously-held health-related attitudes disequilibrate, or when health-related behaviors and intentions are considered or executed suggests interest in a very different type of outcome. Such results may assist other educators, especially those charged with promoting health in and among diverse student population groups.

Glesne and Peshkin (1992) indicated a number of predispositions about qualitative modes of inquiry. They suggested that qualitative modes of inquiry assume that subject matter is of prime importance and that reality is

socially constructed. These authors also suggested that, within the constructivist paradigm, the qualitative inquirer seeks to create meaning by attempting to contextualize, interpret, and understand the perspectives of the actors related to the curricular situation or question.

Qualitative research design assures a naturalistic framework based around a real question, real individuals, and a real setting. The researcher, in collaboration with the particular actors, engages in an inductive process of emergence and portrayal that includes searching for patterns, pluralism, and complexity. The researcher's role of skilled instrument enhances the development of a type of grounded theory related to a situated context. Within this context, personal involvement, partiality, and empathy optimize the research process.

For this research project, the act of inquiry began with the identification of an issue of concern to this researcher. It eventually became a jointly constructed emic portrayal of the learning experiences of a particular group of people in a particular setting. The narrative takes the form of a holistic case study in which the voices of the research participants are interpreted through the researcher's view.

This research project involved a process of joint construction where participants and researcher worked

together to describe a particular instructional episode. This process encouraged the critical evaluation of the researcher's interpretations of the participant's stories for fit, credibility, relevance, and modifiability within the context of their own experiences (Lincoln & Guba, 1989).

The voices of participants provide the type of thick, rich, descriptive data that Glesne and Peshkin described. These data offer a rationale for the use of a qualitative design in this study. These data also support use of a constructivist paradigm for program development or methodology selection within health education settings.

The type and nature of data sought through the research questions strongly influenced the selection of a qualitative research design for this study. In keeping with the views of Kolbe et al. (1981) and Hochbaum (1981), knowing how and why is often of as great importance for health education curriculum and instruction specialists as is knowing what or how many when designing or delivering health education programs. In this study, documenting the experiences and reactions of a particular group of college students to a multigeneration family health history construction project provided insight regarding the ways these students used indigenous, family health information to construct personalized health-related knowledge. The documentation process also revealed how that knowledge influenced the

immediate and long-term health-related decisions of the research participants and their others.

The research participants identified steps used in their construction processes, discussed categorization and prioritization procedures, and indicated if, how, and to what degree they or other family members used the resulting indigenous information. The stories of these individuals provide insights regarding the close connection that exists between student learning and the selection of instructional strategies in the area of health education. Specifically, by looking at the responses of these particular students, it is possible to see how personal involvement with an authentic skill-based activity influenced individual and class outcomes.

Interpretation of the data represents an expansion of the researcher's implicit theories regarding what is important to know and what methods are best used to facilitate the construction of knowledge. The narrative details how these particular students collected data for a multigeneration family health history and then made sense of the information which resulted. Some insights resulted regarding these particular students' abilities to use indigenous family health information to better understand the concepts and information presented in a personal health

course at the undergraduate level. Health promotion efforts of the participants and their others were noted.

These study findings answer questions about the quality of a given teaching and learning strategy, the construction of a multigeneration family health history, within a particular health education classroom at the postsecondary level of schooling. This research design did not seek to generalize results to all people or all classrooms, yet the results do suggest a framework that could be applied across classrooms.

In his discussion of the function of educational research, P. W. Jackson (1990) identified the related concepts of Cronbach and Suppes's prevailing view and Kuhn's shared paradigm and discussed the inherent difference of decision-oriented and conclusion-oriented research on educational practice. Conclusion-oriented research, he said, although not necessarily the same as qualitative research, does enjoy some similarity for it is ". . . performed for the enlightenment of the investigator and the small community of specialists thinking about the same problem" (p. 5).

Qualitative inquiry creates a new view on some aspect of human interaction through the study of the particular (Glesne & Peshkin, 1992). The overarching goal of this study was to create a new view of the interaction between

theory and practice in the health education classroom through a study of the particular.

The current call for redefinition and restructuring in education requires consideration at all levels and by all disciplines. The researcher believes the real application of restructuring in education begins within the individual classroom.

Cross (1987) suggested the need for a bridge between researcher and practitioner. She indicated that the researcher seeks answers to the questions the practitioner thinks are important; the practitioner then uses pertinent research findings to initiate and enhance instruction. With this model, the potential for change lies in the additive effect of small changes made over time as researcher and practitioner come together through a common view. Charting what worked at this particular point in time with a well-described group of students contributes one more piece to the mosaic of knowledge we have about curriculum and instruction and about the quality and scope of health education outcomes.

Design of the Study

If, as Cross (1987) suggested, something important happens when teachers meet students in the classroom, then it is important to create a formative view of processes that enable development and maintenance of appropriate practice.

This researcher hopes to describe or illuminate just one small aspect of the teaching and learning equation.

The review of the literature indicated a growing interest in detailed description of definitions and procedural strategies for related qualitative research processes. The review also revealed agreement regarding the importance of recognizing issues of concern to the qualitative research process.

Janesick (1994) summarized these categories of concern as: (a) questions guiding the study; (b) selection of site and participants; (c) access and entry to the site and agreements with participants; (d) timeline for the study; and (e) selection of appropriate research strategies. Discussion of each of these categories follows.

Questions Guiding the Study

Qualitative research in education springs from a curricular question. It employs emergent methodology that arises from the problematic situation and a need to know (Denzin & Lincoln, 1994; Glesne & Peshkin, 1992; Guba & Lincoln, 1989). Wolcott (1992) used the metaphor of climbing a tree to illustrate the various postures a qualitative researcher may assume. Naturalistic inquiry, ethnography, and the like were placed on branches to indicate the various styles and philosophies represented within the qualitative research paradigm.

Within Wolcott's (1992) metaphor, the researcher is rooted in everyday life using the basic skills of experiencing, inquiring, and examining. As a question or problem surfaces, the researcher begins to climb the tree making procedural choices along the way. These choices eventually determine the shape of the research process and, therefore, the findings. Wolcott cautioned novices making those choices to avoid "going out on a limb" by making unwarranted claims about skills or findings.

Within this metaphor of climbing the tree, it is also very important to recognize that with each branch of the tree, additional choices become available. These additional choices lead toward the particular. Provision of a thorough view of the issue of interest results when procedural choices reflect a close fit with the questions framing a study.

The questions addressed in this study grew from the researcher's professional experiences and the ongoing inquiry process inherent in doctoral studies. This study serves as a testament to the merit of a practitioner's degree where theory meets practice in the classroom through authentic involvement with the research process. It represents the living reality of one instructor who committed to creating the same sort of authentic environment for other students through sound implementation of daily

practice. In both instances, the resulting learning represents active engagement with questions of importance to the learner.

The results obtained through this study have implications for the researcher as a health education practitioner. These results also provide support for those interested in or concerned about the utility of authentic curriculum and instruction within the field of health education or other related disciplines.

The following questions guided this study:

1. How does the process of constructing a multigeneration family health history influence health-related knowledge?

2. How does the knowledge gained from constructing a multigeneration family health history influence learners' health-related attitudes?

3. What sorts of actions or intentions to act result from participating in a multigeneration family health history construction project?

4. How does the experience of constructing a multigeneration family health history affect perceptions and attitudes about health education?

Figure 2 shows the relationships defining the overarching research questions and suggests the beginning of the logic model for this study. Moving from left to right

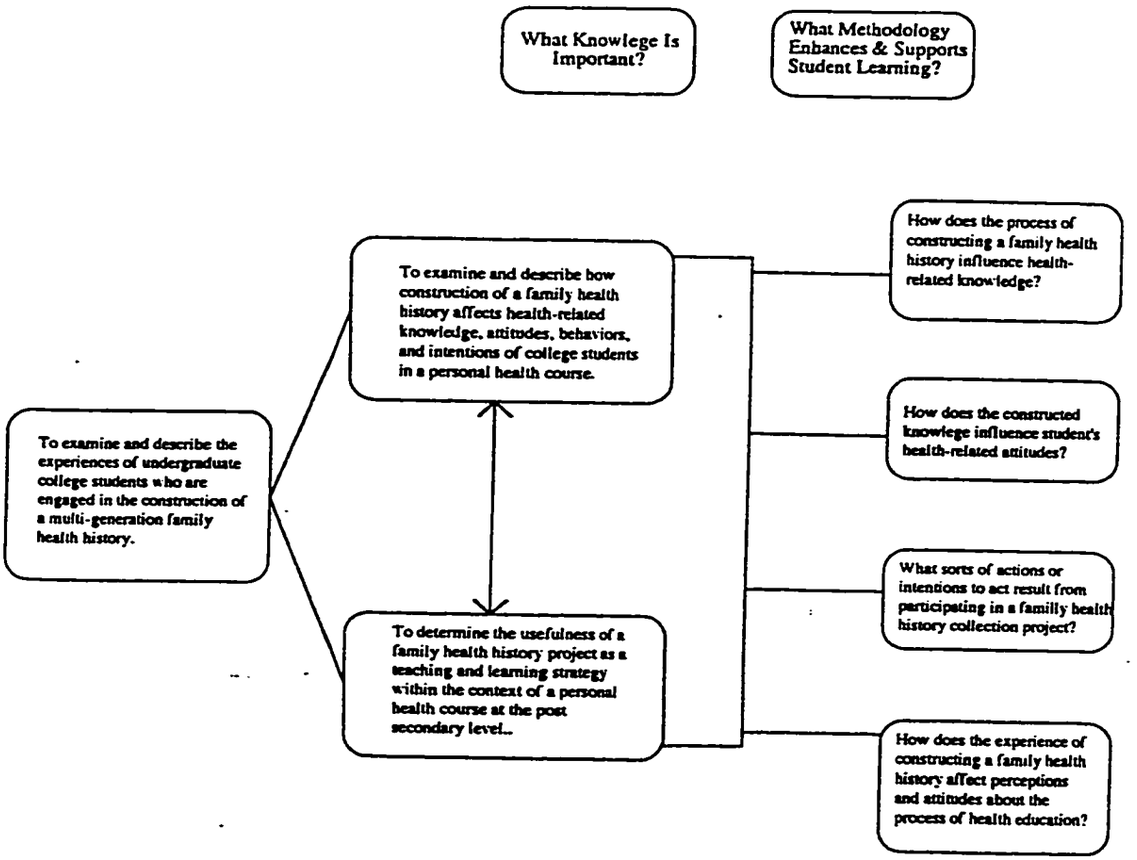


Figure 2. Research study logic model using questions to define the direction of the study.

it is possible to trace the path of inquiry that shaped this study and to identify connections between and among the questions.

Selection of Site and Participants

In this study, instructor became researcher, classroom became research site, and learner became research participant. Richardson (1994) acknowledged the existence of a strong movement toward teacher research that allows practitioners to voice their knowledge to improve practice.

Whereas quantitative research takes great care to diminish the potential of researcher bias through use of random sampling techniques, qualitative research purposive sampling procedures (Bogdan & Biklen, 1982) use that same bias to yield maximized information about the issue of interest. Carter (1993) described a community of investigator-practitioners who have begun to share stories about teaching that describe the "richness and indeterminacy of our experiences as teachers and the complexity of our understandings of what teaching is and how others can be prepared to engage in this profession" (p. 5).

Glesne and Peshkin (1992) cautioned against doing research in one's own backyard unless the researcher is undertaking a form of action research. This study represents a journey realized through the connection of the researcher's professional practice and doctoral studies.

This study describes lived experience and serves as a type of testimony to the concept of applied research as defined by Ellis and Fouts (1993).

The research questions framing this study grew from a concerted effort at reflection regarding instructional practice and learner outcomes. Extensive study brought the instructor to a theoretical construct that seemed worthy of investigating. The instructor role expanded to assimilate the additional role and related implications of researcher into the paradigm.

The research questions arose from a particular curricular situation, and literature searches indicated support for the telling of story as a mode of knowing and for the importance of story as a source of "power to direct and change our lives" (Noddings, 1991, p. 157). This series of events brought this study into the classroom from which the questions emerged.

Glesne and Peshkin (1992) stressed the importance of defining the roles the researcher assumes. They stated, ". . . the ideal of participatory research is for researcher and researched to be engaged in an interactive, action-oriented process" (p. 36). As researcher it is important to act as curious student; as learner it is important to listen in order to form an expert view. Keeping these roles in perspective enhanced this process of participant-observation.

Checking with one's others (Glesne & Peshkin, 1992) represents one means for supporting sound qualitative research design. The researcher sought approval for this study of the particular from the administration of the site university and that of the doctoral program. Focus group sessions conducted with students who had undertaken the project in prior semesters indicated student support of the study's purposes. Research participants freely agreed to share their stories. The campus nurse provided insights regarding interviews she conducted as well as her own beliefs and views about the project and its potential.

Stories exist within a social context. Although all student views are important, construction of a web of meaning between events that conveys a particular sense of experience represents a strong value of qualitative research (Carter, 1993). Stake (1994) indicated that the ethos of interpretive study requires the researcher to seek out emic meanings. The stories of the people within the case provide opportunities to better understand lived experience.

Some differing beliefs regarding the selection of research participants exist in the literature, and few qualitative researchers have clearly detailed the actualities of the participant selection process (Trost, 1986). Suggested research participant identification methods included snowball and network techniques. Glaser

and Strauss (1967) indicated that cases are selected as one goes along in the constant comparison process. Glesne and Peshkin (1992) cautioned against sampling techniques that mirror methods espoused by those seeking to generalize findings to a larger population.

Glesne and Peshkin (1992) suggested that participants be selected based on ability to illuminate, interpret, and understand the phenomenon of interest rather than because they represent an entire population. They further suggested that the number of participants should be reflective of breadth and depth of information desired. This "choice of voice" (p. 70) implied a bilateral relationship. The researcher believes that the person or the group chosen knows something valuable that can benefit others if shared.

Trost (1986) supported use of statistically nonrepresentative stratified sampling as a technique appropriate for qualitative studies. Though reminiscent of positivist methodology, this technique results in a small, but varied, sample. A pool of 22 students enrolled in a personal health course during a particular semester represented the potential participants for this study; the 4 actual participants were selected from that pool of 22 students based on ability to provide particular views.

The purpose of this study was to illuminate, through thick description, the meanings that individual students

attached to a multigeneration family health history construction project. Respondents representing different categories of concern assisted the researcher in better understanding various nuances of this health education assignment.

The process of participant selection ultimately represents an issue of fit. The researcher chooses the topic, yet the participants must always have the prerogative to participate or not and to determine just how far they can or will immerse.

In this health education course, all students completed the multigeneration family health history assignment or an appropriate alternative assignment as part of course requirements. All students could opt to become potential research study participants. In this particular group, 7 students immediately declined placement in the pool of potential participants.

A first major decision was to determine if asking why students declined was appropriate. In keeping with Wolcott's (1992) metaphor, here was one of the first branches that helped to define the study and its outcomes. After careful thought, no follow-up questioning occurred. Students had been told that declining would have no adverse effect on them as individuals or on their course grade. There existed the possibility that asking someone who

declined to explain their decision might cause harm; therefore, no one was asked to justify choices.

Following Trost's (1986) paradigm, the process of participant selection sought to identify a group who could represent varied views. A list of independent variables based on theoretical ideas, experiences, and observations was determined. The following were selected as potentially important: (a) agreement by student and family members or other key informants to participate; (b) attendance at all in-class training sessions; (c) quantity of information available; (d) age; and (e) sex.

It was recognized that more than one potential respondent could reach the final variable level on the matrix. A random draw was made from the names in each of the final categories by the campus nurse to identify four actual participants. Had a minimal group in each category not emerged, a reevaluation would have occurred to determine how to alter variables or if other criteria should or could be added. Additionally, the researcher reserved the right to include any exceptional case that might have provided another important view. Figure 3 provides a visual representation of the relationships that exist between these selected independent variables.

The first variable required placing the names of all students who signed the Agreement to Participate (see

<table>
<tr><td colspan="8">Agreement to Participate
Family Cooperation</td></tr>
<tr><td colspan="8">Attended Training
Sessions</td></tr>
<tr><td colspan="4">Data Available for
4 Generations
Maternal/Paternal</td><td colspan="4">Incomplete Data
Either or Both
Maternal/Paternal</td></tr>
<tr><td colspan="2">Traditional</td><td colspan="2">Non
Traditional</td><td colspan="2">Traditional</td><td colspan="2">Non
Traditional</td></tr>
<tr><td>M</td><td>F</td><td>M</td><td>F</td><td>M</td><td>F</td><td>M</td><td>F</td></tr>
</table>

Figure 3. Example of statistically nonrepresentative stratified sampling model that identifies variables significant to the study.

Appendix A for sample agreement) in a pool of potential research participants. It was assumed that some students and/or their family members would be unwilling or unable to participate.

Of the 22 available students, 7 declined signing the Agreement to Participate. Additionally, 2 students were adopted and, due to little knowledge of birth families, chose an alternative project and also declined to participate in the study.

From the 13 students remaining, 4 were selected. Very soon after this selection, one of those individuals quit the study, and an alternate from the corresponding category was recruited and then substituted.

The second variable required potential research participants to complete all classroom training sessions. The trainings were designed to allow the students to become familiar with the recommended interview process and with the data collection tools suggested for use in securing the multigeneration family health history data. Training session design also attempted to place each potential research participant in a similar position with regards to the knowledge base and prerequisite skills needed for the data collection phase of the students' assignments.

The third variable dichotomized those who met the conditions of variables one and two by the quantity of

information the potential participant was able to access. The number of generations for which the participant could gather information would obviously affect the overall outcomes. Initially, this factor seemed important but, as the study progressed, information not available became just as significant as available information. In most cases, the gaps fascinated these student researchers as they came to realize the potential of the family health history as a prevention and intervention tool for family and personal health.

Those able to collect information for four generations on both maternal and paternal family branches were placed in one group. Those who noted missing data were placed in a second group. Missing data became universally important as a signal of some sort of change or disruption in family conduct and served as a point of discussion on an individual and class basis as the students worked through their data collection phase. Some of the most colorful stories came from individuals who had the greatest difficulty in locating pieces of information or in connecting the available pieces For these reasons, these individuals were not eliminated. It was surmised that outliers might add another view that could be both illuminating and interesting.

The fourth variable further dichotomized the pool of potential respondents. The designation of 24 years of age

or older serves as the definition of nontraditional at the institution where the research study was conducted. As was noted earlier, the influx of large numbers of nontraditional-aged students necessitates the representation of their voices.

The final variable considered was sex. This natural dichotomy provided assurance that both male and female perspectives were represented. It was assumed that through these two views, a fuller picture of the meaning that could be made from this assignment would result.

Actual participant selection was not made until the multigeneration family health history projects had been completed, graded, and returned. Earlier selection was determined to be a potential threat in that some students may have felt pressures which could have wrongly influenced satisfaction with available results. Had any student in the class determined he or she needed to quit the project, and if he or she had already been selected to participate, another draw would have been necessitated which could also have influenced outcomes.

The selection process yielded 4 research participants. The selection strategy allowed a varied group of participants to emerge to assure that several particular voices were heard.

Access and Entry to the Site and Agreements With Participants

It was stated earlier that it is often not seen as advisable to conduct research in one's backyard. Glesne and Peshkin (1992) quoted Yoors who translated a Romany saying as, "with one behind you cannot sit on two horses" (p. 41). People in this study played varied roles; thus, the relationships of respondent-to-researcher, student-to-instructor, and researcher-and-instructor could have been problematic had care not been taken to keep roles and functions in perspective. The emergence of dangerous or emotionally-charged knowledge from students or pre-determined expectations by student or researcher were potential confounding factors to the data collection and interpretation process.

On the other hand, the use of the researcher's own classroom met four positive criteria. First, access to participants and the site were guaranteed. Second, the rapport needed to assure good communication between researcher and respondents was enhanced through the familiarity that resulted from repeated weekly classroom exposure even though direct reference to the multigeneration family health history project might not have been part of the weekly lesson plan. Third, because the project represented a time-consuming investigation, ongoing contact

occurred. Finally, this study offered a usefulness factor. This assignment was embedded in the course and did not create a novel situation.

This study offered the opportunity to systematically hear the voices of several students actually engaged in the learning activity. The findings are now available to serve as a map for immediate and future use of this or other authentic learning activities.

Timeline for the Study

This study was conducted during a particular semester that coincided with the normal university calendar. It is important to recognize that time separated the action of the students constructing the multigeneration family health history from the action of researcher and participants working together to determine the effects and outcomes of the participants' involvement with the project.

Several action strands defined the study process. Figure 4 differentiates the successive and responsive actions in which students, research participants, instructor, and researcher engaged during the semester. The four phases depict the similarities and the connections that emerged between the assignment and the research study.

Negotiation. During the negotiation phase, students and instructor were engaging in complementary activities.

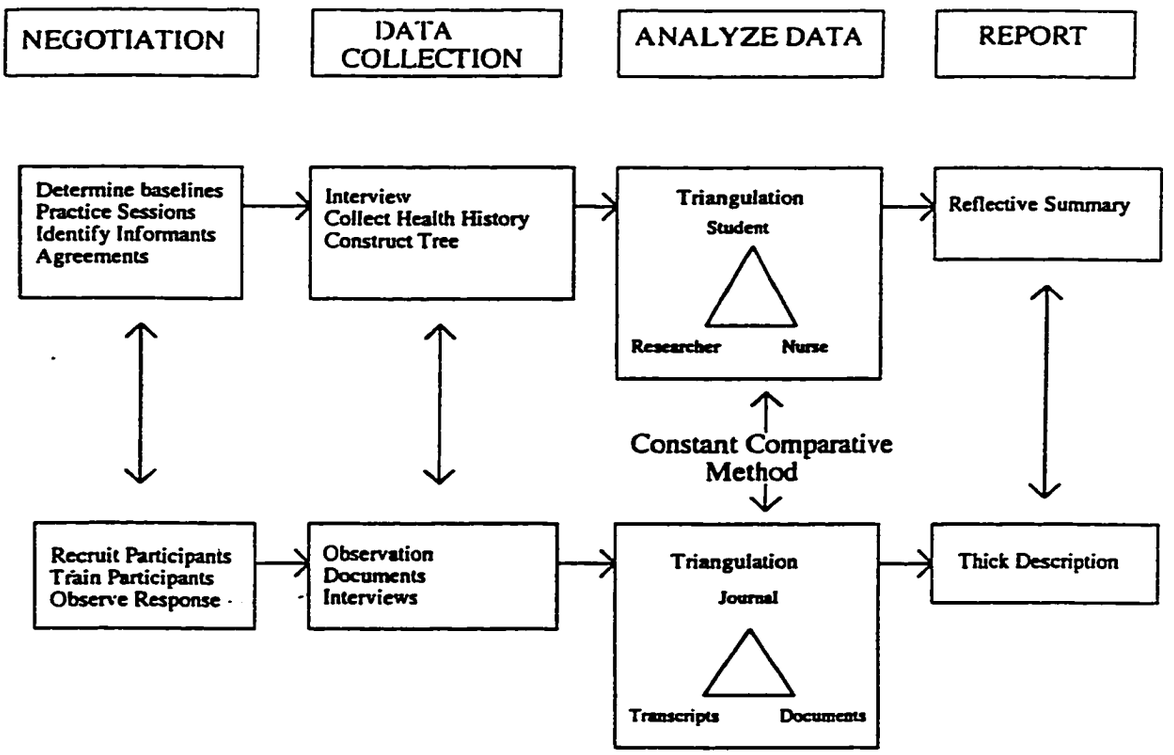


Figure 4. Action plans for students, research participants, instructor, and researcher throughout the course of the semester and research study.

All students were introduced to the assignment during the first 2 weeks of the semester. During that time, the researcher began the constant comparative process by making informal observations, noting various student actions, and reflecting on the students' overall responses to the project in what would become a series of personal memos and a reflective journal.

During this initial period, all students were asked to complete a pretest type of activity to establish baselines, were trained to use the assignment materials in the student packet, and were encouraged to identify relevant key informants. The students wishing to become potential research participants identified themselves by completing the Agreement to Participate form (Appendix A).

Data collection. During the second time strand, data collection began in earnest for the students and the researcher. Students interviewed significant others, collected family members' histories, and shaped family trees. All student materials were received, graded, and returned within the first 6 weeks of the semester.

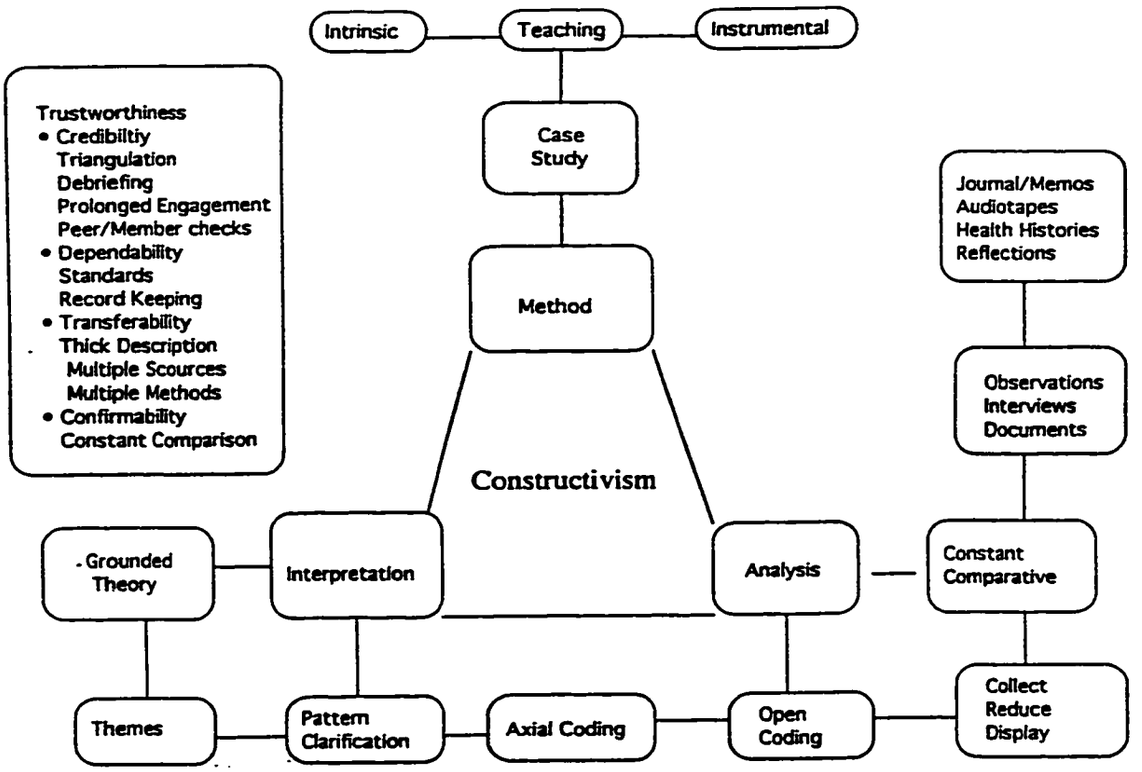
Actual respondents were selected following assignment completion, and copies of project artifacts for the 4 respondents were secured for later analysis. Interview procedures were refined and later reviewed and refined once again with the campus nurse. The nurse-conducted interviews

served as a second data collection point. Interviews with research participants were conducted separately by the researcher and campus nurse late in the semester. Also during this time period, the researcher continued to note significant issues via memos and a reflective journal.

Following a review of student artifacts, the campus nurse conducted interviews with the research participants. These meetings provided an opportunity to verify the strength of the students' conclusions regarding familial and personal medical and other health risks and to provide support for any participant needing extended information or referral assistance. The interviews conducted by the researcher sought to identify if or how much effect the assignment process had on the individual's health-related knowledge, attitudes, and behaviors and to describe the usefulness of the activity as a health education strategy.

Data analysis. The third phase entailed analyzing and interpreting the data that resulted from the interviews and student artifacts. A close look at Figure 5 verifies the plan to use multiple methods and multiple data sources at both the student and researcher levels.

Borg and Gall (1989) suggested triangulation as a means to help make sense of confused reality. Lancy (1993) noted triangulation to be an effective defense against the subjectivity that is inherent in participant-observation



Gwin, 1997

Figure 5. Gwin's research model places constructivist theory at the center and utilizes a path of constant comparative methods to reach valid and reliable grounded theory. The teaching case study model provides data to influence instructional decisions.

studies. Glesne and Peshkin (1992) identified participant-observation, interviews, and document collection to be the most common combination of multiple-data-collection methods.

A complex coding strategy resulted from collecting, reducing, and displaying information gleaned from student artifacts, interview transcripts, and researcher notes. Within the constant comparative method, a process of open coding of the data led to axial coding. Through the axial process, branches emerged and pattern clarification became possible. These patterns led to a series of themes that, through researcher interpretation and participant verification, eventually resulted in grounded theory.

This process involved the ongoing shuffling of many note cards, each carrying a piece of data. Simultaneously, a reflexive response to ongoing reflective thinking also occurred. Through the constant comparative process, the individual bits of information seemed to stream together, sometimes defined by the timing of a question but also through a matching of words that formed contextual detail.

Results report. The final phase of the study involved creating meaning from the data which had been collected. Schwandt (1994) stated, ". . . the activity of understanding (Verstehen) unfolds as one looks over one's respondents' shoulders at what they are doing" (p. 123). The meaning of human action attained by searching for and analyzing the

words the participants used to represent themselves offered a window for understanding.

In keeping with the qualitative paradigm, thick description was sought at both the student and researcher levels. This particular semester, the assignment exit papers were reflective summaries of the multigeneration family health history construction process. These papers included a mix of anecdotes, medical notes, and family stories. Family customs and culture influenced the individualized selection of information to be included. The dissertation is also a thick description written with the intent of providing detailed descriptions of what the researcher did and of the interpretations the researcher reached through the process.

Selection of Appropriate Research Strategies

This descriptive study ended in grounded theory. Strauss and Corbin (1994) suggested constant comparative analysis as an appropriate methodological choice when seeking practical application of findings. In this study, elaboration of the data led to interpretations intended to represent the perspectives and the voices of the others (Glesne & Peshkin, 1992). This narrative description exceeds the limits of a mere report. A kind of conceptual density resulted as what was observed, heard, and read

throughout the course of the study consolidated into the resulting new view which has been presented in story form.

This research project revolved around a constant comparative analysis process. The path of this study took numerous turns which necessitated ongoing reading, interpretation, and reality-checking with the various involved others. A case study format that utilized in-depth, semistructured interviews for data collection served as the framework for the study. Multiple data sources, in the form of student artifacts, interview transcriptions, and researcher notes, merged as a result of ongoing observation of participants, examination and comparison of artifacts, reading of documents, and telling of stories. Ongoing manipulation and sifting of these varied yet related data occurred throughout the study.

Figure 5 connects the case study format directly to this research project. The review of the literature revealed types of case studies offering a fit with the questions framing this study. Kennedy (1979) indicated that a teaching case study is used to illustrate a point or condition important for instruction. The intrinsic and instrumental data that result apply directly to educational practice.

Stake (1994) indicated that it is important to establish a framework where a case study is "defined by

interest in individual cases, not by the methods of inquiry used" (p. 236). Stake's definition fits this project on two levels described below.

First, the case itself can be defined as the investigation that occurred around the particular teaching strategy of constructing the multigeneration family health history and its ability to reach curriculum and instruction goals and objectives. This case represents the bounded system that Smith (1978) references. The results represent local, grounded theory about teaching and learning in health education.

Second, because the study focused on the experiences of particular, selected individual participants, their individual cases also represent a means to describe and illuminate what occurred, albeit, in a different way. At this level, the personalized meaning derived from engagement defies quantifiable measurement. Personalized application of project findings into everyday choices that are health-related may be immediate or long-term life-enhancing. The participants' stories let others see the effect of the process of participating in this health education activity.

The use of particular voices to describe the efficacy of the particular learning strategy suggests this case has both intrinsic and instrumental implications. The individuals did not necessarily represent other cases, but

the story and actions of each individual helped the researcher to understand this particular strategy in a more comprehensive and more diversified way. Attention to the constructivist approach to instruction, and to the use of the authentic learning task of conducting a multigeneration family health history, offered a means to link a theoretical stance directly to instructional practice.

Stake (1994) proposed that in many cases there is no definite line of demarcation separating the intrinsic from the instrumental. In this study there seemed to be a zone of combined purpose that helped unify the constructs.

Case researchers look for what is common and what is particular about a case in an effort to present some sort of unique outcome. This case represents a complex entity; therefore, the interpretation should reflect these complexities in a holistic way. The research questions particular to this study focused on the issues of health-related knowledge, attitudes, and actions or intentions among the research participants and their others, as well as the pedagogical implications of the use of the multigeneration family health history construction project as a specific teaching and learning strategy. The research questions provided a means to organize the stories of the participants into an emic view of their experiences.

The researcher had the responsibility of determining the story of the case. Van Maanen (1988) provided criteria for selecting content and for telling the tale. In this study the researcher attempted to provide a view that highlights connections, contexts, and personal meanings. Herein lies the potential for connecting theory and practice.

Setting and Actors

Situated Context

This study grew out of the researcher's own practice in the area of health education and the study of curriculum and instruction issues as a doctoral student. A need to answer the most basic of educational questions--"What knowledge is important to know?" and "What strategies enhance student learning?"--serves as the cornerstone of the study. It is grounded in the recognition that each person comes to the classroom with knowledge based on past experiences and current needs and interests. The underlying goals of health education imply selection of methods and materials that move learners toward meeting those needs and toward encouraging those interests through healthy lifestyling.

Recognizing the varied ways the word construct is used in this study is important. A construct results when concepts are combined into a pattern outlining or identifying some specific view. Students performed the

action of constructing a family medical tree using the multigeneration family health history data they collected as part of the course assignment. Through a reflective paper, these same students then conveyed their findings by constructing a web of meaning from the results of their personal research process. The researcher used the students' research process as an authentic learning strategy which, in turn, provided a means to examine if and how course and student objectives were accomplished. A focus of the study sought to determine the viability of strategies that favor a constructivist approach in the classroom.

Over the past 6 years the personal health course has been used as a place to experiment with methods and approaches that attempt (a) to keep abreast of the discipline's rapidly changing knowledge base, (b) to acknowledge sensitive and perhaps controversial content, and (c) to provide essential skills needed for enacting a healthy lifestyle. These three factors point to a need for a flexible curriculum and instruction approach sensitive to change and supportive of the need for stability in procedures and values.

Originally taught in a traditionally didactic manner, content and practice related to this course have evolved to reflect specifically articulated needs and interests of the students who have enrolled over the past 6 years. Students

have input regarding the topics to study, ground rules to follow, and projects to pursue. They contract for a grade and, therefore, determine how involved they wish to be with course content and their own learning through the selections they voluntarily make from required and choice activities. (See Appendix B for course syllabus.)

This particular classroom had become a place where the researcher could experiment with ideas generated through doctoral study. Graduate study about the constructivist mode of thinking and related action surprisingly offered support for the ongoing evolution of the researcher's teaching style and for the selection of learning activities that seemed to encourage development of health-related knowledge, attitudes, and behaviors. The autonomy of the college classroom offered the freedom to experiment with the constructivist perspective, while seeking a balance between personal teaching style, students' needs and interests, and the process and products inherent in health education.

Over time, projects replaced exams in this course, and with the projects came a need to devote class time to formulating the skills needed to implement project ideas. As the teacher-centered format gradually diminished, less formally prepared content was delivered. As methods shifted from covering the textbook to jointly constructing a process-oriented course attuned to the needs and interests

of those enrolled, the students became less like vessels to be filled and more like learning partners.

Weekly mini-lectures, hands-on activities, and extended discussion provided a general framework for a student-centered, in-depth approach to selected topics. Students seemed to look forward to the class because it was different and because it had an element of surprise each week. At the same time, the researcher was experiencing an underlying practical concern about quality, quantity, and actual learning.

This philosophical and methodological change process caused a kind of perturbation that challenged the researcher's traditionally-shaped teaching and learning paradigm. In simpler terms, the researcher found a fit between personal style preferences and the theoretical stance of constructivism. Simultaneously, extended exposure to research and writing in the area of constructivism and authentic teaching and learning showed a distinct absence of verifying information that specifically linked these concepts and strategies with health education. In essence, a fit without a strong foundation had emerged.

Assignment Characteristics

Within this context, the multigeneration family health history construction project was initiated during the fall of 1994 when the textbook by Mullen et al. (1993),

Connections for Health, was adopted. Over successive semesters, completion of the project or an approved alternative was required of those students wishing to receive at least a grade of "B" for the course. Student evaluations ranked this assignment as a valuable learning tool that should continue to be included in the course.

The following list outlines the assignment choices available to all students who enrolled in the course during the semester the research study was conducted and the immediately preceding semester when the pilot study was conducted:

1. Does assignment.
   Agrees to become a potential research participant.
   Is selected as research participant.
   Is not selected as research participant.

2. Does assignment.
   Agrees to serve as potential participant in study.
   Quits assignment during semester.
   Removed from pool of potential research participants.
   Completes reflective summary based on available information OR selects an alternative.

3. Does assignment.
   Declines to be considered as a potential participant in study.

4. Cannot or will not do assignment.
   Selects alternative assignment with no penalty to grade.
   - Study of adoptive parent's history.
   - Ethnic or cultural study identifying risks associated with medical or environmental factors.
   - Research paper on health topic of personal interest.
   - Completion of health promotion project.
   - Other as negotiated by student with instructor.

Originally, the project was assigned using the introductory explanation in the textbook. The very extensive health profile suggested by the authors was never utilized due to its cumbersome nature. Instead, students were asked to collect a brief four generation family health history, to graph it visually, and to provide a written summary that was reflective of the findings and the process involved in collecting the information.

Few absolute instructions were given for three reasons. First, this was an initial, formative effort to move students toward personalizing their learning through the critical thinking processes required to collect, analyze, and synthesize the required health-related data. The instructor was not sure, at that point, how or if that could be done or if this assignment had the power to elicit such responses. Second, the format suggested in the textbook asked for an amount of data that seemed excessive. To avoid defeating those individuals whose families had poor or nonexistent records or memories of people and past situations, a less threatening format seemed indicated. Finally, articles in popular magazines related to collecting family health information offered a number of much simpler, more streamlined, direct instruments and procedures as compared to the textbook. Over several semesters, a

commonly expressed grouping of medical and environmental concerns emerged.

It was hoped that the students would actively construct their family health histories and then feel a stronger connection to the content information and prevention strategies covered in class. The instructor encouraged students to directly apply knowledge gained through the multigeneration family health history construction process in two ways.

First, nominal process activities allowed students an opportunity to vote for topics to be placed on the course schedule. Inclusion of topics directly related to student findings regarding heart disease, cancer, diabetes, diet, or exercise allowed coverage of personally relevant material.

Second, students were encouraged to relate findings directly to selection of projects to be used to attain a grade of "A" in the course. Completing a research paper on heart disease prevention, engaging in a dietary study, or initiating an exercise program are examples of ways the knowledge gained could be personalized further.

Most responses came in the classic forms of a hand-crafted tree, a block chart, or a pedigree chart with a 4-5 page reflective summary accompanying the visual depiction. The summary offered students an opportunity to explain their graphic results, to tell selected anecdotes about their

research process, or to relate stories about their family members. At that time, little effort was made to systematize the collection process or to make a concerted effort to link weekly lessons to the project.

Interestingly, during the evolution of this course information about the importance of the human action involved in constructing a family health history became very visible in popular magazines, such as LIFE, The Saturday Evening Post, Woman's Day, and American Health, and in the newsletters of health-based organizations such as the Mayo Clinic and the Dairy Council. The "doing" of the family health history pointed to a connection between learning information and applying it to daily living. Marinelli (1995) discussed the use of a genogram as a health education teaching strategy but offered no systematic report about efficacy or the outcomes implied by its use.

Supported by the above-mentioned positive student evaluations and increasing public interest, the assignment continued with a facelift each successive semester. It was popular with the students, yet the overall goal of helping students construct personalized health knowledge was not systematically encouraged or tracked. The instructional method did not seem strong enough to provide the guidance the students needed to experience the assignment in an optimal way.

In addition, variation in the quality of student work was noticeable and somewhat troublesome. The creation of identical student products was not an instructional goal, yet it seemed that some students approached the assignment in a holistic way that often yielded a more complete view regardless of the amount of information collected. It was surmised that one cause for the inconsistency might be partly due to lack of skills in collecting this type of information or in knowing how to approach any type of personal research project.

We hear much today about lifelong learning and the concept of learning to learn as a curricular goal or outcome. Having knowledge and skills inherent in the process of answering an educational question or task and of utilizing those skills over time seems essential if living application of those constructs is to be realized. Ausubel (1968) suggested that the most important learning factor is what the learner already knows. In the case of this assignment, what the learner already knew about his or her family's health history, added with the communication and research skills the learner possessed, did seem to have some effect on the type and quantity of results obtained and how those results were interpreted.

Numerous questions emanated from these initial experiences. Is there a set of skills that can be taught

that will cross over when various educational questions are to be probed? Does the use of an authentic learning task encourage the development of skills that can be applied through the lifespan, specifically to enhance health and wellness? Could the skill of constructing a multigeneration family health history have enough importance in the big picture of facilitating the development of health-related knowledge, attitudes, intentions, or behaviors that it might be considered an essential skill or knowledge?

From these questions, the idea began to form that the cadre of skills and knowledge needed to collect and interpret a multigeneration family health history might point to a group of skills essential to health education outcomes. That idea, in turn, supported the need to look for the connections between the formation of personalized knowledge of health and curricular outcomes.

Student Characteristics

Will (1997) described typical enrollment patterns for postsecondary institutions today. He indicated that enrollment is rising rapidly and estimated that only 25% of those individuals currently taking classes fit the traditional model of full-time student, under 22 years of age, and living in campus housing. These new demographics also described a student population that is "increasingly female, public, adult, local, and in debt" (p. 4A). This

student often takes 5 or 6 years to complete a baccalaureate program. Typically, 25% of the entire student population declare majors in business with another 25% focusing on liberal arts studies. The remaining 50% select human service and vocational tracks such as health care or education. Many students currently enrolling need remedial math and writing courses. This study was conducted on the campus of a small midwestern university with demographics quite similar to those described by Will.

The study occurred within the context of a health education foundations course offered through the department which houses health education, physical education, and several related sport science majors. Consistently scheduled in the evening, this 2-semester-hour course met one time per week in a 2-hour block for the entire term. This course does not satisfy a general education requirement and is listed as a 200 level course. It should be preceded by enrollment in a 100 level general wellness course.

A portrait of the student who enrolls in this health education foundations course can be described fairly consistently across semesters. Students who have declared as majors elementary education, special education or early childhood special education, physical education, athletic training, and sports management are required to enroll for the course thus creating a diverse yet connected population.

The majority of students enrolled did so as a requirement for his or her major course of study.

More students who enroll classify as junior or senior than as underclassmen though age may range from 18 years to senior citizen. Nontraditional-aged students in the classroom have numbered as many as half of the total enrollment on occasion. Usual enrollment is 18 to 22 students.

Females outnumber males in this course by three or four to one. At any given time, approximately 60% of the students who enroll will be commuters, and at least three or four of the students will be parenting one or more babies or school-aged children. It is not unusual in a given semester that all those who are parenting are single mothers who have been awarded financial assistance through tuition grants, displaced homemaker programs, or government-sponsored loans and who also work outside the home part-time or full-time.

Classroom Characteristics

Authentic learning environment. In an effort to incorporate a student-centered approach, a number of instructional strategies are routinely utilized within the health education course. Initially, students participate in a nominal process activity to identify topical areas of most concern or interest. Textbooks generally offer much more content than can be comfortably covered in a 2-credit-hour

experience; thus, it seems appropriate to use a collective and interactive decision-making model to assess and evaluate needs and then to work cooperatively to build a course curriculum that addresses those particularized concerns.

Potential parameters for topical areas are examined to further specify subtopics deemed most important. It is apparent that the students walk through the classroom door each week with an enormous amount of knowledge and personal experience as regards health-related issues. This collective knowledge when shared can be exponential.

Sometimes it even seems that students enter this course assuming they already know enough about the prevention, intervention, and treatment strategies for substance abuse, mental health, nutrition, or the like. Further clarification allows the class to recognize the relevance of potential course content and to shape future discussion around the particular personal and societal concerns.

On occasion it seems necessary to determine how to facilitate ongoing interest in learning more and for changing existing paradigms. The "if it's not broken, don't fix it" philosophy seems to be alive and well among students who enroll for this course. It is the researcher's view that facilitating a connection between life experience and the classroom is the thread that can reinforce the pattern of commitment to lifelong learning. The current explosion

of health-related knowledge and technology supports the need for such a commitment. Undoubtedly, opportunities to assimilate and accommodate new health-related knowledge and skills will occur repeatedly over time.

Instructional methods. The initial phase of course work centered on creating a constructivist-based learning environment as course success depends upon student responsibility and choice. Clarification of subtopics helped determine best methodology for this semester. Usual practice included use of mini-lectures, experiential activities in large and small groups, reflective writing, and realistic action-based projects that emphasize information-processing and skill-building.

Written exams were not utilized. A modified contract approach allowed students to select and complete a series of pre-determined, but flexible, tasks to satisfy requirements for a desired grade. Engaging in the processes involved in completing the tasks were strongly emphasized.

The personal experience of the researcher suggests that, for many individuals, receiving and memorizing information about good health habits is not enough to elicit consistent lifestyle responses. If information were enough, everyone would exercise every day, get a yearly physical, and practice self-exam, and no one would drive fast, smoke

cigarettes, have sexual encounters with strangers, or eat caloric-dense, high-fat foods.

If knowledge is not enough to assure assumption of a healthy lifestyle, then, somewhere along the line it is important to look at attitudes and attitude formation and at behavior or intention-to-act patterns. That view helps to determine the connections linking health-related knowledge, attitudes, and practices and should guide instructional decision-making. Health educators seek strategies that help learners make these linkages and then apply the knowledge consistently. Identifying strategies or methods that facilitate the attainment of this balance represents a potentially important bit of curricular knowledge.

Contract activities and the standards designating the caliber of work expected are provided in the course syllabus (Appendix B) and are detailed verbally during the first class meeting. Projects suggested for meeting course requirements provide a framework for examining how knowledge links with and influences attitudes, behaviors, and intentions. Appendix B contains a course description and assignment expectations.

Pre-assignment mapping. Novak (1990) provided a detailed description of the use of concept mapping as a tool to facilitate meaningful learning. Following a brief review of the syllabus, students' baseline knowledge of their own

family medical history emerged through a hands-on, visual, pretest type of activity.

Small, self-adhering, Post-it notes were distributed and students were asked to create a map to represent themselves and the immediate past three generations. Prior to beginning this activity, an overhead transparency example depicted one style to stimulate thinking about how to best represent all the relationships existing between four generations of family members. Students were told the pre-assignment maps were to be collected and that they would be returned and used at a later time.

Students attempted to write in the names of the persons who corresponded to each relative position on the map. Generally speaking, most were unable to go beyond the level represented by their grandparents. For each named relative, the students then noted any medical or environmental conditions of which they were aware. As might be expected, most were somewhat surprised at the gaps which resulted. After introduction of the idea of indigenous family information, small groups brainstormed, reported, and compared possible benefits of collecting a medical history.

A plethora of student concerns surfaced at this point. "What if I can't find all the information?" "What if I don't speak to that side of the family or to a particular

individual? Do I have to?" "I'm adopted, and I only know a little about my background."

After some processing, it was seen that most of these concerns were grounded more in the issue of doing the project well enough to earn the grade than in the reality that gaps might represent important information that might truly be lost. That recognition did not surface among the students until much later. After assurances that quantity was the lesser issue, the ideas of process and skill-building were introduced.

Discussion of the procedure provided an opportunity to identify skills needed to complete the project. Acknowledgment was made that even the best of skills could not elicit unavailable information and that the reasons for lack of availability would be varied. Involvement in the procedure and obtaining the "possible and available" was emphasized over worrying about full completion of the interview schedule. Students were urged to use common sense when crossing emotional boundaries, to reveal only what was comfortable, and to quit if the potential for physical or emotional damage, in themselves or their others, presented itself. Potential outcomes of this process were verbalized at this point.

Preparing the classroom as research site. Students received an explanation of the intentions of the instructor

to examine the effects of the use of the multigeneration family health history as a research focus during the semester. A short history of the development of the research study was provided. Students learned that the proposed research had been deemed appropriate by the Human Subjects Review Committees from both universities. Agreements to Participate and Confidentiality Statements were provided and explained verbally. A Family Fact Sheet providing assurances of confidentiality and rationale for the research was distributed and explained. (See Appendix A for samples of these documents.)

Expectations and ground rules for potential research participants. Expectations for research participants were offered, and ensuing questions were addressed. Voluntary participation in the study with no penalty for nonparticipation was assured. Additionally, no penalty would result if a student who initially agreed to be placed in the pool of potential participants later decided to withdraw. Students could self-select the amount and type of information to be revealed for completion of the assignment and for later participation in the study.

If at any time a student felt undue distress as a result of the project, he or she could inform the researcher by journal, by face-to face communication, or by telephone contact. At that time, the student would be advised either

to cease working on the project, to select an alternate project, or to continue, following clarification or action planning with the instructor. It should also be noted that, in this discussion, the student could simply say he or she could not or would not do this project. An explanation was not needed to justify selection of an alternate assignment or to conclude the project.

Students read each preliminary document and considered becoming potential research participants. It was again clarified that, whereas all students were expected to participate in the multigeneration family health history project or an approved alternative, no student would be required to be a part of the research study.

All students were asked to return the Agreement to Participate, regardless of intentions for participation in the study, at the second class meeting. Those wishing not to be considered as potential participants wrote the word no at the bottom of the sheet and added a signature. Those wishing to be placed in the pool of potential respondents completed the form as prepared.

Data collection materials and skills training process. At the second class meeting, the multigeneration family health history construction process was explained in detail. At the beginning of class, students received a packet containing a key informant identification tool, enough data

collection sheets to cover four generations of relatives, and a procedural script. (See Appendix C to review the student packet.) After the students had reviewed the contents of the packet, a procedure for collecting information was modeled by the researcher. The entire group participated in the interview process using the supplied interview schedule. Each student took on the role of interviewee and completed the personal health history data sheet as led by the researcher.

Using the data collection sheet, the students noted general demographic data. A list of 16 medical or environmental factors were named and were briefly explained by the researcher. If any aspect of a particular factor applied, the student placed a check next to the condition and listed that number in the "Comments" section of the data collection sheet with a short explanatory notation. Examples in the procedural script provided a model for this notation. Use of the last 2 categories allowed students to identify others affected by a condition and provided an open category for conditions not covered by the list.

This practice session was meant to model appropriate interview technique and to answer student questions regarding the categories and type of information to be noted on the interview schedule. By taking the students through the entire list of medical and environmental conditions, an

estimate of time per interview was formed and potential problems were discovered and discussed prior to the students going out to do their own fieldwork.

Students worked for a short period with a partner to practice the suggested interview procedure. Some students loudly proclaimed practice was not necessary. Despite this, the mock interview continued, to further encourage natural delivery and to identify feelings the students had about asking questions with the potential to lead to highly personal and possibly surprising answers.

A final tool, a grid designed to provide a visual impression of incidence and prevalence, was explained (Appendix C). On the grid, a separate box with the 18 categories was drawn for each family member. As conditions were matched with a category, the corresponding numbered box would be colored or checked. This matrix was to be used to delineate the prevalent patterns among and between the branches of the family

Students next thought about which person(s) in the family were most likely to have the information desired. Those names were listed on the form, and students were urged to continue refining the list to assure that the best and most accurate information surfaced.

Student presentation of assignment results. As per the description in the course syllabus, the results of the

students' collection efforts took two forms. A graphic depiction of the information was expected. Students read Parts I, II, and III of Krause's (1995) How Healthy Is Your Family Tree?, the text for this course. This reading supported the concept of collecting a medical history and provided ideas for creating a graphic illustration. Emphasis was placed on personalizing the view in a way that fit with the student's style and data. No two "trees" have ever looked exactly the same over the many semesters this assignment has been enacted.

The second student artifact produced was a 4-5 page reflective paper. In keeping with Wellington's (1991) model for reflection, students were urged to answer the following questions: (a) What has been found? (b) How did it come to be that way? (c) What do the findings mean? and (d) What shall I do now? After brainstorming, the students recognized that the information could be summarized through a chronological medical history, through a case history format, through anecdotes and stories, or through a combination of these and other styles. Talking about the process the student went through collecting the information, personalizing the results that were found, and prescribing for healthy lifestyling represented themes that could be used to frame the reflective paper.

Good writing techniques and organizational issues were also discussed to provide a framework for the caliber of writing expected. At the conclusion of these exercises, the students and the researcher reached an agreement regarding the due date for the completed project. From that point, the students began their own research process.

Data Sources and Data Collection Procedures

A variety of student materials served as documents for the study. Specifically, the family health history collection forms, the completed family tree, the reflective summary paper, and the tracking grid provided varied views of the data collected by each student.

Documents. To reduce the likelihood of misinterpretation of findings, the researcher employed a variety of data sources and collection procedures. Data sources included documents, interviews, and observations. Mode of collection varied to include examining, asking, and watching. Sources stemmed from student work, nurse-participant interviews, researcher-participant interviews, and researcher notes.

A pilot study conducted the preceding semester offered some insights regarding research procedures. During the pilot semester, students acted as real study participants. They signed agreements to participate and followed the format the researcher planned to use for the study.

Difficult issues surfaced, and the student packet was refined as consensus regarding the utility of the forms was established.

The pilot process encouraged the students to systematically collect information while the researcher observed progress and process. The entire class evaluated their experiences at the end of the semester and offered additional insights for incorporation. This ongoing refinement related directly to the constructivist nature of this project. The group of individuals enrolled at that time in the course seemed very supportive of the process and several indicated interest in following what was to occur through the formalized study in the succeeding semester.

The researcher then developed the forms used to complete the student assignment. The health history forms represent a major modification from the textbook assignment from which the collection project stemmed. The form presented in the textbook seemed too detailed and too personally focused for this project.

The data collection sheets include a list of common groups of conditions. The list of conditions expanded as a result of the pilot group suggesting the addition of 4 categories: (a) Abuse/Addiction; (b) Other Disease Occurrences; (c) Occupation/Lifestyle Factors; and (d) Others Affected By Above.

The abuse/addiction category represents an expanded response to the category listed as Drug Abuse/Addiction to allow for other cyclic conditions, such as child abuse or gambling, to be recorded. The category Other Disease Occurrences allowed the student interviewer the opportunity to add numerous other conditions not on the list that actually existed or might threaten his or her individual or family group.

The Occupation/Lifestyle Factors category acknowledged the nurture factor; environment affects health and well-being. Work or geographically-related influences could be listed. Having a place to note that others in the family group were affected by a particular condition seemed important, also. The Others Affected By Above category allowed patterns or issues that might warrant additional attention to surface.

The name of the write-in category, Physical Characteristics, was changed to Physical Description in order to decrease confusion. In years past, a particular condition may not have had a name, or perhaps an individual had never received a diagnosis for a condition, but its manifestations were known or perhaps used to describe that person. Examples of this situation might include a reminiscence of a particular relative who had "thick ankles," which might be indicative of undiagnosed

hypertension, or someone who was rail-thin and later died of an unexpected heart condition and yet did not fit the stereotypical prototype of smoker, overweight, and sedentary.

Krause's (1995) How Healthy Is Your Family Tree?, supplementary text for the course, strongly influenced the development of packet materials. This book provided a clear rationale that explained the why of this learning activity. It mirrored the researcher's belief in the importance and value of this project. The behavioral section in the latter portion of the book went beyond the emotional scope of this course and this assignment. This section was not required reading but was recommended as an additional potential resource for the students.

The health history form emphasized the collection of multigeneration family health information. Places for written comments, as well as places to identify various health-related conditions, provided an efficient means to note important clarifying information. The tracking form itself resembles a modified family tree with each of the 18 categories listed. The form allowed the student to tally various conditions and to create a visual impression of incidence and prevalence of various medical conditions and environmental factors. The procedural script and the

tracking form also represent the researcher's view of what knowledge might be important.

The researcher felt ethically-bound to repeatedly remind students that what they chose to include or exclude in their artifacts represented a very personal decision. Bits of information might be so emotionally charged that sharing could be painful. Sharing insights was emphasized over reporting all the information collected.

The learners recognized that missing data were to be considered as important as that data which were clearly revealed. Discussion regarding the possibility of reluctance on the part of a relative to discuss sensitive information revealed concerns about social stigma and family secrets. The learners also considered the potential effects of missing data on the shape or substance of the resulting story.

The pilot experience verified that each student should be encouraged to include only what he or she felt to be appropriate to share. The grade for the assignment was not dependent upon completing the forms. The process of collecting the data, interpreting it, and presenting it in a coherent way represented the most important aspects of the assignment. Reinforcement was continually given for seeking information and referral services on an as needed basis through the campus nurse or other community resources.

Following the collection of the multigeneration family health data, students constructed a family medical tree using a format of their choosing. Krause (1995) provided useful information regarding types of family trees and how to place family information when using each of three prevalent notation styles.

The visual depictions of the information the students discovered became very personalized artifacts. Use of a coding system was recommended but not required, because the purpose of the assignment was not to produce a perfectly shaped tree but to lay groundwork for understanding current health risk status and to plan for future healthy living.

Students prepared an accompanying reflective summary that outlined their findings including types of medical or other health concerns and benefits. The indigenous nature of the family-based information obtained through the assignment influenced learner attitudes, intentions, and behaviors in varying degrees. The information contained in the final presentation had been sifted through a constant comparison process, on the part of the student, to identify categories, themes, trends, and an estimate of risk.

The researcher also kept personal notes in the form of a field log and memos during the project's duration. These notes provided a means to reflect upon, strengthen, and support the overall process, and to provide for ongoing

emergence of ideas. The reflective nature of these notations offered an avenue for developing varied insights regarding what turned out to be an ongoing and developmental research process.

Ideas captured through memo writing included reports of incidents that occurred while in direct contact with students or reports of thoughts that occurred in an unrelated setting. It was important to catch the idea in writing so as not to lose the thought as time passed.

A field log became the repository for varied notations. It served as a place for ideas and hunches about the patterns which emerged and to note chronological happenings.

Glesne and Peshkin (1992) suggested that field notes help the researcher to determine and explore personal biases. Because the notes were both descriptive and analytic, it was important to avoid judgment. Reflecting on the notes represented a way for the researcher to make sense of a voluminous mix of information. Early notes helped to determine the appropriateness of the questions and to stay focused on the problem; notes made later in the process were more analytic and connected to original hunches.

Observations. Borg and Gall (1989) suggested that the act of participant observation is well suited to the study of educational questions because it tends to yield a type and quality of information that can be gleaned in no other

way. In this study, the observer (researcher) functioned primarily as a participant; a concerted effort was made to be unobtrusive, yet involved, throughout the study period.

A number of opportunities for observation occurred naturally within the context of the study. Borg and Gall (1989) indicated that descriptions resulting from observation should be aimed toward defining the who, what, when, where, why, and how about the situation. Glesne and Peshkin (1992) suggested that at the outset of the study the researcher try to observe everything without regard for the specific.

Research notes included descriptions of the setting, the participants, and the participants in the setting. Events translated into acts. Gestures offered clues to ponder. Glaser and Strauss (1967) suggested that the initial focus be on behavior, not the individuals, in order to strengthen the abstracting process which eventually takes place across individuals and events.

It should be noted that Goetz and LeCompte (1984) warned researchers that interactions are too complex to record everything and that the participant-observer should limit the recording to information relevant to the topic. As was the case with the student reports, excluded information may have held as much importance as the information included.

Because all students received training to use the family health history collection forms and practiced taking a medical history in class, the researcher could note successes, discomfort, fear, and confusion among the students in the classroom. Processing of general and specific questions regarding the collection method occurred individually or collectively depending on the nature of the question and the requester's position. Selection of the actual research participants took place after the assignment was completed and graded; therefore, these original observations were based on the responses of the entire class, not those of the research participants alone.

Observation of student affect was noted during classroom sessions. For the most part the students found the process simple and straight forward and greeted it with enthusiasm. Questions directed toward the researcher tended to be procedural in nature, particularly in the area of meeting assignment requirements for amount of work produced. The single discomfort noted related to the contrived training situation rather than the interview schedule or the act of interviewing. The only other problem noted had to do with the panic that occurs when students have procrastinated on assignments and find themselves close to a due date without completed work.

The multigeneration family health history construction project had the propensity to evoke strong emotional responses for the student and his or her key informants. During this study, no student indicated through words or actions that the project was too uncomfortable to continue. It is important to note that anxiety levels diminished when students realized that the selection of the material to be included indeed represented a personal decision.

Although no difficult situations surfaced during the semester, concern for the well-being of the individuals and group became an overriding factor throughout the study period. The emotional state of the students and of their others was considered to be of paramount importance. In the face of any difficulties or problems, the researcher was to be contacted immediately to provide intervention as needed. Additionally, the campus nurse communicated her availability to assist any student requesting help or referral at any time. The potential for communicating such a need was enhanced by her familiarity with many of the students on the campus, her professional style, and her knowledge of public and community health resources in the geographic area.

Student interviews. Audio tapes helped to diminish or eliminate the "noise" of the large group by focusing individually upon four selected students. The use of cassette tapes made the process of listening to and

interpreting the participants' stories possible. Transcription of the tapes put the content of the tapes into print. Data were further coded and placed onto cards. Through an extensive sifting and sorting process, these data began to shape around themes that were further subdivided as needed.

The interview schedules used by the researcher and the campus nurse were similar but were intended to elicit slightly different information. (See Appendix D for interview schedule samples.) The nurse worked toward clarifying medical information, verifying the assumptions the students made about their findings, and making referrals as necessary. The researcher's greatest concerns were determining how the students manipulated the information, interpreting meanings the students derived, and understanding the students' feelings about participating in the project.

Data Analysis Procedures

"Negotiation of entry" (Connelly & Clandinin, 1990, p. 3) into the field situation is of utmost importance. In any course of study at the postsecondary level, the first meetings between students and instructor usually employ an element of negotiation as students strive to understand course details and instructor expectations. During this negotiation phase, the instructor is also flexing and

expanding the view of the syllabus to accommodate and meet instructional goals.

In this study, the factor of having the instructor acting as a researcher created an additional negotiation point. The researcher worked initially as instructor to establish a genuine atmosphere of care and concern conducive to conversation and personal investment. This posture expanded as the nature of the research project was explained and initiated.

Huberman and Miles (1994) suggested that data analysis consists of three linked subprocesses, all of which were incorporated into this study. They further suggested that these operations are "aimed at ensuring (a) high quality, accessible data; (b) documentation of just what analyses have been carried out; and (c) retention of data and associated analysis after the study is complete" (p. 428). The processes of data reduction, data display, and conclusion drawing/verification occurred on an ongoing basis throughout this study.

To avoid a nightmare of unmanaged data, the reduction process began immediately with the short-term goal of creating an organized system for storage and retrieval. In this study, data collection and data analysis were ongoing and interdependent, thus creating the need for continuous reevaluation of preliminary ideas or conclusions.

A card system captured the key ideas, words, and phrases rising from the multiple data sources. These key ideas, words, or phrases, called units, were processed using an open coding system. Incidences and phenomena were compared and contrasted to identify concepts (Strauss, 1987). At this point, coding was grounded in the data and dependent upon the researcher's knowledge of the research process and experience with the issue. Ideas were tentatively held at that point.

Following identification of concepts, similar events and incidences were grouped in categories and assigned a name that encompassed the inherent concepts. Some writing occurred as coding schemes began to emerge to document the flow of data. The function of the writing at that time was to begin to make sense of the emerging categories and to describe what was happening. The main outcome of this phase of coding was to begin establishing relationships among the data.

Once the open coding phase had been sufficiently enacted, more intense scrutinizing of the categories occurred through inductive and deductive reasoning. This questioning led to a need to provide more specification of conditions, context, and interactions. The axial coding process used to do this resulted in the beginning of the formation of a preliminary grounded theory model.

The axial process resulted in the identification of interrelated core categories indicative of the research questions. As relationships were identified, it seemed important to create some sort of display or diagram to explain how the relationships pointed to a grounded theory based on the collected data.

The above described process, based on Strauss's paradigm (1987), was conducted within each case and then contrasted across cases. Huberman and Miles (1994) suggested that the within-case process seeks to explain what is going on and how things are proceeding. They further noted that an inherent danger exists in telling stories that do not sufficiently attend to explaining why information is deemed important. Van Maanen (1988) cautioned the researcher to remember that what was reported reflects the researcher's interpretation of what occurred. Every researcher has an ongoing responsibility to separate first order concepts which reflect the research participants' responses from the ideas that reflect the researcher's own interpretations.

Pattern clarification is what Huberman and Miles (1994) called the variable-oriented strategy that was used to find themes that cut across cases. This element helped to assure that key elements were included and helped to provide an opportunity to bracket the elements for reordering into a

social context. As ongoing displays were created, variables that framed the research questions emerged.

The process of narrative inquiry involves "mutual storytelling and restorying" (Connelly & Clandinin, 1990, p. 4) as the research proceeds. "When one engages in narrative inquiry, the process becomes even more complex for the researcher becomes part of the process" (p. 5). In this study, the narratives of the participants and the researcher were blended through the shared construction and reconstruction processes which occurred throughout the inquiry. The goal of these interrelated processes was to incorporate the available rich data and to create a sense of the whole by focusing on the concrete peculiarities of life.

Trustworthiness of the Research Data and Interpretations

It was predicted that this research would generate information worthy of consideration by colleagues and that the findings, outcomes, and interpretations would be trustworthy. In this study, traditional constructs have been replaced with alternatives that seemingly offered greater congeniality with the selected methodologies.

Apparent consensus was noted in the literature regarding the characteristics of credibility, transferability, dependability, and confirmability, as set forth by Lincoln and Guba (1985) as a means to ensure

necessary rigor and trustworthiness. Credibility and dependability are addressed as internal issues, and trustworthiness and confirmability are considered external factors.

Credible findings were those fairly representing the truth about participant experiences (Lincoln & Guba, 1985). This study of the particular was designed to collect and interpret the stories of a few students who engaged in an authentic learning task. In this study, the use of triangulated methods selected specifically to elicit contextual information assured credibility. A strong audit trail served as the basis for interpretation and reporting of findings.

Arey, Jacobs, and Razavieh (1990) suggested that credibility would be heightened through prolonged engagement at the site and with the participants, conditions which were both met through this study's protocols. Over time, trust and confidence emerged among and between participants and the researcher which increased the quality of instructor-participant and researcher-participant contact. The researcher found that this engagement process seemed to help diminish the preconceived biases, myths, and ideas that the researcher and the participants brought into the process.

Dependability of data and results is based on the extent to which the inquiry generates answers to the

research questions. This is, therefore, an internal issue. Arey et al. (1990) implied that a type of similarity exists between dependability and reliability.

A series of debriefing activities to verify and further explain the data and context took place within class. Debriefing occurred verbally and in writing on a periodic basis with peers and participants. Arey et al. (1990) suggested frequent exchange of interpreted data with various others for validation. Use of this strategy offered the opportunity to further increase credibility through another form of constant comparison.

Dependability related closely to accurate record keeping in this study. Adherence to study standards was considered extremely important as data emerged, for others may wish to extend or otherwise use the results of this study. A commitment to the extensive documentation which was necessary to produce these ideas also enhanced dependability.

Numerous authors advocated triangulation of data and use of multiple methods. Arey et al. (1990) defined triangulation as use of multiple sources of data and/or multiple methods. Borg and Gall (1989) suggested use of several different data collection instruments to explore a single problem.

This study utilized several sources of data which, in turn, required varied collection and analysis methodologies. These included student-generated artifacts and documents and transcripts of the interviews conducted between participant-nurse and participant-researcher. In addition, researcher notes in the form of personal memos and field notes, including conversations with the campus nurse, doctoral committee members, and significant others, were also used.

The potential for transferability of ideas generated through this study exists due to the thick description that resulted from utilizing multiple data sources and multiple analysis methods. Extensive description creates a kind of window for the reader to help determine relevancy of the results of this study.

Confirmability, the last of Lincoln and Guba's (1985) criteria, was addressed primarily through the ongoing presence of the constant comparative method. Arey et al. (1990) suggested an inductive process that uses a continual process of sorting and sifting. Within this project, much sorting of ideas contained on note cards and in field notes allowed for this necessary comparative action.

Reflecting on the potential meaning of what was seen or heard lead to hunches. In order to confirm those hunches, additional questions were asked. Data captured from these conversations and observations were later reduced,

reorganized, and reconstructed. In this study, this process included using the content from conversations that occurred among and between the participants, the campus nurse, and the researcher to develop grounded theory.

Summary

The purpose of this chapter has been to provide a detailed description of the methodology used in this research project. The constant comparative methods selected for this qualitative study have been identified and explained. This was a study of the particular; therefore, the context within which this study occurred has been described in detail. Knowledge of the actors and the setting helps the reader relate to that context. Data collection and data analysis processes are explained with attention given to ethical practice.

Those data now become the focus of interest as patterns, themes, and theory emerge. In the next chapter, the results which emerged from the constant comparison process will be discussed.

CHAPTER FOUR

PROCESS OF CONSTANT COMPARISON

> "What is essential is invisible to the eye," the little prince repeated, so that he would be sure to remember.
>
> "Men have forgotten this truth," said the fox. "But you must not forget it. You become responsible, forever, for what you have tamed."
>
> "I am responsible for my rose," the little prince repeated, so that he would be sure to remember.
>
> De Saint-Exupery (1943, pp. 70-71)

This chapter describes this researcher's formal attempt at engaging in a qualitative inquiry analysis process. The story told here is about constructivism, emergence, and a process of constant comparison. It is layered and complex. It is about classroom culture, the magical interaction that goes on in the classroom between teacher and student, and the quality of learning achieved when students perceive relevance in their studies.

Contextual Factors

The rules of writing suggest the beginning of a chapter should create some sort of anticipatory set for the reader. People seem to want to know where they will be going and what will be coming; it lets them tap into the mental memory models that have been stored away. Most of us use our memories of past experiences to judge what goes on in the present and to make predictions about the future. This

seems to be the way we measure goodness or fit in our daily lives.

Researcher's View

There is a sort of security in having some sort of map or advanced organizer when one sets out to understand something new. After all, if we do not know where we are heading, how can we be sure we have arrived? Readers needing directional markers about this study may benefit from revisiting Figure 5.

Figure 5 represents the researcher's view of how this study emerged and why processes occurred as they did. The visual definition of this study shows the relationships that exist between the theoretical stance of constructivism that underpins this study and the setting from which the research was conducted, the methods utilized to illuminate the data, and the processes used to interpret the data. The data analysis path supports the model and the work that went on through constant comparison leading to grounded theory. Because all pieces of the model connect, a recursive loop that allows theory to be applied for practical infusion into the classroom can be traced.

The reader can use the model to follow the step-by-step description of what occurred during this research project. The review begins with some reminiscences of the project's origins and then progresses systematically through the

series of constant comparison processes the researcher employed. Significant data have been sifted through a layered coding scheme. Synthesizing of results occurs in Chapter 5.

Ground rules. The researcher's personal professional experiences suggest that articulation of ground rules optimizes relationships and operations in most environments. A principal friend once said that there are only two rules in school. The first is to be where you are supposed to be. The second is to do what you are supposed to do. The boundaries listed below define the shape and texture of this narrative and provide the reader with description of some influential contextual factors.

The language of this chapter differs from that of the preceding chapters. The goal of creating an emic view suggests a format of analysis that allows the researcher to reflect on findings, describe procedural decisions, and relate anecdotes regarding the project. This is not merely a report of what went on; the analysis process is an attempt to get into the research participants' heads, to understand what they thought, and to see this experience through their eyes--to describe nuance.

The narrative takes the form of story. First person familiarity has not been assumed. The close connections that exist between and among the researcher and the

participants do require consideration. The researcher is the instructor who facilitated the health education course where the study occurred, and the research participants were the students enrolled in that same course.

The story initially introduces the context, setting, and actors involved in this project and explains the rationale for the selection of a holistic case study. The transformation processes whereby observations, interviews, and documents became data that were collected, reduced, and displayed are next outlined. In the third section, discussion about the path of analysis includes describing the coding schemes used. The emergent data are applied to the research questions throughout the chapter.

Much of the reported data take on the form of direct quotes made verbally by the participants during interview sessions or in writing through student assignments. Planned field log entries and fleeting thoughts the researcher caught on paper, so as not to lose them over time, also support the story being told. Stories within the story create a sense of familiarity, illustrate points of view or points of interest, and act as rationale for methodological choices.

Most importantly, the emergent nature of qualitative inquiry evidences itself in various ways throughout this narrative. The study model developed at the outset of this

project provided a kind of comfort to this researcher in that it defined a path to be followed. After searching for what seemed to be a discouragingly long time for a topic, the practicality of this research idea and accompanying research method felt altogether unnerving, risky, and exciting.

Returning to Wolcott's (1992) metaphor, describing the qualitative research process as similar to the action of climbing a tree, offers a frame for characterizing the experiences that occurred, during this project. This metaphor permeates this discussion and is used to signal decisions that influenced the course of the study and the findings and to contextualize the researcher's expriences.

In the emergent tradition, progress along the originally conceived analysis path was not necessarily straight or predictable. The map existed, yet numerous unplanned attractions and roadblocks presented themselves along the way. Losing a research participant, extra duty assignments, illness of the campus nurse and researcher, and inability to locate a transcriptionist typify types of occurrences that influenced the process and progress of this research project.

All the participants played different roles at different times which added interest to the proceedings. As decisions by students, nurse, and researcher were made, the

contextual qualities of the environment changed and affected all of the people involved. A flexible approach that recognized the necessity and importance of emergence and change seemed to create an optimal environment for growth within and among all the participants as the study and the semester progressed.

Constructivist view. Hereafter, notable discoveries regarding the constant comparison process will be presented metaphorically. Wolcott (1992) used the metaphor of a tree to suggest the possibilities of qualitative research; hereafter, the metaphor of tree climbing is used to highlight the researcher's personal discoveries and action.

Imagine someone out for a walk on a fine sunny day. This walk in the woods started out with no particular destination in mind; the walker merely set out with the goal of getting some exercise and breathing some fresh air. During the course of the walk, a wonderful oak tree is spotted. The walker finds himself or herself standing under the huge old tree in awe of its splendor.

If asked to consider becoming a tree climber, the walker would probably laugh and say, "Not me! I don't know how to climb," or "Some other day. I have no reason to climb a tree today." Yet, standing under that tree the urge to climb begins to form. Perhaps the walker wants to see how hard climbing is, maybe the walker secretly wants to

know what is beyond the wood, or maybe the kid in the walker remembers how much fun tree climbing used to be. Whatever the reason, once committed, the walker begins to figure out what needs to be done to make the climb.

Standing at the bottom of the tree, the walker surveys the area looking for a place to grasp or a foothold to start the climb. Checking the ground, feeling the trunk, and scanning the branches all give the prospective climber additional clues as to how to do this thing called climbing.

Fortunately, the walker has gained strength, flexibility, and endurance due to a regular walking program. These qualities probably affect climbing, and after thinking about it a bit, the soon-to-be climber begins to feel confident about climbing. The walker likes to figure out directions and to put challenging walking courses together. The walker thinks those qualities and abilities might also affect climbing. The walker considers all these factors, reaches up, and begins the ascent.

Just as the climb represented a risk and a challenge to the walker-turned climber, this study offered a similar risk and challenge to this instructor-turned researcher. This project grew out of the researcher's experiences as a postsecondary teacher in the area of health education and as a doctoral student in the area of curriculum and instruction. In this case, the roles of graduate student

and college teacher clearly characterize linked, overlapping postures.

Constructivists believe we all create our own meanings about the things we encounter or do in life. Personal view and personal experience verify that many of the skills needed for success in teaching transfer or transform to enable success as a student and vice versa. In this case, there is a strong belief that the distinct entities of student and teacher share a similarity of purpose and an intertwining of knowledge, beliefs, and skills.

Doctoral study of pertinent curriculum and instruction issues provided a broadened view of a number of theoretical positions considered to be important in this time of educational reform and restructuring. As discussed in previous chapters, extended research in the areas of constructivism, authentic learning, and related areas, such as action research, best practice, leadership, and change, offered a zone of comfort to the researcher; the intent and scope of many of the writers' ideas just seemed to fit.

Undergraduate memories point to the writing of discipline-specific position statements or philosophical statements about teaching or learning. One never knew quite how to write one of those essays, and students today continue to struggle with similar assignments. Without real life experience, such statements parroted the textbook gurus

or addressed the concerns perceived by the student to be of interest to the teacher.

The classroom. Only through time and the forum of the classroom did those rote statements take on some measure of reality. Through growing expertise at reflection, meaning made of what occurred in the classroom led to the emergence of a teaching style conducive to helping students value health education and its place in the curriculum. This student-centered and project-based style seemed different from what close peers were doing; the researcher's classroom did not look or feel the same.

A sense of personal and professional fit existed; classes and courses operated smoothly resulting in good evaluations. Yet, a sense of incompleteness existed, for many curricular decisions had not been purposely linked to a theoretical base. Knowing more about why a particular educational intervention worked, how it connected to the curriculum, and what made it feel right, seemed important.

The assumption of doctoral studies required a comprehensive look at the literature. The theoretical stance espoused by the constructivists supported many of the methodological choices the researcher was enacting in the classroom. One particular classroom, the health education foundations course, became a learning lab where the three hats of doctoral student, health educator, and action

researcher merged as applicable educational interventions were examined.

Within this classroom, a number of experiential activities used over several semesters provided hands-on involvement with health education. These projects had a type of similarity and were rotated to allow for a sense of freshness each semester. Students might create a health magazine, assume responsibility for an evening's unit of study, engage in a personal health promotion project, or complete some other similar project.

Common to this cadre of learning activities was integration of life skills. Using computer graphics to create a health magazine based on information gained through an electronic search encouraged development or maintenance of skills useable over time and across disciplines. Working with a small group to prepare and deliver the week's topic demanded practice of skills valued in the workplace such as delegation, cooperation, collaboration, and use of technology. Health promotion projects focused on diet, exercise, or stress management implied location of current, accurate information, determination of safe, potentially effective programs, and development and sustenance of motivational skills.

This learning environment created a type of anticipation and excitement for teacher and student. These

educational methods resulted in a different type of classroom and a different type of student involvement which was stimulating and gratifying. The more students controlled their own learning, the better the course seemed to go.

Transformation. During this period, doctoral studies fostered a gradual transformation from student to researcher by encouraging practice of the skills needed to launch an appropriate research effort. In particular, the writing of mini-proposals encouraged the identification of educational interests providing fit between personal interests and gaps in the curriculum and instruction knowledge base. These actions offered a holistic, yet discipline-specific, survey of the educational scene that resulted in recognition of researchable educational problems and recognition of research methods appropriate for such study.

Only after a thorough assessment did this student realize that the personal capability to conduct research did exist and that, in fact, there was a definite crossover between student skills and researcher skills. As the tenets of constructivism became clearer, a kind of ease emerged. The search for a researchable topic or situation began in earnest.

Emergence of the Problems

Return now to the walker-turned-tree climber looking up into the expanse of the huge old oak poised to begin the ascent. The climber feels quite small in the sight of a massive trunk, hundreds of branches, and uncountable leaves. At this point, although the decision to climb has been made, just gaining a handhold to get up onto the lowest branch seems a difficult task. Despite a bit of fear of heights and some lack of faith in climbing ability, the goal of trying to climb becomes more firmly set. All that remains is deciding just what should be done and how it should be accomplished.

The climber takes a breath and, using natural outcroppings, catches hold of one low branch, presses feet against the broad trunk, and swings a leg up and over the lowest strong branch. Catching another deeper breath, the climber stops to rest. The climber feels comfortable in this new environment, and a kind of peace sets in.

The branch is thick and solid, the visage is green and cool, and the climber must decide if the climb is completed. The many vistas above lead the climber to grasp the next closest limb. Feet are placed carefully, hands encircle the smaller connecting branches, and the climber rises higher, going deeper into the foliage.

With each branch grasped and held, yet another risk is realized. With each placement of foot or hand, the climber extends beyond originally imagined limits. After all, this walker-turned-climber never imagined climbing would feel so good. Throughout the climb, the climber keeps focusing above and ahead, moving cautiously, not wanting to miss anything.

At some point in the climb, another resting spot, this one affording a spectacular view, appears. The climb has been arduous, but the view is worth the effort. The climber takes time to look down to see the distance traveled and thinks, "Oh, boy. I can't believe I'm up here." The climber then looks out, rests, and becomes one with the tree.

The climber's choices were influenced by the tree's structure and the action of climbing. The researcher's interest in three problems that emerged through actual use of a particular learning strategy in a health education setting influenced this project. The learning strategy, the construction of a multigeneration family health history, served as part of the requirements for a personal health course at the postsecondary level. This learning activity was selected as a major project within the modified contract system utilized for student assessment in the course.

Initially, the activity followed the pattern set forth by the course textbook. Over a series of four semesters the activity received such positive response that it was integrated as the requirement that would qualify the student for at least a grade of "B" in the course, if syllabus specifications were met.

Students were particularly supportive of having the option to participate, of the hands-on nature of the assignment, and of participating in a what they said was an assignment that had real value in their lives. With each successive semester, the method of presentation emerged further and standards for evaluation were refined. The range of student responses remained fresh and student work exceeded instructor expectations in the areas of creativity, production, and participation.

Simultaneous reading about authentic learning and constructivism brought new questions about the strategy to the surface. Did this activity fit the criteria various authors used to define authentic learning? Did the method advocated in class actually allow students to create meaning and if so, how did this happen? Does the construction of the family health history and the actual manipulation of personal data have an effect on health education outcomes and, if so, which ones and to what extent? Were those effects similar to or stronger than what could be gained

through traditional presentation of content? These questions illustrate problems the instructor pondered as this activity gained a firmer hold in the course curriculum.

Processes of questioning and verifying underpin qualitative style. This activity yielded such complex and intriguing outcomes that it was easy to talk about it with peers. Conversations with various others pointed to the potential value of studying this learning strategy as a means to question the use of learning activities with real life value in the health education classroom.

Each conversation and decision led toward a study of the particular. As a greater understanding of the qualitative inquiry process, authentic learning, and constructivism was gained, it became apparent that study of this particular health education strategy could contribute practical information to the knowledge base.

Just as the tree climber made decisions to reach for the next branch, this researcher used questions to clear a path through quantities of educational literature. Determination of a study procedure emerged. As questions were considered, answers shaped the inquiry process.

Holistic Case Study

A tree climber makes the climb for many reasons. It is reasonable to guess that studying the tree did not represent a major motivation, even though we know a special group of

people make their livings doing just that. Interestingly, as the climb begins, suddenly there is much to see and to be experienced and many decisions to be made. And so, the climb of the tree, in a sense, does become a study of the tree.

The climber looks down and sees the gnarly roots that poke out of the ground. The huge one directly below the big limb appears to be a possible step-up to the trunk and the large plate-like knot on the trunk looks like a natural footrest. The climber checks the grippers on the soles of new athletic shoes and feels confident that that good tread will result in good traction.

As the climber begins to wonder just how to get a foot into the notch where the two main branches merge, several natural handholds appear as if by magic. The choice is now obvious. The climber slips fingers into fist-sized knotholes, squeezes tightly, and uses the big muscles in shoulders, legs, and back to lift the body. A push off the trunk, coupled with one good kick of a leg, takes the foot over the limb.

After a moment of panic, the climber realizes clutching the limb tightly is not necessary. The thigh scrapes a bit as a better seat is found, and the climber raises to a sitting position. Time is taken to look around and to become acclimated to this first venture into the tree.

The climber had never <u>really</u> considered trees before that moment. The knowledge of trees had been limited to textbook facts about the benefits of trees. Trees provide jobs, shelter, shade, and oxygen; they are our friends. These facts had been indelibly etched onto memory chips that could be pulled out of long-term storage upon request.

Now, all of a sudden, the climber had real first-hand knowledge of one particular tree. It was a different view, and it made a difference in how the climber felt and thought about trees and even tree climbing! There were different values now to consider. Even this small amount of climbing had already acquainted the climber with information about texture, size, and smells not known before.

The root was smoothed as if the rubbing of many feet stepping up had polished it. The circumference of the trunk was so broad the climber's outstretched arms only reached partway around the tree's front side. The bark was rougher than it looked, and the strong jeans worn by the climber felt especially protective as a knee bumped and scraped. The limb above was so strong it did not even sway when the climber kicked the leg up and over.

In the moment after balance on the limb was achieved, the climber noticed a cool breeze. It offered a small chill as it touched the sweat beads that had formed on the climber's forehead and wafted a smell like dew, sunlight,

and spring, all in one, directly into the climber's face. Looking around, the climber noticed the blur of foliage becoming distinctive branches, twigs, and leaves. Birdsong filled the air, crickets rubbed legs together monotonously, and the stream a few feet away, chuckled and gurgled, laughing at its own antics.

The act of climbing the tree offers the climber the opportunity to examine and to learn about this tree. Similarly, study of the particular also implies choice of an object of interest. Stake (1994) suggested that "Case study is not a methodological choice, but a choice of object to be studied" (p. 236). As a form of research, the case study draws attention to what can be learned from a single case.

Stake (1994) further identified three main types of case studies as a means to clarify purposes. Considering each, the intrinsic case study, the instrumental case study, and the collective case study, revealed some specific connections to this research effort.

An intrinsic case study is selected to better understand one case. This case does not represent others; instead, there is a genuine interest in or need to know about that individual entity.

Improved practice begins with one classroom. Knowing how a particular educational intervention affects teaching and learning offers cues necessary for stimulating

improvement. Attempting to see an educational intervention through the eyes of the participants leads to grassroots understanding of the teaching and learning relationship.

Results from an instrumental case study support or provide insight of something external, perhaps a theory or social issue, and how it affects the object of interest. The educational intervention studied here has been presented to students in the constructivist style through an authentic learning theme. Determining what students value in their studies and determining how students create meaning provided support for the constructivist stance as a theoretical choice.

The collective case study usually follows a pattern of studying a number of cases jointly to inquire into or explain some phenomenon (Stake, 1994). In this study, the stories of four students create an emic view describing what happens when students engage in constructing a multigeneration family health history.

Further reading indicated yet another type of case study. Kennedy's (1979) description of the teaching case study, whereby an issue important to instruction is examined, offered yet another functional possibility. This study occurred within the context of the usual operations of a health education course. The resulting story portrays the interactions among teacher, student, and curriculum.

These distinctions allow for categorization; yet this researcher could see glimmers of each of these types in the overall scheme of this study. Figure 5 identifies the case study as the framework supporting this research project.

From researcher's field log--based on reading notes:

I had not thought of using a case study until I read Stake's article. I always thought of case studies as an action social workers do, not teachers.

As has happened in the past, this information hit home. I could see how each of his three categories "fit" my situation. I did want to look at the particular, the intrinsic. I had yet to decide just what that really meant.

Was the particular the whole class or just one or two respondents? I already thought that a lot can be learned from the study of one. I like getting into students' heads, and besides I really want to treat each student as if he or she is important and valuable, because that's what I really think. Can I get a great enough view by talking with or looking at just one or two students?

I want this study to have instrumental value. Growing up I remember hearing my mother say that we need to learn how to do things. She meant things like repairing the mower, or painting, or maybe even writing--at any rate, practical. I want others to think about helping students find meaning and for them to consider how valuable the teaching of skills is.

Students seem to be looking for connections to life in their studies. If there's no point, why do it? If this study helps others look at the value of student ownership and the reality of the power of allowing individual knowledge construction, I will have done something good.

Finally, I want to know how each student responds to the family health history; yet, I also think that the big picture will be better served through these individuals' stories, as they are told and maybe even compared.

> I know that this isn't about generalizing; yet I worry about equivalency and whether getting rid of the tests is a mistake. In my heart, I believe students benefit greatly from this activity. Why do I question my own intuition? "Tradition!"

A case study format had been selected, and immediately more questions surfaced. It seemed impossible to narrow the function that the case study would encompass to one of Stake's (1994) categories. No hard and fast rules regarding the use of case studies seemed indicated, so all four functions were incorporated into the study model. Figure 5 shows those relationships: a case study that seeks to connect constructivism in an instrumental way to health education through the systematic study of a few particular students who are engaged in a particular learning activity.

Through this case study, the researcher identified ways this particular learning activity enhanced the acts of teaching and learning in one classroom. This study implied application of constructivist theory through instructional planning and implementation. By creating a teaching environment that fostered personally-constructed learning, a place to observe student responses before, during, and after engagement with the activity was made available.

Pilot study. During the preceding pilot semester, the entire class of 24 students served as the object of interest. Every student's opinion was sought and was considered as this study was conceived. Focus group

discussions and course evaluations supported the idea of researching this activity and of its continuance as a course requirement.

Through analyzing various question responses, it became apparent that to gain valuable information, questions must be very carefully worded. As an example, although it is gratifying to know a class "likes" what goes on in the classroom, "likes" does not represent an empirical category for measurement. It is too subjective. The question did not ask if the student liked the activity; the students answered as if it had. This early finding served as a good lesson.

Generalizing was not a main interest, although a story such as this may interest those in other disciplines or at other sites who believe in the value of authentically-based immersion-type activities. After more reading, it also became apparent that a collective response was only partially desired.

Individual cases within the large group, looked at comparatively, could certainly illuminate similarities and differences in responses to the activity, but the intent of the investigation was not to compare one teaching method against another or one student's gain against that of another. The artifacts generated through this activity were

too personal and too emergent to reduce to a rank or a comparison.

The researcher's interest in this study of the particular was initially stimulated by the quality of student artifacts produced during regular course work. Students placed incredible confidence in the instructor by entrusting to her their individual stories in the form of detailed medical information, revealing family anecdotes, and personal reflections. It was not uncommon to read a student story, feel a ripple of gooseflesh, and then go back to read it again for even more nuance.

Discussion of this type of exchange between teacher and student gives voice to a complex and interactive type of thinking and knowing. It does not provide "objective truth" for it is not based upon fixed reality. It allows for dynamic development of theory grounded in the view of practice (Prawat, 1992).

Finding the voices. It was originally thought that all class members would be considered potential research participants and that all those formally agreeing to participate would be studied through interview responses and student artifacts. Further reading showed delving deeply into the lives of more than 20 people was not recommended by a single qualitative author.

Reading about focus groups provided a rationale and a manageable procedure. The success of focus groups in health education settings was minimally documented. Because this researcher saw value in everyone's story, it was difficult, no, impossible, to think about discarding anyone or anything of potential importance. The focus group could provide a voice for all in a telescoped fashion. A clear view of what was being sought had not yet been established.

Having once been a focus group participant, however, the researcher remembered feeling stifled. The interview script used and the number of people wanting or needing to talk did not allow for full recognition of all views.

It is true, perhaps, that group conversation can sometimes trigger extended responses that go beyond everyday views. In this researcher's experience, this did not happen. Perhaps the skills of that facilitator were not sophisticated enough, or perhaps that combination of people just did not mesh. Not possessing strong focus group facilitation skills influenced the researcher to discard the idea of using focus groups to provide the voice for this study.

These personal focus group memories served as another juncture for decision-making. Following a meeting with the doctoral committee, a decision to use 4-6 respondents was made.

From the researcher's field log--meeting with doctoral committee:

> I felt relieved when they said pick 4-6 people. The fact that they all agreed so strongly tells me I was thinking too big, overestimating my skills. Maybe I don't "see" this thing well enough yet. I actually thought 25 wouldn't be too many. I hate to take a chance that the best stories won't be included.
>
> Thinking more about the meeting, I feel like I've won the lottery. Things are looking more manageable and do-able. Now I have to come up with a plan to pick them.

Participant Selection

Doctoral study of qualitative research methods left an indelible impression about the importance of identifying the sample and of the rigor needed for sample selection. Reading showed another view; some qualitative writers disdained using the words sample or subjects. Their terms, others and research participants, seemed universally acclaimed and were assimilated into the researcher's vocabulary.

Glesne and Peshkin (1992) cautioned against developing complex stratification mechanisms. They supported selecting "worthwhile and feasible" research participants (p. 25). These, of course, are very subjective descriptors that would be grounded in the researcher's personal reality of what worthwhile or feasible means. This meaning would also be compatible with the overall goals of the study.

Extended reading did not yield any overriding strategies for finding the right people. Only very brief descriptions accompanied reports of use of commonly used snowball or network techniques. From these readings, the researcher's personal definition of emergent expanded, but clues about how to select the people were, at best, sketchy.

From researcher's field log--based on reading notes:

> It's like these guys have no rhyme or reason for participant selection. I have this mental picture of a person lying in the road, the researcher stumbling over them and saying, "You'll do." Of course, it's not like that. Worthwhile and feasible imply fit, but how is that found?
>
> As a kid, I was real familiar with the uh-oh feeling, that impending sense of doom that descends when poor choices are made. This selection thing isn't about uh-oh, but it is about intuition and my own ability to sense what is right. I will know which ones are right. And even if they don't seem so at the start, things always work out. I have to trust that whoever is chosen will be worth a good story.

Statistically nonrepresentative stratified sampling. A doctoral committee member offered information about one potential selection process by forwarding an article by Trost (1986). Trost outlined the concept of statistically nonrepresentative stratified sampling and provided a working example of the process. This model represented a position somewhat reminiscent of positivist sampling, yet it would allow for emergence of a few people who had the propensity to represent diverse views. Trost's ideas offered firm

structure during a time of confusion. Once again, when the ascent seemed impossible, a hand hold emerged.

Identifying descriptors that would help stratify class members became the new task. The words unique and view surfaced repeatedly in the reading and were combined into one in the researcher's mind. In fact, finding the unique view became the overarching goal for defining the research participants and the process itself.

Thinking about usual class composition brought some natural groupings to mind. Obviously, a male/female distinction could be made, along with traditional-aged and nontraditional-aged. The pool of potential research participants ultimately depended on course registration. Only those enrolled could be considered. Because specific group composition could not be anticipated, going beyond these categories seemed illogical and a waste of time.

Memories of past groups of students allowed some researcher biases to surface. Early on, the researcher would have naively described the best participant as one who would give neat, clean answers fitting the research questions.

The ethics of research practice demand that the researcher not pick participants just because they would say or do the right things. A researcher may choose to identify

potential responses and results; a researcher should avoid directly influencing particular responses and results.

First, it seemed important to include people who definitely wanted to be a part of the project. The Agreement to Participate required by the Human Subjects Review Committees of the host school and the doctoral program school decreased probability of coercive selection or the perception by a student that he or she must agree to participate. The researcher also provided repeated verbal assurance of no penalties for those choosing nonparticipation.

A second bias for selection resulted from the reading of previous student papers. It seemed that those students who missed the first or second class periods of the semester were much less prepared to be involved with the project, overall. Students would have missed the preliminary training activities of hearing detailed directions, completing their own health history, and practicing interview skills. It also could have been that they were bored with the course, did not like or see value in the assignment, or just were not tuned in at that point in the semester.

The pilot group who had participated in the preliminary in-class activities of constructing a quick view of family medical status and completing a personal medical history

seemed to produce stronger, more detailed artifacts and seemed to verbalize their personal identification with results more clearly. The idea that attendance and participation in these "pretest" activities might serve as mitigating factors led to their inclusion as stratifying factors.

Committee members suggested that that amount of information available might prove a potentially important variable. Through discussion, it was reasoned that a fuller view would be available if participants could actually complete four full generations of family health history data. The number of four generations had been selected based on the literature review regarding genogram use for varied human service endeavors.

Simultaneously, several new important questions surfaced. Was this reminiscent of positivist measurement standards? How important was it if the cases looked different? What if no one could complete all four generations of medical history?

Due to naiveté, rich data and thick description (Geertz, 1973) somehow became synonymous with quantity. Past student artifacts did not necessarily support this conclusion as many thoughtful, poignant, and humorous papers came from people who could not access complete sets of familial information. Even at this early time, information

gaps proved to be a telling factor. These gaps provided signals not recognized for their real value until much later.

The amount of data available represented a variable that sparked good conversation. This factor was retained but listed as two categories: (a) those with four generations of data available on paternal and maternal sides, and (b) those with incomplete data either paternal or maternal. As a means to visualize the categories selected, a matrix following Trost's (1986) model was fashioned (Figure 3).

The multigeneration family health history assignment. Twenty-two students enrolled during the semester the study occurred. On the first evening of class, the syllabus was explained, procedural questions were answered, and the intent of the research project was presented. Time was taken to help students clarify what participation in the project might mean to them.

From researcher's field log--classroom observation:

S: What if I don't want to participate?

R: Deciding to become a potential research participant does not mean you will be picked. Deciding not to participate will not cause you any loss. Your grade will not be affected nor will you be treated any differently than any other student in the class.

S: This is going to be very difficult. My mother lives in New York now. What if I can't find all the information you want?

R: Gather what you can. Not being able to fill in each sheet completely will not affect your grade. You may want to continue this project later. The open spaces will help you decide what you need to find out.

S: My mother and father are divorced. I haven't talked to my dad in years. I'm not sure I want to. If I don't, can I still get an "A"?

R: The grade of "A" is not based on who you talk with. What counts is summarizing what you did and what you found. That is what you will be graded on. I do not plan to check your sources or follow you around to see if you did what you said.

Being able to talk with your dad would give you a fuller view of your medical history, but the purpose of this assignment is not to cause hurt or discomfort. You do not have to contact your father. That will be your decision. Not talking to him will not affect your grade. You will just have some gaps in your history.

S: What do you want in the paper? My family is real healthy. Five pages seems like a lot.

R: The paper should cover 4-5 pages and can include any information you want to include. There are purposely no exact directions on how to do this. I don't want 22 papers that all look or sound the same. This is your story so it needs to be written your way.

S: Do I have to draw a tree?

R: No, you don't. Carol Krause's [1995] book, our text, gives some direction for completing three different kinds of family trees. The assignment for next week is to read Part I, II, and III in her book. You will get some ideas on how to do a family tree from the reading, and we will discuss the reading at the next class.

S: I'm adopted. My mother and father told me some things about my birth family, but they really don't know much. What shall I do?

R: You have your choice to do an alternative project or to take the information you have and do the assignment. Your tree would just be less full.

Common themes intertwined within these questions and answers had to do with the student grade, work load, and teacher expectations, all normal concerns for college students. Thought about this conversation requires some levity. It is easy to take comments from students too personally or to attach inaccurate motivations to those comments. Questioning the work load can be perceived as whining; questioning assignment procedures can be perceived as a desire to cut corners.

After a teacher has put quality time into planning a course or activity, it is natural to want others to accept it in a positive light. From the constructivist point of view, what a teacher wants is for the student to try to see the global and individual meaning and value of what has been planned. Unfortunately, one must remember researcher meaning and value do not always match meaning and value ascribed by students.

Some negotiation regarding student work always seems to accompany discussion of a syllabus. Each semester these conversations reveal an almost desperate need on the part of the students to get an "A" grade, sometimes for as little work or with as little real learning as possible.

As a teacher looking at this phenomenon, it is disconcerting to think students do not know that today's classroom occurrences will profoundly impact their own

future teaching or other human service work. As a researcher looking at this phenomenon, it is possible to see an educational problem connected to values, ethics, and real assessment presenting itself.

The multigeneration family health history construction project puts students in charge of their own learning. It must be remembered that the student's initial, primary concern is receiving the outcome, the grade, desired. To some degree, doing what one has to do to get that grade does represent taking charge of learning.

To encourage the process of assuming self-responsibility, the teacher must continually create an environment that motivates student ownership. The skills gained through the construction of a multigeneration family health history can be named or demonstrated. Whether the student in that situation has really made a commitment to learning or to using the learning productively is much more difficult to discern.

> From researcher's field log--classroom observation:
>
> Sometimes I wonder why I teach. I can't remember ever feeling like I <u>had</u> to have an "A" like some of these students. Nor would I have ever thought to snarl and snap the way some of them do even before the actual work begins!
>
> It's discouraging. These questions feel like they only want to do the minimum. No one wants to look deeper or further, yet they all crab about not seeing why they have to take health. I see such everyday connections that it's hard for me to watch their faces and see the

> body language that tells me they don't want to be here, to do these things. "What do you want?" is what they ask. I should turn it around and ask the same!
>
> I know I could be misreading their signals. Maybe these guys are so overwhelmed by their courses and projects that they feel like they are hanging on by the fingernails. I'm concerned with what seems to be a pervasive feeling that "if I live and breathe I should get the 'A'." Another concern is how thinly spread so many of them are. They wear so many hats, that I guess it's natural to want to double dip and schmooze one assignment across to another course. Yet what I perceive as a pervasive attitude of laziness and lack of professionalism scares me.
>
> Maybe I am too close to this whole thing to study it. I believe in this project enough to know I sell it through my mannerisms and explanations. Right here today it's difficult to separate teacher from the study.
>
> Where do people get the sense of how much is enough? If they would spend as much time figuring out how to do it well as they do figuring out how to do as little as possible, we'd get farther. This thing that students do makes me mad and concerned. There is so much to experience, why do we cut ourselves off?

Student materials. Students were asked to review the syllabus (Appendix B), to select an option from the evaluation contract, and to consider identifying themselves as potential research participants prior to the next class meeting. An invitation letter and a Family Fact Sheet (Appendix A) were distributed to provide additional information about the research study. Those considering becoming potential research participants were strongly encouraged to discuss the implications of their participation with family members.

At the second class meeting a student packet was distributed which included: (a) a key informant identification form, (b) a copy of the suggested interview schedule for the multigeneration family health history including worksheets for four generations of relatives, (c) a tracking grid, and (d) a sample procedural script for interviews (Appendix C). Students also received a small Post-it pad with self-adhering edges.

It must be remembered that all students complete this assignment or an approved alternative as part of the regular operation of the class. At this point, all comments refer to the collective group. Anyone signing the Agreement to Participate indicated interest in becoming a potential research participant. Effort to keep the assignment separate from the study continued throughout the several weeks allotted to students to collect and summarize their family health data.

Preliminary Training Activities

Anticipatory set. Training for this project commenced as students used Post-it notes to create a four-generation figure representing themselves, parents, maternal and paternal grandparents, and maternal and paternal great-grandparents. Student responses to this request yielded varied visual representations. Some students positioned the slips of paper in pedigree style that read from left to

right on the work surface. Others used a vertical format that worked up the page from student to great-grandparents.

Few instructions were given to accomplish this quick view; individual solutions enhance understanding of relationships intrinsic to a family tree. Through manipulation of the Post-its and side talk with peers, the students confirmed and supported the how-to aspect of positioning the Post-its to show family relationships.

The students tried to fill the positions created by the Post-it notes with as many relatives' names as possible. Students also noted any known medical conditions, deaths, or other information. Figure 6 offers a view of the original Post-it notes results. To allow for visualization of this activity, four students, Allen, Belle, Curt, and Eva, provide hand-drawn recreations of the information each had prior to the family health history project.

From researcher's field log--classroom observation:

> There was much chatter, small squealing noises, looks of confusion as this first exercise was introduced. They liked using the Post-its. If the look wasn't right, it could be changed without erasing or making a mess. They like using their hands and being able to talk to each other. Peer support helps when trying a new thing.
>
> This activity took about 15 minutes. As I walked around and chatted with the students, some were already getting nervous about what they didn't know. Only 2 or 3 could name all their relatives through 4 generations. Lots of info [sic] gaps. Some could do great-grandparents illnesses but couldn't fill in grandparents' information. They thought this was odd

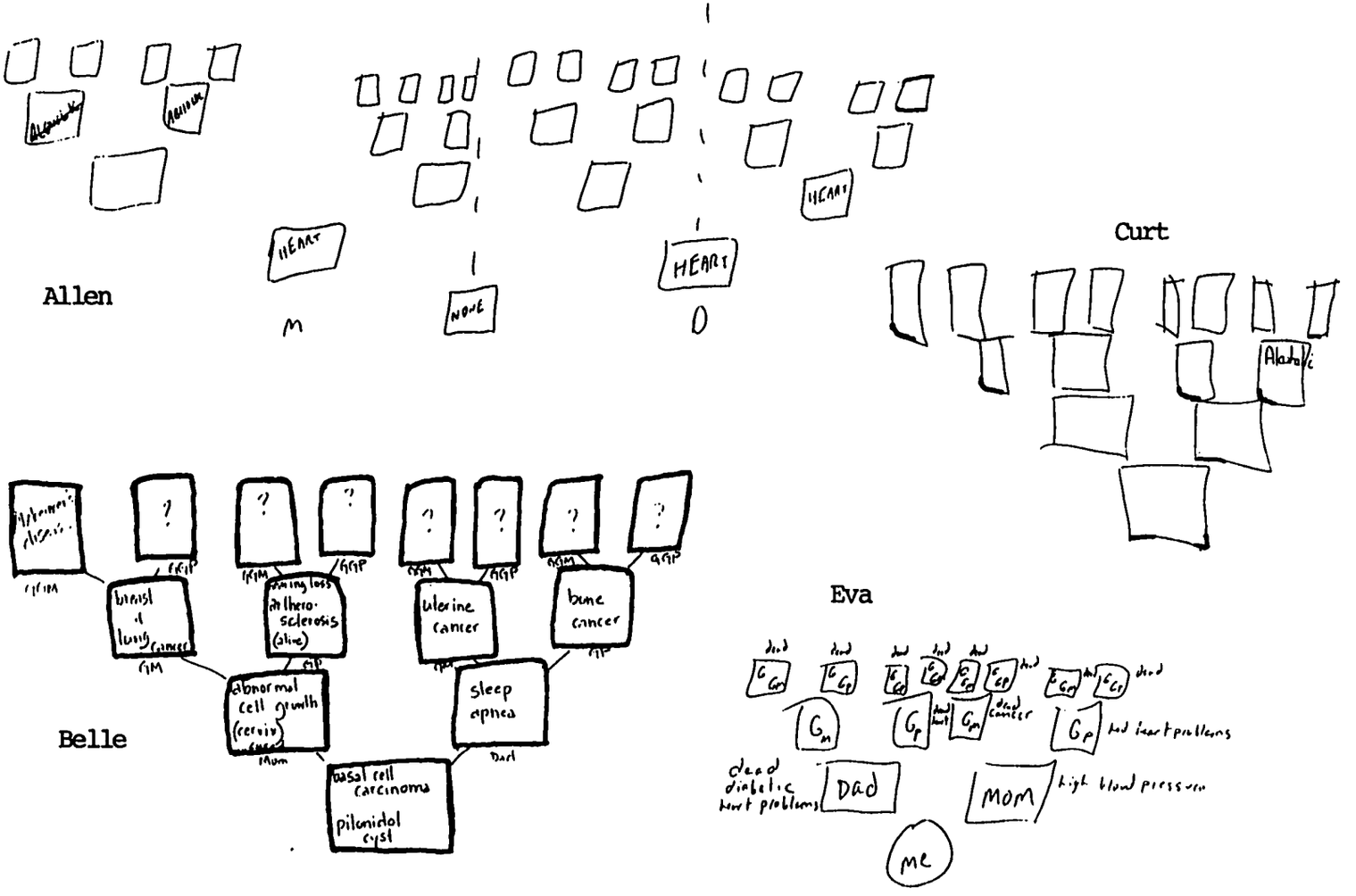


Figure 6. Visual representations of limited knowledge 4 students had prior to the family health history project.

or weird. We processed this some but for the most part let it go. I knew we'd do more with this later on.

Locating primary and secondary sources. The skill of listing potential information sources was the next step to be addressed. Some might not consider this action a skill; it seems too simple. If students were not encouraged to identify possibilities beyond the obvious, a compromise of the information collection step could occur due to lack of knowledge or time.

We make health decisions every day that require knowing what to ask, who to ask, and how to ask. In the big picture, these individual decisions have huge medical, economic, familial, and even political ramifications. If one does not already know what to ask, who to ask, or how to ask, a question may never be voiced and an opportunity for health promotion missed.

In this researcher's opinion, asking the right questions is the key to life-long learning. It is one of those essential skills we use every day. The life skill of questioning transfers beyond the health education classroom. It does not always come naturally; it can be facilitated through curriculum and instruction

Identifying key informants. Using the key informant sheet attached to the health history form, students noted names of aunts and uncles or others who might know family

health information. The class brainstormed other potential information sources. This list included primary sources such as further-removed family members and family friends or neighbors, as well as secondary sources, such as a family Bible, birth or death certificates, letters, or other similar documents.

Discussion regarding the potential validity and reliability of primary and secondary sources followed. The potential that two informants might provide conflicting information led to a group decision. In such a case, all information would be noted with an explanation or prediction about who or what was correct made in the reflective summary.

Cause of death listed on a death certificate, particularly those of many years ago, might list a condition not encompassing the primary medical issue. An example of this is liver disease, specifically cirrhosis. The acute alcoholism, that everyone knew about but would not admit openly, affected the individual and family over the course of many years. The death certificate lists the immediately presenting condition of cirrhosis as cause of death. In this study, the use of multiple sources discouraged this type of variance in data and facilitated collection of the most complete view.

Using the interview schedule. To model the suggested interview process, the researcher coached the entire class into completing a personal health history using the health history form. Students completed the demographic data, and then the researcher used the form to respond to questions corresponding to the list of diseases/conditions. This process lasted approximately 20 minutes and resulted in each student leaving class with one piece of the family health history fairly well completed.

Completing the personal history as a group provided several opportunities for the researcher. The intent of each category on the form was explained with further clarification made as needed. The students manipulated the kind of information they would be collecting by doing their own histories. The list on the health history form is very general; therefore, they had to decide how to place, code, or note incidence. It was also necessary to talk about what to do with information that did not seem to fit. Relaxed demeanor and an air of willingness was noted among students during this discussion.

> From researcher's field log--classroom observation:
>
> The prelim [sic] stuff went really well. I collected their Post-it creations to keep as a reference. They'll get them back later as a comparison point.
>
> One student is adopted; he went as far as he could tonight, to the grandparent level. We talked about his comfort level and his choices after class.

> In the face of family trauma and disruption, this activity carries some emotional risk. Always good to watch. When diversity exists, must keep checking to keep a balanced perspective.

Role play. Following completion of the personal health history forms by the class, the researcher suggested practicing interviewing skills. Student attention was called to the student packet, specifically to the sheet called Procedural and Clarifying Question Samples. A script developed as a guide for the interview process to elicit the most complete information possible was included. Students formed pairs or trios for role play. This activity was not popular!

From researcher's field log--classroom observation:

> Here I thought some role play would be good, and they shot me down. We tried the mock interview, but they were acting silly or bored, making up weird stories, laying back on their spines in the desks. One student was blunt enough to say it was a waste of time. Others nodded or agreed vocally. We quit. I hope they know as much as they seem to think they do!

After some processing of the evening's activities, the students were sent off to begin. Those feeling uncomfortable were urged to call for an appointment. Having seen the interview procedure in action, students were beginning their collections of data at a similar starting point. They were familiar with the categories and ways to probe for additional information. They had an estimate of how long it might take to complete one family member's

history. They had some idea of the skills involved with doing action research. Of course, each student's individual ease with interviewing and with asking what could be very personal questions was varied.

General conversation with students at the next class meeting showed that some had already made giant steps in the collection process. The researcher guessed (rightly!) that some students would procrastinate until the last minute. Two students said they had already located the major key informant in the family and would be meeting to talk about the history very soon. One overwhelmed student needed an individual appointment to sort things out.

Agreements to Participate collected at that class meeting started the paper trail categorizing this study. After a light review to ascertain interest, those agreements affirming potential participation were grouped together and placed in a folder. Those students declining to become potential participants indicated their intention by writing "No" on the sheet with a signature. These were also grouped and placed in the folder.

Fifteen students agreed to be placed in a pool of potential research participants. Seven students immediately declined potential participation with no questions asked. Peripheral decision-making made by the researcher surrounding that incident can be found in Chapter Three.

The students went off to do their own action research. As the original due date approached, several students began a negotiation process. As a result, the due date extended 2 weeks. An approaching extended weekend would allow face-to-face contact for some students. In due time, papers were submitted, graded, and returned.

This has been a long introduction to the point marking formal individualized interaction with research participants. Readers will note the research participants have not yet been selected.

As the content of this chapter was considered, the telling of the complete story seemed vital as many decisions pointing to the qualitative inquiry process had already been made. This detailed description of the contextual aspects of the study sets the stage for a fuller understanding of what followed. Just as the climber had to rest on the first solid branch and take a look around, so the reader is now more able to concentrate on the participants and their stories. Where the focus up to this point was the general context, the next section begins the process of immersing in the particular.

Research Participants

Tree climbing has become a study of the tree itself. Sitting on a broad comfortable limb, the climber just meant to take a rest but breathing in the fragrant, moist air is

relaxing, and the climber takes time to look around. The eye is pulled toward some motion above as a red-vested robin feeds babies. A prickle on the arm draws attention to a tiny insect making its way on some important mission.

The breeze causes the leaves to move lightly, showing their veined undersides. The climber reaches out to catch one dislodged leaf. Turning it around and about, the climber sees a myriad of greens, reds, and brown, encompassed in a symmetrically, pointed geometric form. The delicate stem offers a hand hold and the leaf becomes a fan. Folded in on itself it becomes a hat for an acorn person, or a magic boat for a fairy. Ideas about beauty, form, and function mesh in the eye of the beholder as the leaf is considered.

Study of that one particular leaf causes the climber to think about sameness, difference, and purpose. Hundreds of leaves are all around, each contributing to the well-being of the old oak. Altogether the leaves provide form and function for the tree, yet each individual leaf is important to the tree's overall status. Each particular leaf has its own unique look and feel. One only has to take the time to discover this.

Applying the Process of Nonrepresentative Stratified Sampling

The research participants for this study were selected using a nonrepresentative stratified sampling process incorporating the variables discussed earlier. Student categorization allowed four groups to emerge. The premise behind these groupings assumed that persons from each category would offer a somewhat differing view. All potential participants had met the first two criteria of willing participation and attendance at in-class training sessions.

Working with the final variable, amount of information, presented difficulties. If the matrix was used absolutely, eight participants should have been selected which exceeded all recommendations for case size. As it occurred, all eight categories did not have names assigned.

For this reason the variable of amount of information was not used as a selection criteria although the amount of information each participant gathered will be referenced in later discussions. This made decisions about the selection process simpler and reinforced the importance of the particular view over a generalized view for this study. The positive consideration of which participants were available seemed more sensible and interesting than worrying about which informants were not available.

One male student fit the over-24-years-of-age qualification, and he had collected a full four-generation history. His selection was guaranteed pending his continued agreement to participate.

Both of the nontraditional-aged females enrolled in the course had placed their names in the pool of potential participants. One woman completed a full four-generation history, her counterpart could not. Their ages were 28 and 26, respectively. Potential traditional-aged males numbered 3; there were 11 traditional-aged females placed in the fourth category. These students had produced varying amounts of information. Names had been placed in all categories at these levels.

From researcher's field log--classroom observation:

> I'm relieved to see that the men in class all are willing to be part of the study. Their number is always so few that I might not have got any.
>
> The small numbers in the nontraditional categories made me a bit nervous. If my male drops out, we will have no older male perspective even though 28 isn't that old. The females are sort of the same. I wish at least one even older perspective could be included. I know that I see things a lot differently now at 45 than I did at 28. Yet these students who have kids or who have been out on their own are different from their other classmates even though the number of years separating them isn't that great.
>
> I like a lot of the things the older ones do--makes the class more interesting and sometimes puts up a model for those who don't know how or who are lazy. Great, creative stuff, too--more likely to have an opinion and ask questions, looking for more life connections.

These are things I value in my own work so I like it when I see it in others.

With only one member, selecting the nontraditional male was easy; he was assured selection. The campus nurse was asked to do three blind draws to select the other three individuals. Each of these persons was contacted immediately. All gave verbal indication of desire to continue.

Participants and Their Backgrounds

Light descriptions of each research participant follows using pseudonyms to protect identity. Comments taken from various conversations add additional contextual information.

It should be noted that five descriptions follow. The originally selected traditional-aged female did not complete the study. Family illness and time constraints caused her to withdraw prior to any interviewing or other research-related activity. She did complete the assignment as per course requirements. Upon her withdrawal from the study, no penalty was imposed; the grade for which she originally contracted was received as work was completed per requirements on the syllabus. A random draw from those names remaining in the traditional, female category replaced her.

Allen. Allen is a single, White, 27-year-old, nontraditional-aged male student. Prior to his enrollment

at the University, Allen had been a court reporter. Already the holder of a baccalaureate degree in a noneducation discipline, his return to college exemplified his desire to complete the requirements for teacher certification. Allen possesses excellent writing skills and has a flair for creative, very complete responses to homework and in-class assignments.

Allen asks clarifying questions regarding assignments and is willing to offer opinions in class. At first this questioning seems intense enough to wonder what he is thinking or really wanting to know. Looking at materials he produces suggests to a reader that the questioning represents his way of defining the topic.

In addition to his writing skills, Allen is also well-spoken. He holds a mature view and voices it. His well-considered comments in class sometimes offered, and then supported, a counter view. He looks for direct application of content to his professional future.

From researcher's field log--notes following a conversation with Allen:

> [Allen] was there early tonight, and we talked as I was setting up the room for class. I asked him about his decision to return to college. He said he thought he could make a difference by becoming a teacher. His jobs have taken him around the country, so he feels he has seen a lot. He seems somewhat cynical, but I don't know him well.

> He was very serious about his goal because "education needs to take a turn toward something different. What's being done isn't working." Says he wants to work with upper elementary kids. Older kids appealed to him more. He said something about setting a good example. I didn't probe much more on this but could tell by his body language and strength of focus that he meant what he said.
>
> Maybe he meant he felt he could be a good role model. He is an impressive-looking man that kids would notice and, I think, listen to. Yet, I wonder if what he really meant is this group of kids needs more than they are getting. He seemed to think there were different ways education could be done. He commented on the contract system we are using, saying in all his years of schooling no one had ever let him decide what grade he wanted and how he would get it. This different style appealed to him because, as he said, "It puts me in control. I like that." When he talked, it was also like he remembered how he felt as a kid and that he didn't want others to have the same kind of experience. Now he wants to do it differently--to make changes.

Belle. Belle is a 26-year-old, single, White, female, nontraditional-aged student. Belle worked several years before enrolling in college. She will complete her studies in elementary education with an additional endorsement in prekindergarten and kindergarten curriculum.

The researcher knew Belle from two previous classes. Her work ethic and a number of her interests and beliefs were already known. For example, she is the picture of health. She is seen in the gymnasium facilities several times a week doing aerobic and weight training exercises. After reading her nutrition papers in a previous class, one sees that she balances her fitness program with her

commitment to a healthy diet. Belle talks easily about how and why she values that balance in her life. Some of those values and beliefs will be discussed later.

Belle's approach to her studies is also balanced. Papers evidence a solid research process that support personal opinions. She goes the extra step to include computer graphics, color, or other features that signal completeness and outstanding work. She finds connections to small children in her studies and gears her presentations toward applying what she is learning toward the job she hopes to secure. At the time of the study, she was preparing for her student teaching assignment and so was nearly at the end of her college experience.

From researcher's field log--personal reflection:

> I am glad [Belle's] name was selected. She is such an honest student. I don't mean this in the sense of reading someone else's test or stealing a paper. She just approaches things completely, and if she isn't able to do it as well, she takes personal responsibility. I remember in nutrition class she didn't complete those worksheets, and then she had a lower than usual test. In the long run, she got a "B+" for the course because of that period of time when she wasn't quite on. We talked about her grade, and she just shook her head and said something like, "That's the way it goes, sometimes." She didn't try to give me a line or beg for what she hadn't earned. She was realistic about her performance. I gained a lot of respect for her and her way. She really seems to walk what she talks. I think she would be great to work with on a daily basis as you can depend on her attitude.
>
> I know [Belle] better than any of the others. I hope the positive feelings I have for her don't compromise

> the work we will be doing. She has a quiet, competent approach that I'm sure will not change, and I know her view will be mature. She has no affectations and is one of those students you remember after they have passed by. I have been able to connect with her. I doubt that <u>she</u> questions her participation. She seemed pleased to have been chosen, at least her body language suggested it.

<u>Curt.</u> Curt is a 21-year-old, single, White, male living in campus housing. He came to the University with an athletic scholarship and a desire to pursue a degree in elementary education. He is particularly interested in working with very young children.

Curt is very personable. He is easy to get to know and talks easily about his goals to teach. He has a soft-spoken way about him that suggests a warm, gentle nature.

Preliminary looks at his work show a thorough approach to assignments. His papers are typed, cited, and presented in a style that makes reading a pleasure. He approaches assignments comprehensively and creatively, and he produces results that evidence those qualities.

From researcher's field log--observation from student conversation occurring early in the semester:

> We had been talking about his assignment for the "A" grade. [Curt] wants to work with [another student] on a curriculum project. They selected the topic of environmental health and wanted to do an integrated unit connecting writing, environmental health, and social studies. Where many students ask what I want, these two wanted only to know if their idea was OK. They weren't asking me to tell them how to do it. A proposal requiring a lot of interaction with teachers they knew in the local district and a lot of

> coordinating of information was presented, and off they went to begin.
>
> [Curt's] gentle demeanor and devotion to early childhood is a surprise. He is a large, athletic-looking fellow that makes you think he will fit the sports stereotype. I guess this is another example of how I use old mental models to make decisions that may or may not be accurate. He is fresh and open, and I think an example of just the kind of man that needs to be around small children. He makes me think of the term, healthy. I'm looking forward to seeing the project when it's done.

Dee. Dee is a 19-year-old, White female. She is a sophomore majoring in elementary education who wants to work with second or third grade students. She is quiet and seems somewhat overwhelmed by all her responsibilities. Her job is a necessity, and the number of evening hours she works makes it difficult to schedule study time.

Dee reported she lives at home. Concerned about some serious health problems her brother is experiencing, she is involved with the family trying to find some solutions. It was this combination of events that led to her quitting the study.

Dee initially agreed to participate. What was difficult was her seeming inability to actually say she wanted to be released from her original agreement. The researcher was well aware of the possibility of students feeling like they had to participate. This possibility had been discussed earlier with the doctoral committee and with significant others during Human Subjects Review preparation.

From researcher's field log--observation:

> What I wish is that [Dee] would let me know one way or another what she is going to do. Nurse is really needing to schedule the interviews with each participant, but [Dee] can't be reached. When Nurse told me she had not scheduled an appointment, I decided to talk with [Dee] this week in class. She didn't come to class, but I found a message yesterday on my recorder saying she had to go to the hospital with her brother. I called back yesterday and again today and left two different messages asking her to come in and talk or at least call. Her participation in the study is important but not that important. If she can't give the time, it's best to know that now.
>
> Now I have to make a decision. [Dee's] friends had offered some information, and I don't think this student can do this right now. And even if she did, I think it would be a burden. What I hope is that she knows she won't be thought less of or that she knows her grade will not suffer. Sometimes, when a hard decision has to be made, not making one is the way we decide. It sort of gets taken out of our hands. Maybe not answering my messages is her way of telling me she needs out but doesn't know how to say it.

Dee did in fact quit the study. As a result, one name from the traditional-aged female category was anonymously drawn. Eva willingly agreed to participate.

Eva. Eva is a 19-year-old, White female who also lives in campus housing. She is interested in sports information as a career and is heavily involved in the team-related skills and fitness training required to excel at two college-level sports. Eva radiates confidence when talking about her participation on these teams.

Eva tends to watch more than talk in the classroom. She always takes the seat in the class circle up to the left

of the teacher's podium. She does not seem to know anyone else in the class well enough to sit by them each week though she will talk briefly with whoever sits by her. If and when she talks, it will be after she has observed other responses. She has definite opinions about health choices which are evidenced in class discussion and through her writing. She tends to be matter-of-fact and rather positive about her opinions.

Eva's written work meets requirements. Her homework is much like her manner of speaking, matter-of-fact. Narrative and reflection seem difficult for her.

From researcher's field log--observation:

> [Eva] has agreed to join the study which is a relief. I have a full group again. She is not as verbal as the others, but this is good. Doesn't seem to like to reveal too much about herself--that may be troublesome, later. She talks easily about school work but less easily about what she thinks.
>
> In the wagon wheel exercise we did the other evening, I saw that she and her partners were usually finished with the questions sooner than the other pairs. She doesn't fool around with words. Everything is direct and to-the-point.

Following their renewed verbal agreements, students resubmitted the artifacts that had been generated during the course of the assignment. Copies of these artifacts were made, the original materials were returned, and a secure cabinet was selected for safe storage. Those papers and

other documents served as ongoing reading material for the researcher.

Campus Nurse

The campus nurse and researcher met to clarify the action which was to follow. A notebook was prepared containing sample documents, copies of the student-generated materials, human subjects review documents, and the dissertation proposal. These documents offered the nurse a contextual view of the study and her position in it.

Interview questions designed to reveal answers to the research questions underpinning the study were reviewed and clarified. Protocols for interviewing were established. An audio tape would be used to record the nurse-participant sessions. All materials would be provided by the researcher. Audio tapes would be labeled following the interview and secured in her locking closet until all interviews were completed. Following the completion of all the interviews, the nurse would transfer all of the audio tapes to the researcher.

Interviews were to follow the predetermined question schedule (see Appendix E to review the interview questions), yet use of clarifying or probing questions as needed was encouraged. She also agreed to act as an information and referral source throughout the interviews or semester should any student need support or other professional assistance.

During this conversation, Nurse, who was pregnant at the time, revealed that her pregnancy was considered high risk. Her baby was not due for 4 months, but it was important to schedule her portion of the interviews quickly. Her doctor was recommending a reduced work schedule and stress management in hopes of reducing risk to her and her baby. Following a very serious dialogue, she indicated her continued desire to be part of this study.

After some action planning, it was decided to move forward. The meeting ended with the agreement that the researcher would ask the 4 participants to schedule interview appointments within the next 2 weeks.

From researcher's field log--observation:

> I'm really concerned about Nurse. Her first pregnancy was very difficult; she was in bed much of the time. She is so good at what she does that I want her to be part of this. I sure hope this thing doesn't put her under more stress. I better start thinking what to do if things don't work out.

Unfortunately, prior to any of those interviews, the nurse did experience a negative turn in her pregnancy. She took a medical leave and was not on campus for several weeks. For various reasons, 3 weeks elapsed before a new plan of action could be formulated.

In an effort to not place stress on her, Nurse and researcher had no direct contact during that time. Her skills and her familiarity with the project made her a key

piece in the overall scheme of the project. She also makes a concerted effort to know students, and some of the participants had actually had contact with her through health services or other campus programming. This familiarity added a zone of comfort. The round of interviews with her had the potential to reveal very personal stories.

Group Decision-Making

The participants had signed their Agreement to Participate with the understanding that the nurse would be part of the team. How they might respond to a change in the study protocol was unpredictable. Not everyone knew her well, but talking to a complete stranger could have seriously affected interview outcomes and even participant willingness to continue.

A meeting, allowing the 4 students some ownership in the decision, was held with them to discuss this event and how to proceed, as it would change the timeline of the study. We agreed to wait for further information about her condition and that all would prefer talking to her, if possible. In the meantime an alternative interviewer with similar knowledge and skills was sought to no avail.

From researcher's field log--personal notes:

> What am I to do if Nurse can't return? I called [secretary], and she couldn't release information. She isn't aware of how closely Nurse is tied to this study,

> nor would she care. Right now her job is to shield for Nurse. I may have to ask [Nurse's supervisor] for advice or more information.
>
> What's nervy is that time is getting away while I diddle around with this. I just really can't think of anyone I want to do this if she can't. ABD looms. Something will turn up, or we will postpone. This is OK.

The nurse did return for half days after 4 weeks of bedrest. She was able to complete the interviews. By finals week, the research participants had met with both the nurse and the researcher. A total of eight interviews were completed with information secured on audio tape.

The flexibility of the constant comparison process and the emergent nature of this study model was called to bear during this period of time. From the researcher's perspective, yes, interview sessions taking place at the end of the semester may have been somewhat different than those taking place at the calmer midterm. The protocols per the original proposal were not followed exactly; they could not be followed due to this timing issue. From this researcher's view, these changes resemble the normal types of occurrences at a school site among colleagues and students. Within this context, the next section combines data with questions to provide the student view.

Developing the Research Questions

Once again, important insights can be revealed through the metaphor of tree climbing. The essence of the tree

reveals itself as the climber sits resting. The climber observes this new environment by looking around, by watching for new sights, and by listening for new sounds. Sitting for a sustained period, the climber realizes that each sense brings in different, yet related, information about the tree. The raw experience of the tree and climbing it transform as the climber uses incoming information to make meaning and construct plausible explanations about what is seen, heard, and felt.

With so much to see and experience, the climber feels a bit dizzy. The reality of being in the tree begins to hit. The leaf patterns fascinate the climber, but then so do the configurations of the limbs. Each leaf has its own mix of form, texture, and color. Some leaves clump together; others stand alone. The small, finger-sized twigs that hold tight to the leaves widen, changing into thicker, stronger branches. The climber notices that bigger branches support more leaves.

Sitting there, the climber's original definition of tree changes. The climber uses previous tree-knowledge to sort and sift through the new information. Some information is kept and some discarded.

New images form in the climber's mind. Captured as still or moving images, these impressions convert or link to words. Obviously if another climber came along and did the

same thing, another mental image of what was going on and what it meant could occur. If the climber returns home and tells about the day's adventure, the telling of the day's story might result in yet another mental image for the one listening to the story about the tree and tree climbing.

Huberman and Miles (1994) suggested qualitative studies are "vulnerable when it comes to data management" (p. 429). In sorting through data, seeking the essence of what is viewed ranks highly. Raw experience converts to words that become text. Through the sorting process the essence reveals itself.

The design itself of this study represented an analytic process. The framework, research questions, participants, and the case, itself, all emerged over time, with each decision related to the one preceding. Huberman and Miles (1994) referred to the focusing and bounding function of these choices. With each selection or elimination of an idea or a piece of data, the study design became more limited.

What began as a gradual inductive process became more deductive as analytic categories emerged. Processing action spread throughout the study allowed data collection to focus on emergent themes as the collection of additional data continued. This iterative process consisted of question and answer cycles leading to selection of data sources. The

data sources provided some limits, and ongoing collection shaped ongoing processing.

The theme of constructivism underpins the learning activity being studied here. It also supports the researcher's constructions throughout the study. Lincoln and Guba (1989) suggested several properties of these constructions. First, people attempt to make sense of experience by constructing meaning. The meaning made depends on the skills and knowledge held by the constructor. Often these individually developed constructions confirm common agreements. Malconstructions result because they are "incomplete, simplistic, uninformed, internally inconsistent, or derived by an inadequate methodology" (p. 143). The constructor's paradigm influences the assimilation and accommodation process as new information challenges old beliefs and knowledge.

Revisiting the Research Problems and Questions

Having started the study of the tree, the climber now has a view of what the tree offers. Delicate sketches of the relationships between leaves, branches, and limbs catch the climber's eye. The climber thinks three tree attributes--the leaves, branches, and limbs--symbolize what is most important to know about the tree. Thinking this, the climber starts to define each part. Even as this description begins, the climber thinks it is difficult to

separate one from the other. Recognizing that the leaves, branches, and limbs depend on each other is important if they are to be individually understood.

The research questions guiding this study developed as the researcher sought answers to several instructional problems. These problems were identified in the introductory chapter. The following brief descriptions remind the reader of those foundations.

First, in the area of constructivism, does this method of developing family health data allow students to construct meaning, both in terms of health risk or other family issues? Second, in the area of authentic learning, does the educational activity of constructing a multigeneration family health history classify as an authentic learning strategy? Finally, in the area of health education pedagogy, does the action of constructing a multigeneration family health history represent an essential skill or group of skills which should be included in a health education curriculum?

The question and answer cycle repeated itself several more times as research questions formed and reformed. The final grouping offers a means to view the complementary issues of pedagogy and student growth.

1. How does the process of constructing a multigeneration family health history influence health-related knowledge?

2. How does the knowledge gained from constructing a multigeneration family health history influence learners' health-related attitudes?

3. What sorts of actions or intentions to act result from participating in a multigeneration family health history construction project?

4. How does the experience of constructing a multigeneration family health history affect perceptions and attitudes about health education?

Data Sources

The research design tightened as questions about the connectionss between constructivism, authentic learning, and pedagogy came together. Inductive processes revealed a pattern of relationships that could support improved practice in health education.

This research project relied on triangulation of methods and data. Janesick (1994) suggested using triangulation as an heuristic tool to aid and guide discovery. Qualitative research depends on presentation of solid descriptive data in order to lead the reader toward understanding the experience under study.

A return to the study model (Figure 5) identifies the major sources of data used in this study. These data were secured from observations, interviews, and documents compiled during the course of the assignment and the study.

Researcher-generated data sources included a field log and memos. The field log and memos served two purposes. As incidental happenings and ideas occurred, self-directed memos were written to assure that the nuance was not lost. The field log, a more formal resource, contained observations of students during regular class meetings and comments about telephone and face-to-face contacts with students and significant others. Notes regarding conversations between researcher and student, researcher and research participants, research participants and others, and researcher and nurse offered insights or stimulated questions which filled numerous pages.

Audio taping of interviews by the nurse and researcher captured interview content. A semi-structured interview format (Appendix E) provided a framework for questioning to assure collection of similar types of data from each of the 4 participants. The semi-structured format allowed for clarifying and probing by the interviewers on an as-needed basis.

Students provided hard copies of the data collected through their multigeneration family health history

construction project. This copy potentially included a minimum of 15 health histories per each research participant. Students used the historical data they collected to construct family medical trees that capsulize those histories. A 4-5 page reflective summary allowed students to coordinate their findings, to draw conclusions about their personal health risks, to relate stories told to them by family members, and to identify effects of active involvement with the assignment.

Janesick (1994) suggested that "staying close to the data is the most powerful means of telling the story" (p. 215). Learning to take time to note important happenings through rigorous attention to the field log epitomizes the single most difficult task encountered by this researcher during this study. Over time, as data quantity doubled and tripled, these captured thoughts gained importance. Having a plan for data collection, reduction, and display allowed the study to continually progress.

Data Collection, Reduction, and Display

In this section each research question is presented and followed with a display of pertinent data. The researcher uses the data gained through the multiple sources described above to give voice to the view of each of the research participants. Locating personal experiences that speak directly and indirectly to the questions allows recognition

of essential, recurring features of the assignment and its effects.

Open Coding

Application of the open coding process began with the reception of student materials. As student interviews with the campus nurse and researcher occurred, the volume of data available increased by several times. Once all data were in print form, axial coding began.

Within these combined processes, an overview of artifacts and documents provided a general understanding of the type and scope of data available. The data included medical facts, student opinions, assumptions, and conclusions, and prescriptions for healthy living. Each student's ability to present information in written form affected the depth and type of information shared. Additionally, family rules dictated how much information could be shared comfortably.

Student papers followed general syllabus instructions yet each exemplified the personality of the individual writer. Thus, because the students presented their ideas and findings differently, the first several readings of the artifacts entailed a careful, thoughtful process of looking for similarities and differences in content and intent. The researcher sought to understand each writer's meaning through these initial readings. Data selected needed to

describe not only what the research participant had found but also how he or she felt about the findings.

Axial Coding and Pattern Clarification

As notecards were prepared, each carrying a bit of information or perhaps a quote, particular words, phrases, and ideas were repeated. The shuffling of these ideas led to a type of clumping of the information where similar ideas fit together.

This layer, called axial coding, allows larger patterns to surface. The discussion that follows is the result of what became two interdependent processes. Pertinent data formed patterns addressing the research questions.

In the following sections, data pertinent to each research question are provided. Explanations of patterns discovered through this sifting process follow each data display. Care has been taken, whenever possible, to provide the view of each participant per each area of consideration. A collective case study approach is not the intent of this study; looking at the view of each research participant is.

Research Question 1

The first research question asks, "How does the process of constructing a multigeneration family health history influence health-related knowledge?" This question focuses on the cognitive aspects of the learning assignment. Selected interview question responses and reflective summary

excerpts provide insight regarding knowledge acquisition and the steps taken to secure the information.

The multigeneration family health history interview schedule includes 18 specific categories and allows for other conditions not listed to be noted in writing. This format assures an opportunity for counting and categorizing of medical information. Some of the information gathered classifies as new knowledge for the research participants. The research participants talk about processing the information.

Belle offers a straightforward response to categorizing the collected health information. She follows the assignment protocols quite closely.

> I spoke with my mother and father and used the interview process to code. I used the list Ragene [researcher] gave us, and then I just assigned colors to each one.

Figure 7 shows the family medical tree Belle created. She copies the tracking form format (see Appendix C to view the original tracking form) but only indicates the areas affected in her family. Her original shows several colors to distinguish the various conditions found. Belle reported noting the intensity created by the number of relatives with cancer connections.

Curt talks about the methods he used to code the information. He mentions the importance of certain

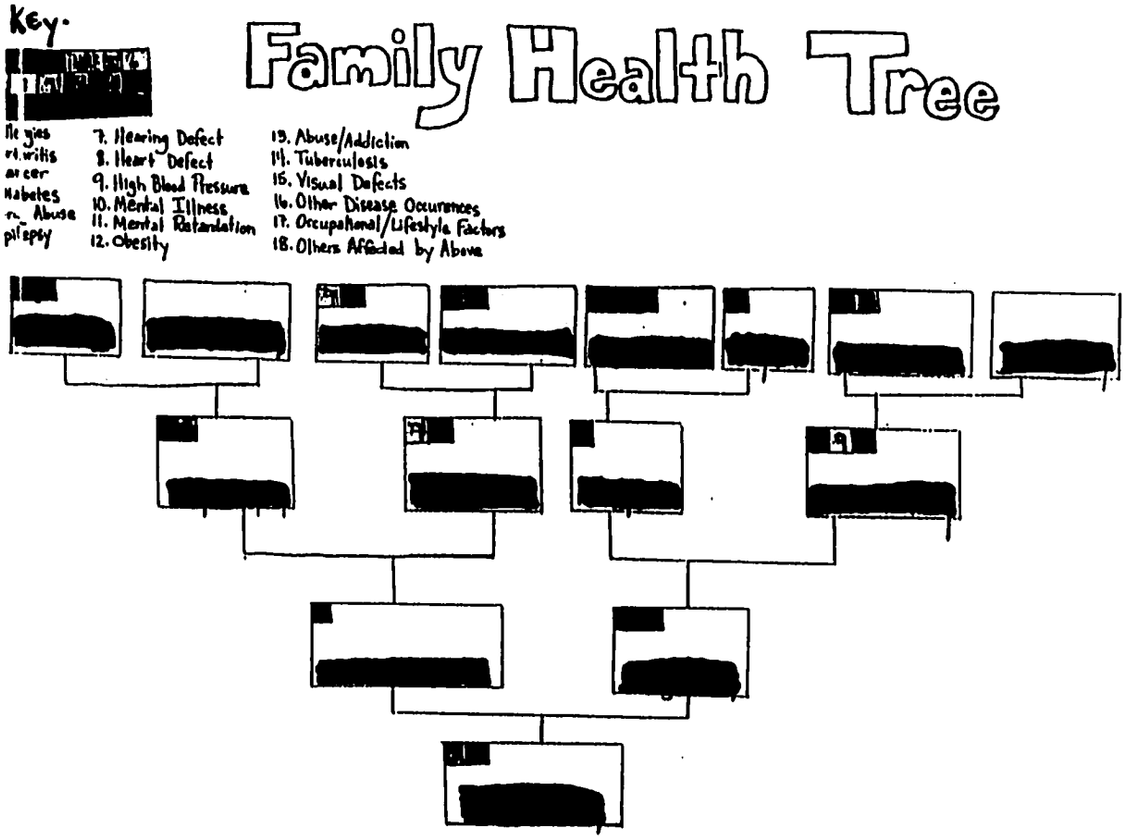


Figure 7. Original construction of Belle's family medical tree with names blocked out. This tree demonstrates the use of codes provided by the interview schedule. Highlighted areas on the original indicated incidence and prevalence of various medical conditions.

information bits and how these data verify his previous knowledge.

> I used the chart she [researcher] gave us, and I just went through and, as I asked Mom or Dad or anybody else, I focused on the questions and told them, "OK, now I'm going to go through this list and just say 'yes' or 'no.' If you don't want to talk about it, we won't go into detail, but it's important for me to know if they were alcoholics, diabetics, anything you know about them. Just let me know and nothing more will be said, but I need to know if we have anything that's being passed on through the genes and all that kind of stuff."
>
> It was really pretty easy, and they were pretty open about it. I was lucky because, like I said, I don't have many people with medical problems. I had one heart defect, but he was 85 years old when he died of a heart attack, so it wasn't like it was going to be passed through the genes. So, I was really lucky. I just went through and used the basic code, and numbered it, and then gave the basis of that disease.
>
> Even though her [great-grandmother's] diabetes case was so mild, I documented it because, if I don't document it, then my family's history-bare. I put down as much as I could, and it doesn't look like much. We have a pretty clean family tree, and I guess we are pretty fortunate.

Curt's family medical tree takes the form of a line drawing. Figure 8 shows his interpretation of the information he found. He names the conditions to show incidence.

Eva talks about following the assignment procedures to gather her information. She refers to the interview schedule list as the means to decide what to include. She also refers to the number of incidences per category to determine the importance of each entry.

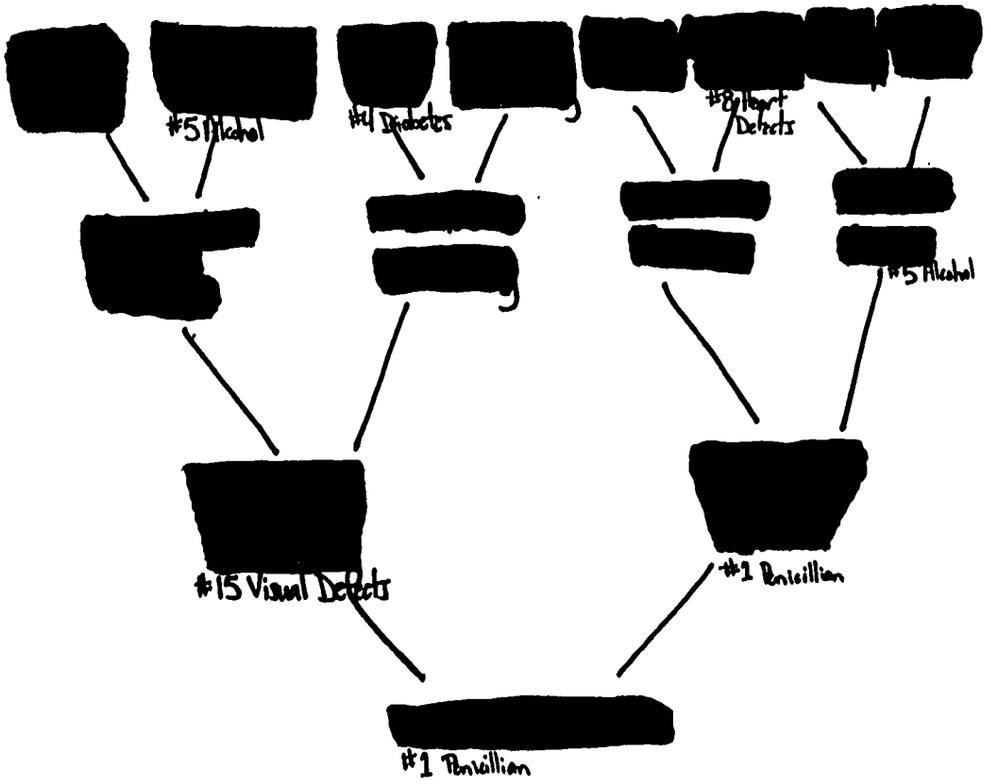


Figure 8. Curt's visualization of his family medical tree. Connecting lines show relationships between family members and incidence of disease and other health-related conditions.

> I went through the list she [researcher] gave us and then either put a check mark by it or wrote it down. To decide what was important I just went through the list, and whatever came up more than once I thought was more important. There was a better opportunity or possibility of [this problem] being passed along through the generations. I found a lot of heart problems, and everybody wore glasses in later life. Those are just throughout, all across the board.
>
> My drawing was really basically simple. I spent about an hour putting it all together after I had the information. It didn't really take me that long. It was done enough to where I could do it artistically as well as make it like the book. In my own mind, it's pretty good. For people who like to draw, it works really well.

Eva depicts her family tree (Figure 9) using a more traditional kinship model format with females represented by circles and males represented by squares. On her original drawing, the background in the symbols for a husband and wife were shaded the same color to show their connected relationship.

Allen's story describes activities involved with the collection of a family health history. He talks about the discovery of a trunk packed full of information, much of it in Swedish, and how he used the contents of the trunk to complete this assignment.

> After several attempts to locate this mysterious trunk, I was able to find what would turn out to be a treasure of our family's past. Under an inch of dirt came hundreds of photos and documents. From here, I would begin my search into my family's medical history. I had a sister become involved trying to help sift through the materials. It was something that interested her. After a couple of weeks of sifting through hundreds of documents, and trying to formulate

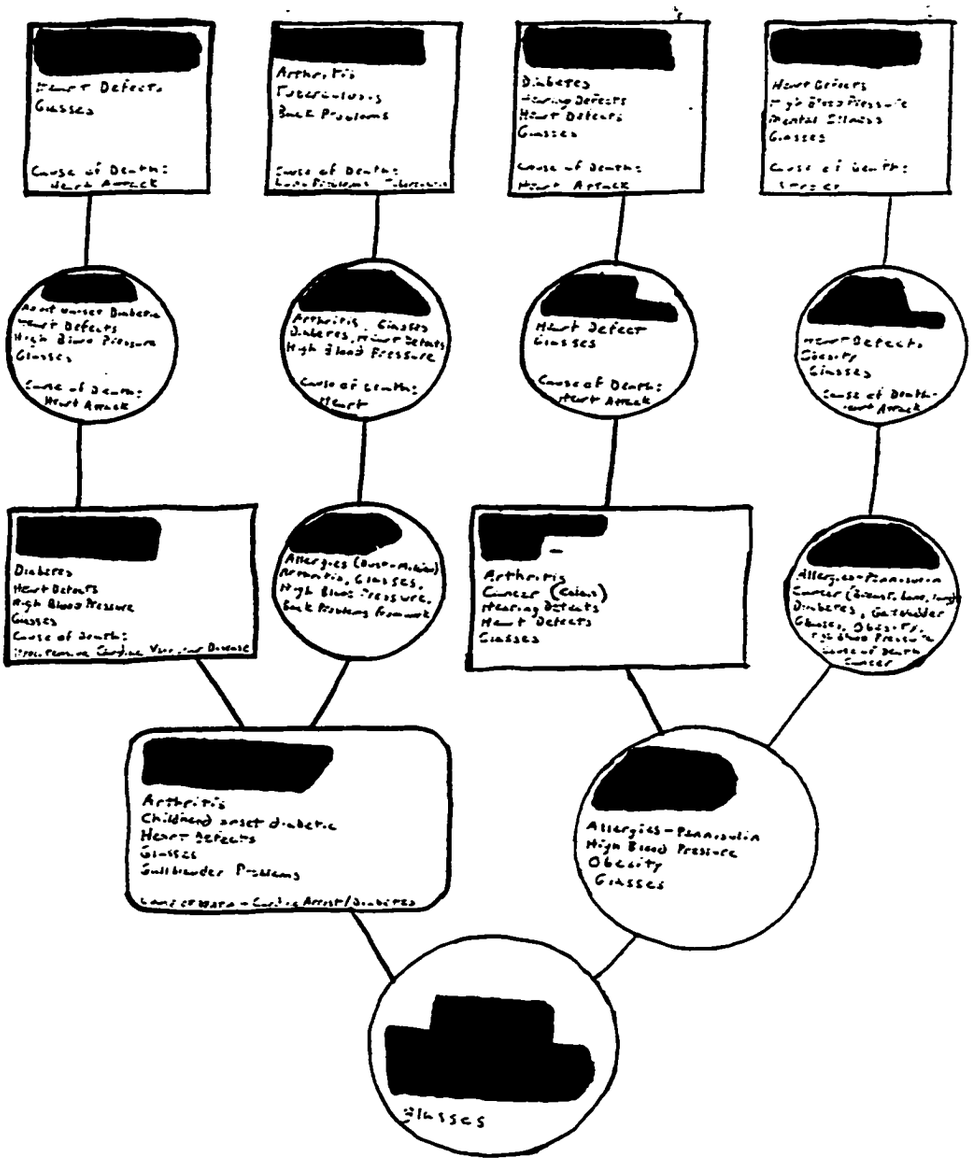


Figure 9. Eva's family medical tree using a traditional kinship design. All medical conditions are listed for comparison across family lines.

> a picture tree of how everyone was related, I was able to postulate a family medical history.
>
> Before beginning my observations, I would like to stipulate two things. First, most of the medical records and death certificates were very vague, and most observations are based purely on observation rather than actual medical evidence. Secondly, most material on my father's side was in Swedish. If I felt I had a document worth translating, I did it. I had resource material lying around that helped me translate things back and forth. Unfortunately, most material will go untranslated, and any information contained in them will probably be lost forever.

Allen's family medical tree resembles the tracking grid supplied in class. He uses a computer drawing to capture and to tabulate findings, and he also provides a quite detailed listing of the facts. Figure 10 shows his construction.

> The first step I took in preparing for this project was reading the book, How Healthy Is Your Family Tree? I could totally understand the driving force behind the author's necessity for information. I was extremely gung-ho to complete this assignment. I was very interested in finding the hidden secret that could help my family's future.

The research participants' stories provide contextual information regarding key informants and information collection. Knowing is often based on information gathered from significant others.

Curt offers the following:

> I interviewed a lot of my immediate relatives. I interviewed my mother, my father, and both grandmas on both sides of the family. I really went through four different people to get my information. It was a lot of fun talking to them because they all had different

Family Member Information

1) No Information.

2) [redacted]
Born - Sweden
No Information

3) [redacted]
Born - [redacted]
Date of Death [redacted]
Age - 59
Occupation - Grocery Store Owner
Status - Married
# of Children - 11
Problems - No Information

4) [redacted]
Born - [redacted]
Date of Death - [redacted] Suicide by knife
Age - 48
Occupation - Laborer
Status - Married
# of Children - 5
Problems - 13,18
Other - None

5) [redacted]
Problems - No Information

6) [redacted]
Born - Sweden
No Information

7) [redacted]
Born - [redacted]
Date of Death - [redacted] : Stroke
Age - 88
Occupation - Housewife
Status - Married
# of Children - 11
Problems - 8,9,15
Other - None

8) [redacted]
Born - [redacted]
Date of Death - [redacted] : Stroke
Age - 80
Occupation - Housewife
Status - Married
# of Children - 5
Problems - 7,8,9,15
Other - None

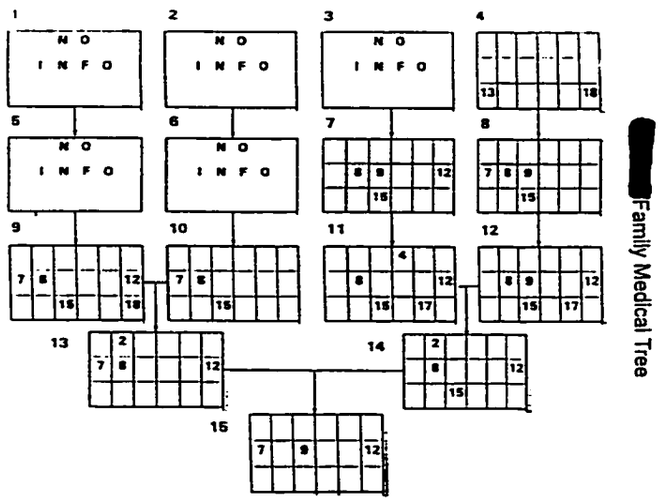


Figure 10. Allen's family medical tree using computer drawings to illustrate his findings. Depicted here is the tree reduced and inset on the first page of explanatory family member information.

> stories and different aspects about the same stuff. I just kinda accumulated and incorporated everything.
>
> My mom had done a lot of research about 10 years ago, so her side was pretty easy. She did a pretty complete job. She went back about six or seven generations. She looked at everything she possibly could. I remember being little and going to cemeteries and stuff. She had a lot of information, and I was lucky enough that her information was really detailed. For stuff Mom didn't know, I contacted my grandma to see if she had any stories or anything I should know.
>
> Dad had no clue about anything so he called my grandma, and I talked to her. She had a book through the Lutheran Church, so that's how she knew a lot of her stuff. Of course, she knew a couple of generations back, so she helped out tremendously.
>
> I found only one major health-related problem--a heart attack on my father's side, but he was 85 years old. I knew she [great-grandmother] had diabetes, but it wasn't that big of a deal.
>
> The only trend I can find was that my dad is allergic to penicillin, and both myself and my brother are allergic to penicillin.

Curt responds to a question regarding his interpretation of contradictory information. Interview notes offer his changed and expanded view:

> Only in my views because my great-grandpa was an alcoholic. We nicknamed him "Papa," and I had no idea he was an alcoholic until much later. I knew the guy until I was 5 or 6. Being that young, I had no idea he was an alcoholic until my mom told me 2 months ago.
>
> But it was surprising that he was an alcoholic because I knew the man, and I talked to him every Sunday after church; we ate donuts with him, played with his dogs, and listened to them [he and grandma] fight. Now I'm a little frightened because he was probably drunk most of the time. It took me by surprise.
>
> My findings were very surprising in that our family has a history of being very healthy. It is a family tree

that is free of disease and has not suffered any tragic incidents.

From his discussion with the nurse, Curt realizes the far-reaching effects of his great-grandfather's alcoholism.

So, that's the only real problem. My dad's dad--my great-grandfather was an alcoholic, and my grandpa's an alcoholic, so that might skip a generation and come to [my brother] or I, but we don't drink, so, so far, so good. So far on my mom's side, alcoholism has kind of come to an end for right now.

The nurse clarified by asking

N: Then you know that that can be passed on in the genes?

C: Yes.

Nurse went a step further by asking about his great-grandmother:

N: I'm interested in knowing about [your great-grandmother] when we talk about medical trends. I know that it would be your mom's father's mother had, you said, mild diabetes. Was it controlled by diet or was she on insulin?

C: No, it was by diet.

N: What type of visual defect does your mom have? With diabetes, you know, it can affect vision, and I wonder if there is any connection.

C: Right now she calls it <u>lazy eye</u>, but at that time they didn't know what it was. She went through three or four minor surgeries--well, back then they were major; now they're considered minor. She was one the first to have this procedure done at the University. She can see out of her eye; her eye is fine, and it only shows in pictures. You can see her eye droop or something, but it's not severe.

Belle quantifies the information she collected. She notes high cancer incidence but no prevailing type.

> I spoke with my mother and my father. I called my brother to see what I needed from him for all my questions and the same with my mom. He has a memory like a steel trap as far as dates and that goes, so he just snapped everything right off. I used the list that Ragene [researcher] gave us--all the different diseases--and then I just assigned colors to each one.
>
> I found there are definite trends. There's a high incidence of high blood pressure on my mother's side and my father's side. The incidence on my father's side of cancer is double that than on my mother's side. I just found out there was also heart trouble on my father's side.
>
> The cancer varied between male and female. My paternal grandfather had prostate and groin cancer, and my paternal grandmother had uterine cancer. My mother had liver cancer, and my paternal grandfather's mother had Parkinson's. My maternal grandmother had breast cancer, which later went into her lung. They said it wasn't lung cancer; it was breast cancer. And my maternal great-grandfather had cancer--I don't recall what kind it was--bowel and lung, I think.
>
> My maternal great-grandmother died from Alzheimer's. She was in her mid-90's before she showed any symptoms. Before that she was sharp as a tack. My paternal great-grandmother had mental illness. She was institutionalized for many years. I would like to know what her illness was. Today, it would most likely be a very treatable disorder.

Eva offers these comments about her learning. She expresses what she found using proportions.

> I talked to my mom and then my grandma, and then an aunt on my dad's side of the family was also at my house. They were there in early September. I just called one night cause my mom knew everything about her side and then my grandma about my dad's maternal side, and then my aunt was my grandpa's sister. So, I talked to her about my grandpa's side and just gathered it all that one night.
>
> We did it all by talking. They just filled in everything I needed. With one call I got everything I needed. I came to find out that the biggest health

factors that I need to be aware about is heart disease, diabetes, and high blood pressure.

I found that 10 out of 15 people that I got the detailed information about had some sort of heart defects. I knew that there was a lot of heart problems from my maternal grandfather's side. He is 81. Three of his five siblings all died from some sort of heart problems. He, too, has had a heart attack. His only son also died of a heart attack.

With my maternal grandmother, she had both parents have some form of heart problems. Though she did not die from heart problems, she was at a severe risk, and had she lived longer, it is a strong chance that she, too, would have developed these severe heart problems.

Moving to my father's side, there is a strong history of heart problems as well. My dad had heart problems that required hospitalization. He was in the hospital four times that I remember with heart problems. He had angioplasty surgery performed about 10 years ago. His heart was also one of the main factors that led to his death. There were complications with his diabetes, but his heart stopping is what actually led to his death.

There was a decent amount of high blood pressure. Seven different people have suffered from high blood pressure and had to take medicine for it.

As I have said, there really isn't a whole lot that I was not aware of. The only major thing that I did not know about was the fact that my mom's maternal grandfather spent some time in a mental institution when he was in his forties.

The only thing I did not know about was how much diabetes is in my family history. I was aware that my dad had the disease since he was three, but I did not know there was a lot of cases of adult-onset diabetes as well. My dad's paternal grandmother, my dad's maternal grandmother, my dad's father, and my mom's mother all had diabetes at some point. So I would note this as something that I have to watch out for in the future as well.

When questioned by Nurse, Eva places somewhat different emphasis on the importance of the diabetes. It is not clear what Eva thinks about late-onset diabetes.

> I mean, the only thing that I noticed that I didn't know really was the diabetes. I think it comes as you get older, for the most part, so right now I'm not really paying attention to it, you know.

Allen's information search follows a very different pattern. Documents form the framework for his search.

> I initially began with my parents, asking them for information because they're the only living relatives that I have. I don't have any cousins or living grandparents or uncles and aunts that I would have gone to. They told me that when my grandmother died all the family information was put into a trunk that was stored, they thought, out in the garage attic. I had attempted to locate it--found the box, so I started looking through a lot of old family photos and a lot of medical papers. That's basically how we got the information for the project.
>
> I mostly used the information given in the charts as part of the assignment. I came up with the key and just used the basic codes, somewhat in a box structure to be able to decipher what information what some family member would have had.
>
> I stayed with the parameters of the assignment. I wasn't exactly sure how in-depth she [researcher] wanted to get the information. The 18 listings were what I looked for.
>
> The only one I remember being very significant was a preponderance of heart problems, but all the family members didn't die till [sic] they were 70 or 80, so I don't think it necessarily was a problem that ended their lives early, and it may have been more of a result of death certificates not finding another cause and just simply stating that the heart giving out was the problem.
>
> There are vision and hearing problems, and I have hearing problems, also, but I think that is due in part

> to being in the artillery in the army--exposure to a lot of loud noise. The other aspect would have been obesity which seems to run on both sides of the family. Other than that, no major problems.

None of the research participants themselves or their families had ever purposely constructed a multigeneration family health history. Initially, each research participant relied on direct contact with immediate family members to obtain information. Although Curt's mother had a tracing of genealogical patterns, including general histories for each significant family member, he sought additional information as the scope of health-related information was insufficient to complete the assignment.

Direct interviewing served as the common means to secure the information. For the most part, these individuals met face-to-face or talked by telephone with one or more close relatives to verbally exchange stories and memories about the health status of family members. The interview schedule provided the script and the parameters to guide conversation. Students consciously worked to meet assignment requirements as they identified key informants.

All 4 participants named mother and/or father as their first source of information. Depending upon amount of information available through this initial contact, other sources also emerged. Conversations with other relatives, usually women, supplied additional information for some.

Secondary sources such as a church directory, letters, immigration papers, photographs, and birth and death certificates provided yet more information for others.

Research participants noted incidence of various diseases and named the persons affected on the health history forms, through their family tree illustrations, and in their reflective summaries. Conveyance of this information varied. One participant discussed each family member separately but never tallied numbers of people affected by a particular illness. Another participant used ratios to express high incidence of heart disease and diabetes. In one family, explanations showed every person affected by at least one form of cancer.

The major chronic illnesses such as heart disease, cancer, and diabetes exist, to some degree, in all four families. All participants acknowledged some risk. A relationship between age and recognition of relative risk exists among these research participants. When health conditions affect relatives in later life, 3 of the 4 research participants tended to see less acute risk for themselves.

Asking research participants to relate a particularly significant finding offers another view of knowledge gained. These responses personalize connections with the medical findings or confirmations.

Allen talked about his findings.

> I don't know that anything really shocked me. I don't know if there was any one piece of information that really stood out as a form of problem. Perhaps the visual problem. I've always had a problem slightly with my vision but not to the point where it's corrected with glasses. But I've been able to trace that back to a problem that it seems every one of the family has had, so there's something slightly wrong with the eyes in our family.
>
> The medical side was kind of interesting because of the propensity for obesity in the family. That and heart problems were the only two major problems that I saw. I've come to the realization that there's a lot more genetics than perhaps I would have allowed before, and I thought it was problems from the diet side more than anything else. All I had to look at were my parents, and my parents were fairly inactive people so I felt that that was the problem, and it's really not. I'm fighting a body that definitely wants to maintain as much fat stores as it can.

Belle added her stories. The incidence of cancer in her family is extremely high. She, herself, has already been treated successfully for skin cancer.

> I knew my grandpa had bone cancer. I thought the other one was testicular cancer, but I found that it was actually prostate cancer. The doctors castrated him because they thought it would slow the progression of the prostate cancer. How terrible!
>
> Almost 2 years ago I was diagnosed with basal cell carcinoma. I had small, very small flare-ups since I was young, like probably 9. I was fully cured by surgical excision. The good thing about this form of cancer is that it was not hereditary. It was caused by too much sun exposure.
>
> I have never been the type of person to sunbathe, but I have always been very much of an outdoors person. That coupled with fair skin and inconsistent use of sunscreen led to many bad sunburns growing up. I have now gone for two summers without a sunburn. I have leaned to be very careful, and very observant of my

> skin. I now have yearly check-ups and must keep an eye out for changes in my skin.

Curt talked about his allergies. Penicillin allergy seems to be the only condition being passed directly at this time in his family.

> For me personally, I thought the penicillin thing was pretty interesting because it shows that's the only thing that was being passed, really passed on. All these other things have either skipped generations--whereas Dad passing his penicillin allergy on to [my brother] and I was pretty significant, I feel. Of course, it affects me and my brother directly.

When medical conditions relate directly to the research participant, an important personal connection develops. Repetition of a condition through the genetic line verifies or explains its existence for these individuals. A type of "Oh, <u>now</u> I see," response develops as each research participant decides how strongly or closely connected the factor is to him or her.

Stories allow knowledge gained to reach beyond the notation inherent in a medical history. Each research participant shared one or two of these stories in the interview or in writing through the reflective summary. Some of those stories follow.

Allen related a number of very different things. In his paper, he talked about the origin of the family name and a strong spiritual connection he discovered.

> In trying to decipher my grandparent's Swedish records, I learned something interesting. Swedish last names do

> not get passed on from generation to generation like today's traditional system. Instead, a child's last name would come from his father's first name with the word <u>son</u> added to it. My last name would translate literally into "[Allen's] son."
>
> In fact, this is not my real name at all. During World War II, my grandfather and his two brothers decided to change their name to its current form. The brothers changed the name when they enlisted into the army so that they sounded more "American." This change of names made it a real pain to trace my genealogy chart. I'm not sure I would ever be able to trace the line back farther than my great-grandparents.
>
> Another interesting point is the date of the death of my great-grandfather. His date of death is the same as my birth. Just a coincidence, but an interesting tidbit, at least to me.
>
> I learned a lot about the family. It wasn't until this project that I found an interesting coincidence. I was born almost 9 months to the day of my grandmother's death. When bringing this point to my mother's attention, she shared something with me she had never told me before.
>
> She told me that as I was growing up, I reminded her very much of her mother. I had the "book smarts" and the common sense that her mother had, that the other family members didn't seem to have. It was as if I had a special connection with my dead grandmother. My mother told me that she thought that my grandmother was actually acting as my guardian angel. After hearing this, I began to feel a special connection to the grandmother I never knew.

Learning about the extent of alcoholism in the family tree surprised Curt. He talked about recognizing his own father's pain and the potential healing that comes with sharing such information.

> The only time I ever felt distressed was when I asked my dad about Grandma and her first husband who is dead. He was an alcoholic, and there was an instance when he came home drunk. Dad woke up, and he was fighting with

> Grandma. Dad went upstairs and he was, I want to say 14, 15, 16, somewhere in there, a pretty good-sized kid. His dad threw Grandma on the wall and smacked her.
>
> I could see that talking about this made him somewhat uncomfortable, but he laughed about it after he said it. It was a comment like, "It's over; it's done. I learned from it." Talking about this brought us closer together because he could share that with me. This could have turned out to be a negative thing. It turned out to be positive because he could open up and talk about it. It was positive.

Curt talked about some other connections he discovered when constructing the graphic form of his medical tree. He said his mother asked him to be sure he was very clear about these items in his paper.

> OK, there's two stories that I thought were interesting. [Refers to two persons of the same name listed on opposite sides of the family tree.] They were in no way, shape, or form related, never knew each other at all. And then there was a [name] in our family, and my dad worked with a man, [same name], for 25 or 30 years, and they just now found out in a round about way they might be related. It's kind of weird that after 25 years of knowing somebody you find out that way back in your roots somehow you were connected.

These stories offer indigenous information specific to each family's history or traditions. This information, which was passed through planned questioning and face-to-face conversation, adds new layers of relative knowledge for the research participants. The stories here convey some of the emotional importance of the telling of the stories and the hearing of the stories for the research participants and their others.

Another interview question allows yet one more look at knowledge gained. Specifically, the research participants address relationships or connections not previously known.

Belle's response suggests she had a good understanding of family relationships prior to the beginning of the assignment. She suggested that her current findings strengthen her knowledge.

> I think I had a pretty good base of knowledge of the diseases our family deals with. Cancer is pretty big in families, you know. It's a big subject; it can scare you. The things that were less scary or less serious, I didn't know some of those, so I learned about those. Some I knew, other smaller things, I didn't.

Allen suggested addition of new knowledge of existing understanding of family relationships. What is said also suggests an openness to the act of collecting information even when the people in question are unknown to him.

> Whatever I found was brand new. Knowledge about relationships was new, too. As far as the actual players, it was just something that was foreign to me.

Eva connected her father's death with job-related stress. She talked about the changes she saw following a career change.

> I know with my dad, he had a lot of stress in his life for quite a few years. He was an accountant. I'm not sure how long, but he always seemed to have a lot more stress than a lot of people, it seemed to me, before he died. And then he lost his job when I was a freshman or sophomore in high school, and then he was teaching. He always seemed a lot more cheerful when he was teaching because he liked it a lot more--stuff like that.

Curt referred back to his discovery of his grandfather's alcoholism. He compares his father's parenting style to that of his grandfather.

> Grandma and Grandpa grew up next door to each other--a farm away their entire life. They knew each other their entire life. I spent my entire 6 or 7 years figuring this guy is the most incredible person ever made.
>
> Dad was a big football star, track star, and [Grandpa] was never at the games. Never supportive in any way, but it didn't really come out until that one big incident [when Grandma was thrown against the wall] when it all came to a head and blew up. This is surprising because Dad is so supportive, that you kind of wonder where he learned that because his father was not there at all.

The data in this section has referenced the first research question. These research participants provide examples of the principles of disequilibration, assimilation, and accommodation. Their interview responses indicated that as information about family members and the incidence and prevalence of disease was received, these processes were indeed activated.

New information was first weighed against old knowledge, assumptions, or beliefs. For example, Curt talks about his surprising discovery of his grandfather's alcoholism. Allen discusses his change in view regarding body weight and genetics. For these research participants, these new discoveries led to a re-examination of previously held knowledge. For these individuals, the dissonance

caused by this new knowledge led to a reorganization and expansion of what was known.

Additionally, these research participants responses suggest that credibility of the information relates closely to the personal nature of the findings. Allen and Eva both talk about the value of working with personalized information. Curt compares studying health topics as factual issues as opposed to learning about personal risk. For these students, personal connection seems to be the link that initiates and accentuates meaning making.

Research Question 2

The second research question this study considers focuses on connecting knowledge gained with health-related attitudes. The question asked, "How does the knowledge gained from constructing a multigeneration family health history influence learners' health-related attitudes?" This section uses various data to explore that question.

Research participants responded to an interview question regarding medical risk. Specifically, they talked about how the information gathered affects perception of medical risk.

Belle looked at risk from several directions. She considered the types of conditions affecting her family members and how her father in particular has dealt with what he knows because of his experience.

> The high blood pressure [is prevalent], but I think it pales in comparison to the cancer. Just in peoples' minds in general, I think they feel less scared about high blood pressure. But there is some of that, too.
>
> I guess I looked at how it would affect me and my parents. They don't have it now, but looking at my mom in particular, it's possible. My dad has been and remains very active, and I think that a lot of his drive there comes from the fact that his parents both died of cancer, and so he will control his lifestyle as long as he can. I need to keep this in mind.

The researcher asked Belle if her health and nutrition consciousness comes from her parents. In her paper, she talked about the commitment she made several years ago to a wellness-based lifestyle.

> Partly from my parents. I've always been active. We were always into sports, and my parents were supportive of that. I kind of had a lag in there--I'd say from high school to college--where I wasn't very active and, you know, gained some weight. Now at this point in my life, I feel the best I've ever felt.
>
> I think another part of it comes from looking at my mother. She is married to a man that smokes quite heavily, doesn't take care of his body. He is the kind of person that always had very high metabolism his entire life and has been able to eat whatever he wants to, but he's beginning to slow down a little, and he's got quite the gut going. He drinks socially, and he doesn't do any kind of exercise, still eats about whatever he wants.
>
> Mom was always pretty active when we were growing up. From about the time I was 16 and my parents got divorced, to about when I was 20 or so, she was really into running. She looked great. Since she married [my step-father], I think his lifestyle kind of rubbed off onto her. She will smoke once in a while socially.
>
> When I was growing up neither of my parents smoked. My mom's parents both smoked heavily. She has eight siblings, and a lot of them smoke or have smoked at some time. We've really been on her about that. I

> think she may be starting to make a turnaround. I've seen her at home with the weights a couple of times kinda getting back into things. I hope she does.

Existing knowledge affects Curt's and his parents' perception of risk. Throughout his interviews and written assignments, Curt talked about the lack of serious medical conditions or complications among his relatives. At several points, he said they are lucky.

> Mom had already known that we were fortunate and pretty lucky. I guess she had found something--I think it was heart attacks--they had way back 5 or 6 generations. There were two actual heart attacks back-to-back, where the father passed it to his son, but then they stopped. On my dad's side, I'm not sure how far back they've been clean, but for the most part they just had a man die of a heart attack at 85 and an alcoholic. His side has been pretty lucky, too.

Another interview question places additional and different emphasis on knowing. Research participants were asked if their own perceptions or the perceptions of other family members of medical risks have changed as a result of this project.

Allen reported his perception was not altered. He suggested that what is occurring in the family is to be expected given the ages of the family members.

> I had always thought that we had a pretty healthy family, and I don't think that that's really changed. My parents right now are in their mid-60's, so they are more apt to be seeing doctors, more apt to be having conditions taken a look at. I think that maybe 15-20 years ago they would not have been going to the doctor and that would have probably awakened them to the fact that they really did need to get treatment for high blood pressure or they could have had heart problems.

> After all the material was gathered, and all the information sorted, no big mystery was unraveled. There are a few repeating health problems in my family tree but nothing that seems to have cut down the life expectancy of any of my family members. I would say that if the past is any indicator of the future, I have quite a few more years to accomplish my goals in life.

Curt's response resembles Allen's. Once again he talked about how lucky his family is to enjoy good health and longevity.

> We've been a pretty healthy family. My mom and dad are in good shape. I know all my grandparents, and they've lived long, healthy lives. I felt that I was never in real serious danger or harm of a gene being passed down or anything like that. I feel pretty lucky about that.

Eva responded to a question from the researcher regarding prevention strategies. Her response suggests that she believes a healthy lifestyle, onset of disease, and severity of disease can be controlled, at least to some extent.

> All the others were later in life, like 60's. That kind of led me to think that, "Well, that's coming as a result of some of the heart problems and other problems, then they got diabetes as they had these heart problems." I kind of look at it like if I can control the heart, I should be able to control that.

Attitudes and values about health-related issues tie closely to the knowledge one possesses. Research participants talked about the value of the information discovered through this assignment.

Allen spoke about the effect of age and aging on what one values. He alluded to the idea that, as we age, our change in view parallels emerging needs and interests.

> I'm getting to the point where mid-life crisis is closer than the years when you thought nothing was ever going to kill you. I probably thought I was as smart as I was going to get when I was 21, but obviously, light years later, I don't necessarily know if I would have done enough work to get that much out of it. I don't know if I would have put in this much effort.

For Eva, the value of the information increased because of the way she located it. She talked about the difficulty of creating meaning when a distant relative is the subject versus talking about someone known. For Eva, concrete evidence increases value.

> Seeing it on paper makes you believe it a little more. I knew he had the heart problems, but I didn't really see it as much, or perhaps care as much. And then, like when my grandpa died, I was so young I really didn't notice. I had seen him once or twice a year, so I didn't know him that well. It didn't really affect me. When my dad died due to the heart, it was more important to me.

Belle also talked about the relationship of concrete information and the recognition or understanding that relates to it. She suggested that the action of constructing a medical history reinforces connection to the information.

> I think just mapping it out, you know, while I knew it was on both sides of the family, just actually seeing the high incidence on my father's side was significant. I tend to be more like the [paternal] side of the family. I need to keep this in mind.

Curt's response to the questions regarding the value of the information took a different form. His whole family continues to respond to him as additional information is remembered.

> I'm going home this weekend, and my grandma is coming back from [out of state]. She'll be there, and [my sister] and her new husband are going to be there. I guarantee you I'll get 700 questions and 3,000 stories about things. "Oh, you should have put this," and "You didn't know about this," and "I betcha your teacher wished you had told her this."
>
> It just kinda brings the family together. I contacted Mom, then Mom and Dad contacted Grandma. They got talking for a while, and it just brings everybody closer because you have all that in common. In my situation, I really didn't have anything medically that I didn't really know. The family stories are just awesome, and like I said, these things really should be of value because they're all going to talk about it--it rekindled the fire.

The research participants looked at the connections between health-related knowledge and attitudes. They used the multigeneration family health history assignment to identify some of their own values and beliefs.

Belle talked about the connections she sees between knowledge and attitudes. She also talked about the value of personalized projects.

> I think lectures are less personal. When it's focused on yourself, it kind of forces you to get involved. We had to map it out like we did--that's seeing it concretely in front of you. I think that makes a huge difference in the impact. I know it does for me.
>
> Before I made the decision to make the time to work out, I knew the information. I knew the things that I needed to do, but until you're willing to really work

> that stuff into your schedule--I mean, you can know all the information and read and learn all the things you want, but until you're willing to make the changes in your behavior, it doesn't matter.
>
> I think college is a time when students may start to look at lifestyle differently. I think a project about yourself is more valued than just reading and listening. I find it much more interesting to apply it to myself rather than just do well in a worksheet type of thing. I remember things or retain things a lot better with this kind of approach rather than just reading out of a book.
>
> The student has to take charge of the learning. In this assignment, the information has to be collected in order to write the paper required by you [researcher]. Everybody can take their own route, but there were certain things that had to be there. They present it in the way they wanted to.

Curt talked about similar issues. He expanded on the connections he feels with his family as a result of this assignment.

> I think it's good to sometimes go back in history and remember who you are and where you come from. It's kind of a reality check, I guess you'd say. You know, if not for their [grandparents] hard work and your mom and dad's loving support, then you don't end up the person you are. It was neat to look back and say, "Well, if it wasn't for [my grandfather] getting up at 5:30 and being a hard working man, maybe his hard work rubbed off on Dad, and hopefully those traits rubbed off on my brother and me."
>
> You pick out positive traits, and maybe negative, and go through and look at every individual and say, "Well, there's a part of me. I can see it when I do this or that." It was neat to see how all these people are just part of the puzzle and that it kind of shoots down to you.

Eva offered two different stories to illustrate how she values the information she gained completing the assignment.

Her project for the "A" grade was directly influenced by the knowledge obtained through her family health history. The following examples illustrate her value of concrete information.

> By having to put it on paper, you can see it more which made me think. If I had just written this paper just to get an "A," I really wouldn't have cared much about the information I was gathering. When I was gathering this information and seeing it all on paper from my own family history, it made me think about the information. It's better than just writing a paper and putting it onto a computer disk.
>
> I'm one of those people who doesn't really look ahead too much. After my dad died, it's just like you don't know. If there's not going to be a tomorrow, why worry, you know? I don't worry about a whole lot of stuff. Right now, I don't know if I'll change a whole lot. If, or when, I have kids, then it may affect me a bit more--being more cautious then. You know, maybe I'll eat an apple instead of a cookie, but you know, I don't know if it's going to really do a whole lot to me in the present.

Allen talked about varied personal benefits of the assignment. He related his experiences of using documents to track his relatives.

> I think my benefits came more from a personal side than they did from a medical side because I basically knew that we had a pretty healthy family and there weren't any ghosts or any skeletons in the closet. The relationship with my grandmother was a plus. Just being able to find that out, then trying to follow the genealogy on my father's side.
>
> It's Swedish and was such a problem. In every generation, the last name changed, so that was quite a problem to be able to track families.
>
> It blows my mind to be able to think of how they can relate records that way. I wonder, even today, if I would be able to follow the genealogy much further back

> because all the major documents would be in Sweden. Plus, that extra step of having to find out.

The researcher was also interested in learning about the responses of the research participants' others to the family health history assignment. Responses to this assignment depend on willingness of the others to share what could be family secrets with the student. It goes beyond that level, too, in that the family member is also aware that the family information will be reviewed by someone outside the family.

Allen reported his parents' favorable attitude toward the assignment. He felt they were unable to provide the information due to lack of knowledge. His family had not previously created a family medical history and, therefore, had no easy access to related information.

> I think they were willing to help. I just don't think that they really had a lot of information. My father was an only child born late, and I don't know if they would have communicated a lot. On my mother's side, there were some family problems that probably broke some communication ties, also. This information could have gotten lost. I'm sure that the trunk would have just been thrown away when my parents deceased.

Eva expressed a need to recognize the sensitivity of her others. She talked about her grandmother's response to the questions and made an assumption about what her grandmother would be willing to discuss. The following story reveals the boundaries that exist between family members when very personal information is the subject. It

also suggests how family culture determines the extent and transmission of familial information.

> I think they were expecting it to be something else because I had talked to them earlier in the week when you [researcher] first mentioned the project. I told them, "Is everybody going to be there this night?" After I finished getting all the information from [my aunt], she's like, "That's it?" I said, "Yeah, that's all."
>
> I think she was expecting more or something. I don't know what. I think maybe she was expecting to have to go farther down the line. If I had gotten past my great-grandparents, the information would have been a lot harder to get because my mom didn't know her great-grandparents, and then my aunt didn't know a lot about her grandparents, either, because of the immigration.
>
> [My Grandma]'s way more sensitive than either my mom or aunt was. She doesn't like to admit things. She's from Russia. She won't say she's from Russia; she'll say Germany, due to the communism. She was from the Ukraine border. I skipped the mental retardation question because I didn't figure it was worth asking her; she wouldn't talk about that.

The loving nature of Curt's family continually comes through in his writing and discussion. He talked about how positively his others responded to the questions.

> We enjoyed talking about it. I go home, and Mom and Dad still have different stories from "you know that project you"re doing? Well, we've got more information." The assignment is over, but they still tell me the stories. This didn't stop with me turning the paper in.

Belle talked about her others and their responses to the interviews and to the project. She discussed how she handled concerns expressed by her others.

> People thought it was interesting. If they were suspicious, I explained what it was being used for. I

> think it was hard for my Dad because both of his parents were gone. At times I think he felt a little twinge of sadness, but he talks about it freely with us anytime that we want to talk. We touched on some happy memories.

Connections surface when considering knowledge and attitudes in the area of health education. These connections take several related, yet different, forms as evidenced by the responses of these research participants and their others. Considering the reality of the interdependence of knowledge and attitude influences curricular decision-making.

All four research participants started with a base of knowledge regarding the health status of their family members and the family as a whole. They expressed perception of risk for themselves and other family members in various ways. For these individuals, as age of the research participant increased, the perception of risk increased.

Existing knowledge influenced attitudes in all the research participants. Knowing exhibited itself in different ways, yet all reported positive effects of learning more. General consensus regarding the importance of concrete knowledge emerged. Seeing the results of their interviews on paper verified this knowledge for each of these research participants.

Values and attitudes intertwined throughout the research participants' responses. Values about personal health, family communication systems, and knowing emerged through the conversations inherent in the assignment and in this study. Research participants indicated a strong positive response to the assignment.

The assignment provided a method for learning that the research participants supported. The personal nature of the assignment allowed each individual to connect with family members. The action research aspect appealed to each research participant; all agreed that learning increased with personal connection. Research participants also provided insights regarding indirect, nonspecific, related learning.

Learning and connections occurred with the research participants' others, also. The responses and interest level of the others point to the value of including family members in a school-related assignment. Any concerns or suspicions the others voiced disappeared as the intent of the assignment was understood. Curt referred to the discussions his family continue to have, suggesting an ongoing effect of the assignment.

Research Question 3

The third research question guiding this study explores enactment of the health education outcome of health-

promoting behavior choices. This research question focuses on identifying what sorts of short- and long-term actions or intentions to act result from participating in a multigeneration family health history construction project The following provides information regarding the effects of this project.

In this section, stories from the research participants provide a view of the type and extent of health-related activity which went on outside the classroom during the semester. These selected stories include a mix of planned and unplanned actions the research participants or their others chose to do or were thinking about doing in the future.

Belle provided information and concerns about her parents. She talked about her own commitment to a healthy lifestyle and conveyed affirmation of her choices.

> I think sharing this information with my mother and father made us all look at it much more closely. I've always been aware because three grandparents died probably within a span of 6 or 7 years of each other. I was between the ages of 9 and 13 when it was all happening, so it really struck me.
>
> We've always been into healthy things. My father especially is really conscious of eating healthily and being active. My mother is remarried. I think being around my stepfather, she kinda slid, which really makes me mad. I have seen her smoke, and she stopped exercising. She now says she's going to quit [smoking], so, hopefully, it will go back up soon.

> I think I'm on the right track. I feel like I try to be conscious about what I eat. I think balance is the key.

Belle and the nurse talked about the need to continually gather health-related information. Belle noted her father's involvement, too.

> We have talked about it a lot at many different times among ourselves. My father loves to read medical journals, and he can tell you anything. His vocabulary is a lot better than mine. He just loves heightening his knowledge. The more information you can gather, you know, just really increases your knowledge base and makes you more aware of what to do.
>
> Whenever something comes across on cancer, I read it--you know, what can help reduce the risk. I always eat a lot of fruits and veggies [sic]. I feel pretty good about this. Of course, there are always things I can learn. I read whatever I see that is interesting.

Eva's family health history revealed multiple cases of heart disease on both sides of the family. These discoveries about the prevalence of heart disease in her family led her to research into the topic for the paper she completed for the "A" project in the course. She focused on prevention aspects for content for the paper. The paper was a direct result of the knowledge she gained about her family's propensity for heart disease.

> I'm doing a paper now about heart problems. I haven't got all the research done about ways to decrease the chances of heart disease. Right now I'm pulling stuff up on the Internet. Otherwise, I'm doing the same stuff, you know, eating as healthy as I can and working out.

Allen described the incorporation of two health promotion activities into his life. At another point in this chapter his ideas about exercise and diet are discussed.

> I know right now I'm struggling to go back into an exercise routine to be able to lose the weight. I think that I've come to the realization that there's a lot more genetics than perhaps I would have allowed before. That information was key to me.
>
> As far as being able to incorporate the exercise in my life, I think that that's probably going to be big enough for me right now.
>
> I know about the ills of smoking. When I go out and have a few beers, which is also another evil, I probably also have had a few cigarettes in my lifetime. I've quit my job bartending because I don't want to have the health risk of second-hand smoke. I'm taking a long look and realizing that things kill you every day. It really did make me take a look and realize that things were for here and today. They may not be there tomorrow.

Curt's story focused on the changes he, his brother, and his parents have initiated since completing the family health history assignment. He felt these relate directly to his involvement with the project.

> Actually, Mom and Dad have gone on a pretty strict diet where they watch what they eat, especially low fat food. Dad's starting to exercise more, which he's been talking about for years. Mom, she used to exercise, play volleyball and did step aerobics, and now she's started that again.
>
> My Mom went to the doctor for the diet they're on. I don't know the name of it, but it's a serious one, not one of those gimmick diets. It just says, "Here's your weight, your age, your height, and here's where it should be. We recommend this diet for you." And, you know, it's like chicken once a week, and it breaks down

> the diet for her. Dad got hooked on it, too, so now they're both on it. That, also, would be a direct result of the survey.
>
> I think Dad wanted to do it. He wouldn't go to the doctor himself. Mom went for both of them and went through all the charts. They gave it to her. It's working. I think they both have lost like 10 pounds in the last 2 months. Now when I go home there's no junk food in the house!
>
> [My brother] and I have both started. Well, [my brother] initiated it, but he helped me work out more. We go running now, and we lift weights. It's a shot in the arm. It's healthy.
>
> As a family, we've become more health conscious in the last month or so. I think a lot of it came from this assignment because we looked at our lives and realized that health-wise we weren't as healthy as we should be. It wasn't so much because of what we found. Just overall, we decided to become a bit more healthy.

Belle talked about the connection between health-related knowledge and health-related behavior. She offered thoughts about the potential for behavior change as an outcome in health education.

> I think behavior change could probably get started in a class like this. It's up to the individual. The individual person must be willing to keep it going. I mean, it may boost the adoption rate in the future.

The examples in this section point to direct and indirect results that can be associated with these research participants' family health history construction projects. Student assignments early in the semester sometimes reflect an "I'll think about this later" attitude. These stories, collected later in the semester through interviews with the researcher and nurse, show some growth towards and

reinforcement for the selection of health-promoting behaviors. For some, adoption of new health-promoting behaviors reflected ongoing beliefs about what should be done; the learning activity acted as a kind of catalyst for action. In other cases, the behaviors occurred indirectly but still as an outgrowth of the project.

Research participants continue to reflect on the connection between concrete knowledge and attitudinal posture. For these particular research participants, learning about prevalence and incidence of disease was enhanced by manipulating family information.

Attitudinal posture seems to parallel knowledge. As existing knowledge was challenged or reinforced through the collection of the health history information, attitudes about risk were also affected. The strength of perceived risk seems to have some effect on adoption of short-term health-promotion behaviors or programs for these individuals. Knowing if these health-promoting behaviors were sustained over time would be of interest. Determining such information goes beyond the scope of this study.

Research Question 4

The fourth research question investigates "how does the experience of constructing a multigeneration family health history affect perceptions and attitudes about health education?" The three preceding research questions focused

on the knowledge, attitudes, and behaviors of the individual students and/or their others. This final research question explores the connection between the learning activity that the multigeneration family health history project represents and curriculum and instruction in health education.

This researcher's experiences suggest postsecondary students sometimes feel a lack of commitment to health education as a viable piece of the curriculum. Many perceive the inclusion of health-related curriculum to be a burden or waste of time in an overcrowded plan of study.

The data relating to this question speak to one of the original problems underpinning this study. Student responses point to the overall effects of using the multigeneration family health history construction project as a learning activity. In this section, the research participants consider the effects of participating in a learning activity that results in authentic learning, in this case collecting and analyzing their own family health data.

Allen talked about the effects he noted. His discussion provides support for learning that goes beyond book knowledge by encouraging students to apply what they learn through participation.

> I think it was generally a worthwhile thing to be able to do. I definitely got a lot of information out of it. I think someone in my position who didn't have a

trunk of information, or for students that have personal problems with their family, it might be difficult. They need to be able to choose an alternative if they need one.

The statistics show that a person who sees, hears, and does something gets better results than those that hear only, or see and hear something. I know you're going to have the most effect if they are able to apply it to their lives. It does make me wonder if just providing information is really enough to take effect in anyone's life.

This project is definitely more of a reinforcer than just reading a "how to do your family tree" book and then having to take a test over that--probably even more than most projects. Obviously, knowing the process of how to go through it means you're going to learn by actually doing it. It's going to reinforce a lot more through that.

The open-endedness of this project pushes you. If you don't know what to expect or you don't have a set plan, you push yourself a bit more to be sure you are fitting with the class. I think that was good for me.

As far as constructing knowledge, anything that I would have gotten out of the paper would have led to that. Gaining the information about family members definitely made me reevaluate how I was approaching the big problem in my life, my weight.

I'm personally getting into education because I think that worksheets are not necessarily where your information is going to come from. I'm more of a nontraditional thinker as well as a nontraditional student.

Not doing it like the rest of the crowd. Being able to do things that way is very important because if you open up the parameters, I think, that that is where students are actually going to get their knowledge. They're not going to be hindered to do something that they know is going to be wasted because it's something that's not going to be evaluated. Students ask why they should put the effort into doing something like that. I think it's also important that when you present a product, that you put across the best piece that you can. The less rigid the structure is, the

> more the student is going to be willing to go forth and put that extra effort into doing something.

Curt talked about the health history project and its effects on him. He spoke about the difference that he sees between a traditional approach and one that is process-oriented.

> I came from a small school introduction--this is heart disease, this is cancer, drugs, alcohol--and we just went right through the things. We took a little 25 point quiz at the end of the class. You just walked out, and it never affected you. "That's not me; that's not going to be me."
>
> If you make it real to people and do the activities, make simulations, and stuff that students are going to be aware of, that just makes it so much more real. So, I've learned more about health education in the process and the different ways you can teach it and relate it in this class than I did in 6 years of taking it in junior high and high school.
>
> It's important to learn something that means something to you and that you can benefit from. It means something then to the student but also to the instructor. With authentic learning, you get both--it means a lot to you and then you pass your feelings and relationships to others. I think it is slowly coming around to less lecture and more viewpoints in the classroom.
>
> It's positive because it makes you familiar with your students. I'm not saying you have to get personal with your students, but it's good to be able to talk with them. It brings the student-teacher relationship closer together.

He goes further connecting his new knowledge to his current situation.

> There was an obvious positive change. I was affected because I'm watching what I eat now. I don't eat a lot of junk food, or fast food, too much of the time like I

> used to. I've passed it now to my brother somewhat. My Mom and Dad have also picked up on that.
>
> I was fortunate to have a lucky family, but for some of the others who do discover traits, you can do it like we did. Go as far as you can. If it gets too painful, stop. Stay within your comfort level. I think that's fair because the information you find from this is so important.
>
> I gained so much from this, and even though I can't prove it to you and I can't show it, I know my family and I have become even closer together because of it. That's important to me. That's what I gained, and I guess if you don't know your family, you're lost.
>
> I think it's important to help people become accountable. The process is hard to see because you don't know how it affects everybody unless you ask them.

Belle talked about some of the benefits she noticed. In particular, she identified time with her family as a positive benefit. She also relates the project to her personal learning style.

> Having a little time like that with each of my parents. Dad lives out-of-town now, so it was always one more excuse to spend a little time talking to Dad. Like I said, we were able to talk about some happy memories of relatives. And just learning more things I didn't know.
>
> Focusing on process is important at any age. I think it's really important in health education because, I guess, there are so many facets to it that just going for a product would not be as valuable for the students. There are so many different areas in the process to explore.
>
> I know I remember things or retain things a lot better with this kind of approach rather than just reading out of a book. When you can personalize it for me, I learn so much better.

Eva talked about her past experiences with health education. Becoming personally involved appealed to her, also.

> All the health classes I've ever had were just straight out of the book. This is what this is, this is what that is. It's not as personal. You do the family tree, and it's like you get to see what's going on in your own family and to figure out what are the possibilities for you. Personally, that makes you think it out. Maybe you do the extra work like I am researching heart disease. You do it to get more information. If it's stuff you don't really want to know about, so you learn it just for the class, and that's the only purpose.

The preceding section explored the research participants' views on the relationships between active involvement and health education outcomes. All the participants agree that the benefits go beyond what can be seen on paper or through discussion because the family connection cannot be measured.

For these research participants, a loose framework for preparation of this assignment provided the opportunity for personal interpretation of the information discovered. The participants' stories suggest that the individualized nature of the project allowed each of them to complete the task in their own way.' The supervision inherent in completing the project as part of required coursework offers the structure needed to approach the task holistically.

These research participants placed greater value on the health education process as a result of their involvement in

this health-related activity. Behavior change as a potential result of this project was demonstrated through the stories of the research participants and their others. The connection of health-related knowledge, attitudes, behaviors, and intentions has been demonstrated through their stories.

Summary

This chapter focused on the constant comparative processes utilized throughout the course of this study. This chapter depicts the story of the research participants as well as the story of the researcher--it relates pertinent events throughout the course of the study.

The purpose of this chapter was to give as full a view as possible about the effects of a particular learning strategy in a postsecondary health education classroom. The reader follows the responses and actions of researcher, research participants, campus nurse, and numerous others as the research questions are considered.

This study illustrates the emergent framework particular to the qualitative research process. Processes of constant comparison have been used to collect, reduce, and display data pertinent to the research questions guiding this study. Multiple data sources and multiple methods strengthen the view of the particular. Triangulation of data allowed the researcher to combine personal notes,

student writing, and dialogued conversation into a story that is reinforced through rich, contextual description.

Data supporting each question allow the reader to view and consider the opinions, assumptions, and conclusions of the research participants related to their family health history construction processes. In an effort to reveal what they know, think, and can do as a result of participating in the projects, it has also been possible to consider if those outcomes justify the use of this learning activity as a centerpiece for a health education foundations course at the postsecondary level.

The processes of open coding and axial coding led to identification of patterns embedded in the research participants' responses. Oral and written excerpts from interviews, artifacts, and casual conversations were assimilated to address the four research questions. Reading the direct thoughts of the research participants provides emotional flavor and verifies each research participant's unique response.

Final interpretations and analysis merge in theory grounded in practice in Chapter 5. Interpretation of themes used to address the research questions in this chapter leads to plausible relationships regarding the problems underpinning this study.

CHAPTER FIVE

GROUNDED THEORY AND RECOMMENDATIONS FOR FUTURE RESEARCH

> Looking and listening are shaped by expectancy, stance, and intention.
>
> Bruner (1986, p. 110)

The climber realizes the highest point in the tree has been reached. Looking up and to the right and left, the climber sees patches of light through the ceiling of leaves. Limbs stretch out to form fine fingers and the leaves decorating those fingers shake and shiver in the light breeze.

The climber's back rests against the last large piece of the tree's trunk. One foot wedges into a hidden notch. Balance is achieved as the other foot pushes against the trunk. The climber lifts the head for a quick view through the leaf cover and feels a bit unsteady. A hand reaches above to grasp a slim branch momentarily.

Looking down is somewhat intimidating as the climber realizes just how high this tree is. The climber thinks about each step and handhold and retraces the path that led to this final resting spot. The breeze begins to quicken and a shiver runs down the climber's spine. Suddenly the sky is red as the big ball of the sun sinks quickly in the west.

The climber wills muscles into action and begins to descend the tree, carefully testing branches for safety. Going down is not the same as going up; yet the knowledge gained about trees, and this one in particular, during the ascent provides clues to the climber. A plan to reach the ground begins to formulate.

Descending slowly, the climber revisits the special sights and sounds particular to this tree. The bird family continues to chirp and, in fact, almost seems to be cheering for the climber. The brook below gurgles, and insects continue on with insect business. Smooth and rough spots on the trunk are remembered as an elbow scrapes and fingers slide gently along a ridged branch. A particularly unusual leaf shape catches the climber's eye. It is beautiful enough to stop for just a minute to examine.

The descent does not take the kind of time the climb demanded. On the way up, the climber was experiencing the tree and tree climbing for the first time. The multitude of new sights and sounds inundated the climber. The challenge of climbing filled the climber's senses.

Coming down, it would be easy to get caught up in new sights. It would also be easy to become confused with the mirror view that the descent offers of things already seen. The climber realizes there is much to think about and much to learn about trees and tree climbing.

As the climber moves downward from branch to limb to trunk to root, the sheer magnitude of what the climber has done begins to hit. The climber sets one foot and then the other onto solid ground. Looking up again, the climber recognizes a special connection to the tree and mentally makes a date to climb again, soon.

Numerous similarities exist between the climber's descent of the tree and creating grounded theory from localized data. The careful downward trip of the climber is very much like the backwards sifting of the data that represent the process of identifying pertinent relationships.

Because this study sought to determine the effects of a particular learning strategy with a particular group of postsecondary students, substantive data particular to the identified learning situation served as the focus of attention. Plausible relationships emerged through the interactive contexts of collecting and analyzing these data throughout the course of the study. The resulting theoretical conceptualization gives attention to the notable patterns and processes that emerged through that ongoing manipulation of the data.

The curriculum and instruction issues this research study addresses grew out of the researcher's own practice in health education at the postsecondary level of schooling.

The personal experiences and particular stories displayed in Chapter 4 represent the systematically determined responses of a selected group of students who constructed a multigeneration family health history as part of the requirements for a postsecondary personal health course. That display represents the data collected through multiple methods from multiple sources.

Under the umbrella created by the research problems, research questions were developed, and the constant comparison processes were employed. Open coding schemes and axial coding schemes allowed data to be reduced and then integrated to address each of the four research questions guiding the study. Integration of the varied data revealed the recurring patterns selected for display here. Resulting theoretical coding links these varied ideas altogether around the problems the study addresses.

Development of grounded theory represents process and product. Strauss and Corbin (1994) referred to grounded theory as a general methodology that traces directly back to the data through the actions implied by collecting, analyzing, and interpreting. The resulting statement of plausible relationships represents a systematic approach to defining a fluid entity.

Theoretical codes result when conceptual relationships form. Theoretical coding, when done in conjunction with

constant comparison, allows for integration of *in situ* (Strauss & Corbin, 1994, p. 276) information. The act of integrating situational information fosters development of theoretical statements of plausible relationships. The resulting plausible relationships may offer insight regarding related curriculum and instruction questions.

In this study, the development of grounded theories related directly to the personal experiences of four research participants and their particular stories. As has been mentioned, this study grew from the merging of congenial interests in the doctoral classroom and in professional practice.

Reading about constructivism and authentic teaching and learning evolved to hands-on exploration of authentic, project-based learning activities. This hands-on exploration led to questions about the validity, the credibility, and the reliability of the use of alternative, emergent strategies in the health education classroom.

Personal interest in and concern about the use of authentic teaching strategies was reinforced by student response to a particular student project, the multigeneration family health history construction project featured in the researcher's personal health course. Class members interested in going beyond the bounds of the assignment to systematically examine the nuances of the

learning activity joined with researcher to share stories and insights.

The substantive data generated by the researcher, the campus nurse, and the 4 postsecondary research participants who worked together in this study document varied effects of a multigeneration family health history construction project. The data that have been selected represent the researcher's interpretation of the story of that experience. These interpretations represent the researcher's attempt to see the experience through their eyes.

Strauss and Corbin (1994) suggested theory "should be grounded in . . . interplay with data and developed through the course of actual research" (p. 278). The qualitative researcher must accept responsibility for assuming an interpretive role as part of the research process. Grounded theory methodology is not just about the induction process or the coding and display of data; it is a conceptual process aimed at identifying relationships that lead to the development of theory.

Plausible Relationships

The climber heads for home in the gathering dusk. Nightsounds begin and cool darkness surrounds the path. Each footfall meets the ground with a whisper as old leaves are ruffled. A small animal skitters across the path surprised by the climber's giant presence.

Limb silhouettes create patterns against the backdrop of the leafy ceiling above. It is almost too difficult to distinguish which branch belongs to which limb in the ever-darkening cocoon under the trees. Just minutes ago, distinguishing edges, colors, and shapes were visible . Now, only minutes later, thousands of leaves come together like a thick blanket in the darkness overhead.

Walking along, the climber's thoughts drift back to that one tree and the pleasures of this surprising day. "Who would have ever thought that climbing could be so great? That tree was there all the time. Climbing is a lot like walking. You use a lot of the same muscles. You also get to do new things and see new things when you climb. I'm glad I learned."

Before today, the walker knew all about leaves and trees. Now, the climber knows about the unique shape of an individual leaf and the strength of a tree's trunk. Unexpectedly, the climber also knows the particular song of the red-breasted mama bird, the tortuous work path of one group of industrious insects in a marvelous old oak tree, and the fiery colors of a spring sunset. Climbing the tree offered a new kind of knowing for the walker-become-climber. This knowing was borne from the experience of the climb.

Time passes, woods and grasslands meet, and the walker persona begins to reassert itself. Climbing the tree

offered an incredible new experience; walking maintains its old importance. Breathing deeply, the climber strides along as home comes into view.

As the days pass, thoughts of climbing resurface. It is difficult to separate tree from tree climbing. The climber decides knowing more about trees, and leaves in particular, is important. The climber thinks climbing and walking connect with each other in many ways. Being able to climb well could certainly help the climber learn more about the tree and its leaves. Being right up in the tree already offered the climber a new view of climbing, tree, and leaf. The view is much clearer up in the tree where each distinctive entity can be seen and touched.

Having viewed the data, the researcher, like the climber, seeks to create some order from all the impressions that have been made available. Creating connections, or theoretical codes, that explain what has been seen and experienced is an admirable goal for climber and researcher.

Theoretical coding centers around the research problems that frame this study. The real practice-based concerns of the researcher regarding constructivism, authentic instruction, and health education pedagogy follow. Patterns discovered in the data create the fabric shaping this discussion.

Constant comparison implies a process of interpretation that includes sifting, categorizing, grouping, and clustering of pertinent data. These processes assure that the researcher has the opportunity to treat all of the data equivalently and to weigh the value of each individual item. The sheer magnitude of the data generated in this study through student artifacts, casual conversations, semi-structured interviews, and student writing provides an indication that something worth talking about occurs when students engage in a multigeneration family health history construction project.

Constructivism and Authentic Learning

Constructivist theory underpins all action in this study. The constructivists support the belief that knowledge depends on the creation of meaning and that meaning is based on past and current experiences with people and objects. As the title of this dissertation indicates, the study sought to examine the potential of connecting constructivist theory with health education practice.

Generally, one purpose of utilizing an authentic learning strategy is to allow students the freedom to discover meaningful information through hands-on, immersion-oriented activities. Teachers facilitate and welcome individualized response to classroom challenges. The flexibility of the underlying philosophy encourages students

to determine their own course of action for reaching those outcomes. Specific outcomes therefore, reflect student discoveries.

The selection of these types of activities represents a departure from traditional methodology. The systematic study of what happens when an authentic learning strategy is used allows the researcher the opportunity to construct a view regarding the facilitation of meaningful learning for students.

Applying authentic instruction criteria and standards. The credibility of the multigeneration family health history as an example of an authentic learning strategy has been established through the substantive data. Newmann and Wehlage (1993) defined several criteria for authentic achievement and established several standards for judging the existence and value of authentic instruction methods. Applications of their criteria and standards follow.

In an effort to distinguish between significant and meaningful and trivial and useless, Newmann and Wehlage (1993) suggested that first, students must "construct meaning and produce knowledge; second, that students use disciplined inquiry to construct meaning; and finally, that students aim their work toward production of discourse, products, or performances that have value beyond success in school" (p. 8). These three criteria support recognition of

a plausible relationship between constructivist theory and authentic instruction.

The multigeneration family health history construction project enjoys a close fit with the standards of authentic instruction suggested by Newmann and Wehlage (1993). These standards included higher order thinking, depth of knowledge, connectedness to the world outside the classroom, substantive conversation, and social support for student achievement. A review of collected data regarding the multigeneration family health history construction project suggests the assignment allows all of these functions to occur to some degree. It would follow that authentic instruction strategies aim to facilitate authentic learning.

The structure of the multigeneration family health history assignment allowed students to work with data that have personal connections. Students engaged in a systematic inquiry process, used the resulting collected data to select important information, and then produced a compilation of findings appropriate to share. Students selected and noted information because it signified something of importance. The process of assigning meaning represents authentic enactment of constructivist theory.

Connecting personalized meaning and knowledge. A review of the data generated through this study suggests a plausible relationship between the act of developing

personalized meaning and constructing knowledge. Through the course of the assignment and this study, students and researcher focused on determining what classified as important knowledge. For these four research participants, knowing was based on receiving various types of information and matching new information against previously known or assumed facts.

The cognitive aspects of the learning assignment, specifically the development or construction of health-related knowledge served as a focus for this study. Of related importance was determination of the meaning students ascribed to the process of constructing the multigeneration family health history and to the personalized findings and interpretations resulting from engaging in the process.

Figure 6 presents results of the pre-assignment mapping activity completed during the first in-class training session. This session occurred prior to students beginning their action research.

The finalized medical trees for all four research participants are much more complete than the pre-assignment mapping results. If these initial visualizations are compared to the final presentations each research participant presented at the conclusion of the project, it is possible to see the difference in quantity of

information. Individualized information is denser per relative in the final constructions.

Direct examples of recognition of new information were evident in the data. For example, Belle said, "I just found out there was also heart trouble on my father's side." Eva said, "I came to find out that the biggest health factors I need to be aware about is heart disease, diabetes, and high blood pressure."

The health history interview schedule provided the research participants with a framework for data collection. Conversations with immediate relatives provided the first wave of information for all the student researchers. Curt talks about using the chart to note information. Belle and Eva reference the interview schedule as a means to decide what to ask. Allen talks about using the interview schedule as a way to define the assignment.

The data also revealed that none of the research participants had previously recognized the importance of collecting such information. It would seem that knowing what information was important to know might influence collection and interpretation of family health information. If no one suggests or reinforces the importance of knowing such information, why would it be compiled? This connection implies a relationship between developing the skills and motivation needed to complete a multigeneration

family health history and actually completing a family health history. It also shows that having a schedule or process to follow enabled these research participants to complete the project.

Immediacy of information was determined individually using various inner prioritization standards reflected by reports of number or proportion of cases, or closeness of relationships. Allen said, "The one I remember being very significant was a preponderance of heart problems." Eva talks about "how much" diabetes exists among her relatives. Belle refers to "definite trends . . . of high incidence of blood pressure" and how "incidence of cancer is double that on my father's side."

The assignment itself demanded higher order thinking and significant conversation about family health status. These family-based conversations, although contrived, created a strong sense of connectedness among family members. All four research participants named parents as the first and most important source of information. Curt especially noted how close he felt to his parents as a result of delving into the family history. Most of the information collected by the students were direct results of face-to-face conversations with family members.

A number of behaviors were enacted and numerous intentions were voiced, thus demonstrating a relationship

between this learning activity and the larger issues of health promotion and wellness. Examination of and adjustment of health-related attitudes related directly to the knowledge the research participants valued and to the health promotions which were selected. The diet and exercise program Curt's parents initiated, the recognition by Allen regarding the powerful influence of genetics on weight management, the verification of Belle's healthy lifestyle program all point to the actuality of a web of relationships connecting health-related knowledge with health-related attitudes and health-related behavior.

The positive responses of family members to the research participant's inquiry processes facilitated development of a depth of knowledge different from that achieved through focused reading or traditional presentation of disease prevention and health promotion information. Allen talked about his parent's lack of knowledge and the good fortune of finding the trunk that contained the documents he used to obtain most of his medical information. Curt's ongoing conversations with his parents regarding other bits of information they had discovered verified his family's positive response.

Eva noted two different sides of the issue. She referenced her grandmother's need for privacy about mental health issues and her desire not to talk about her

immigration. She also noted her mother and aunt expected to be asked to go much deeper into the family history. These and the above examples indicate that the boundaries among and between family members served as mitigating factors in the transmission of family medical information.

Higher order thinking occurred as information was manipulated. The manipulation process facilitated the formation of ideas and the transformation of ideas into meaningful knowledge. Manipulation of data is a strength of the multigeneration family health history assignment. All 4 participants mentioned the importance of seeing the information and of talking with family members. The actions inherent in this assignment led to meaning-making on several levels.

On the student level, meaning was facilitated through hands-on manipulation of family health data. Eva said, "By having to put it on paper, you can see it more which made me think." Belle went a step further saying, "I think lectures are less personal. We had to map it out . . . that's seeing it concretely in front of you." Allen talked about how the project stimulated him to extend himself, to do a thorough job.

Assimilation and accommodation. A sense of satisfaction was evidenced as students discovered family health facts. The discovery may have been a verification of

previously assumed knowledge, as in the cases of Belle and Allen, or identification of unexpected information. The joy and peace of knowing no really difficult, chronic conditions existed for Curt and represented a different quality of discovery.

The family medical trees and the reflective summaries represented all the processes and actions involved with these students' knowledge construction; student artifacts provide visual representation of real knowledge gained. Looking at the graphic depictions of the family health trees was seeing what the students saw and knew. Their productions represented their view of their findings.

In keeping with the tenets of constructivism, feelings of dissonance resulted when new information failed to match old or when finding conflicting stories about an event or condition. Curt talks about his discovery regarding his grandfather's alcoholism. He had to come to some reconciliation regarding his childhood perceptions of his "Papa" and the reality of the information his mother and father revealed through the family health history interview. In his case, accommodation process allowed the old inaccurate and inappropriate information to be discarded and new meanings and connections to be created. Knowledge, then, strongly connects with personal experience and the meaning an individual derives from daily living.

Importance of missing or lost information. Significant gaps in the data collected in this project caused varied types of concerns for the research participants. Originally, participants not able to collect four complete generations of family health history data were to be eliminated from the study. In retrospect, it was best that that position was reevaluated.

Allen referenced the almost impossible task of tracing Swedish records past the great-grandparent level. His heroic efforts at translation yielded wonderful information regarding the four required generations. He admitted it would be difficult to do more.

As time passed these gaps became more and more significant. A gap in information seemed to signal a time of change or distress within the family. Allen talked about change in his family saying, ". . . there were some family problems that probably broke some communication ties. This information could have gotten lost. I'm sure the trunk would have been thrown away when my parents deceased." Eva chose not to question her grandmother about mental health. Similarly, Belle found few details regarding a relative institutionalized for a mental disorder.

Completion of each facet of each family member's health history became less an issue as interest in lost or unknown information heightened. Detective work implied inductive

and deductive processes and supported attempts to puzzle out the meaning behind the gaps. That Allen's records were in Swedish did not stop the inquiry process. He used a Swedish dictionary to decipher enough information to piece together a fairly complete picture of his forbears' health status.

What was not known became as important as what was apparent or visible to the eye. Want to know replaced need to know as students started to feel connected to previously unknown relatives. A type of resourcefulness emerged as detective tactics were employed and a sense of loss or incompleteness accompanied unsuccessful searches. This phenomenon reinforced the method of constructing a family health history as a prevention or intervention tool against chronic and familial illness.

Research participants agreed that the quantity and the quality of information gained influenced their interest levels and their ability to relate to disease prevention and health promotion information. Belle said, "I think behavior change could probably get started in a class like this. . . . The individual person must be willing to keep it going. . . . I think I'm on the right track." This type of entry held true for the research participants and their others.

Creating Meaning

The ability to develop meaningful constructions represents a fluid entity of knowing that is personalized in its importance. This process represents a skill that relates to disease prevention and health promotion. Direct application of knowledge about relative risk to health-related decision-making processes implies integration of the skills. Active utilization of these skills embodies numerous desired health education outcomes.

Research findings suggested that the learning strategy of constructing a multigeneration family health history allowed students to create meaning, both in terms of health risk and other family issues. The processes learned and utilized to collect, categorize, and prioritize family health data can be used over and over again through the lifespan as new information is discovered, assimilated, and accommodated or as family configurations change due to birth, death, or separation. The involvement of Allen's sister "because it interested her" is an example of one person's learning affecting that of someone else.

Newmann and Wehlage (1993) suggested that "knowledge is deep or thick when it concerns the central ideas of a topic of discipline" (p. 9). Belle stated, "I think college is a time when students may start to look at lifestyle

differently. A project about yourself is valued. You have to take charge of the learning in a project like this.

Curt talked about how easy it is to distance oneself from health education content:

> You take a 25 point quiz. You walk out, and it never affected you. . . . It's important to learn something that means something to you. You make it real to people and do the activities, make simulations, and stuff that students are going to be aware of.

The back-and-forth action occurring between and among these rich data related to the multigeneration family health history construction project provided connections between the learning activity and the outcomes of acquisition of health-related knowledge, the examination of health-related attitudes, the implementation of health-related behaviors, and the indication of health-related intentions. A rich, contextual view of these relationships resulted. The general goals of health education have been realized through these participant's responses.

Importance of indigenous family health information. New health-related information revealed to the student during the course of the assignment related indigenous and particular family health facts. The type of facts discovered through the family health history inquiry and interview process cannot be learned in any traditional way. The transfer and assimilation of this information depends totally upon the knowledge and resources available to the

student doing the assignment and the others who serve as informants. Allen's story regarding the family trunk illustrated how easily information may be lost. In his case his parents, the last living relatives, had not received the information themselves and so could not transmit it to him. His new discovery of the information increased the potential of it being transferred and used for preventive purposes.

Potential for application of information. The transfer of this sort of highly personal information does not seem to occur without some sort of catalyst. None of the research participants or their families had previously constructed a detailed family health history. The importance of the knowledge gained was voiced by Curt when he said, "I gained so much from this, even though I can't prove it and I can't show it."

Unless a sense of immediacy exists, people do not want to think about disease nor do they want to work too hard at preventing disease. Denial's insidious nature and old concrete thinking patterns often lead to distorted recognition of risk in health-related areas. Eva's contradictory and somewhat ambivalent feelings about diabetes illustrated this point.

Lack of knowledge about or interest in prevention or early intervention strategies related to the degree of need to know. Common thinking may reflect attitudes such as the

following: "After all, if it is not broken, why fix it?"; "I can quit anytime!"; or "I'll start on Monday." Allen alluded to the heart disease occurring after the age of 60 in his family as a function of old age. Eva's example was very similar.

Placing personal health information into the hands, hearts, or minds of these research participants and their others resulted in direct application of several proactive prevention and early intervention strategies. This phenomenon referred only to the short-term application of the diet, exercise, and stress management programs which were adopted; knowledge of longitudinal application goes beyond the intent of this study.

The fact that all 4 participants engaged in some sort of health promotion activity is somewhat impressive in a time when many people question the viability of health education as a required aspect of the curriculum. The strength of these adoptions was further enhanced when actions of the research participants others, such as Curt's parents and brother, moved toward more balanced eating and exercise regimens.

Emotional connections. The research participants in this study found conversations about health-related issues to be sobering, as well as affirming and stimulating. Family stories accompanying the sharing of incidence and

prevalence information lightened the load or softened the burden of hearing. Allen's spiritual connection to his grandmother, Belle's concern for her mother's change in lifestyle, Curt's stories about Sunday gatherings at his grandparents' home, and Eva's grief over her father's death illustrate a few diverse examples. Student interviewers and their others rallied around two common and related concerns--longevity, and individual and family health.

As new information presented, these individual weighed its value against an existing storehouse of past knowledge. This process of weighing information related directly to factors such as perceived usefulness or importance and a more indirect cadre of health-related values, health-related beliefs, and health-related attitudes.

Influence of culture on information transfer. Family culture influenced availability of health-related information. Chief information bearers in the research participant's families were women; men showed interest but usually deferred to wife, mother, aunt, or sometimes a long-time, female, family friend. Curt's father called his mother to ascertain important information from his side of the family. Eva gathered all her information through one meeting with her mother, grandmother, and aunt

Social and cultural reality was reflected in varied ability to freely discuss the shame-based entities of mental

health and alcoholism. Eva avoided discussing mental health issues with her grandmother, knowing this discussion would be taboo. Curt discovered his grandfather's alcoholism.

Regardless of the issue of interest, the values, beliefs, and attitudes an individual or family espouses strongly influenced what new information was transferred and assimilated. Belle talked about the generally healthy lifestyle she learned in her home as a child and how those values affect her today. Curt discussed the relationship between luck and prevention-based behaviors like diet and exercise. These affective factors functioned as a kind of filter as initial and ongoing information processing occurred.

Importance of lost or unknown family health information on health education outcomes. Knowledge lost or unknown diminished the potential of a personal connection to the prevention and early intervention efforts inherent to health education curriculum and instruction. Curt was unaware of the thread of alcoholism running through the family. Because it was never discussed, he was totally unaware of the potential for alcoholism in him. As it happens, he does not drink; but what if his choices as a teenager had been different? Would alcoholism have resurfaced through him?

It follows then that the pedagogical goals of increasing health-related knowledge, of examining health-

related attitudes, of implementing health-related behaviors, and of indicating health-related intentions diminish if a personal connection is not facilitated through curriculum and instruction choices. In this study with these research participants, health-related values and health-related beliefs related directly to one's ability to construct knowledge about family health and individual health.

Incidence, prevalence, and perception of risk. Incidence and prevalence information provided one type of knowledge. As each incidence of disease was revealed across the four generations of maternal and paternal relatives, the concept of prevalence became real. As the information was collected, research participants weighed the information using number counts, graphs, and ratios. A relationship between knowledge of disease prevalence and perception of risk was established for each of the 4 participants through this manipulation of information.

Another relationship, although less intense, was established between perception of risk and adoption of health-promoting behaviors. Those already consciously engaged in a health-promoting lifestyle reported feeling affirmed. Interestingly, those with the least incidence of chronic disease reported adoption of the most comprehensive behavior patterns, e.g. diet and exercise.

Relating Project Outcomes to Health Education Goals

This research project sought to discern whether the action of constructing a multigeneration family health history represented an essential skill or group of skills which should be included in a health education curriculum. The personal nature of the activity, the reality of the information, the duration of the project, the involvement of the family, and the structured, yet flexible, nature of the assignment all embody curriculum and instruction factors known to increase likelihood of attainment of desired health education outcomes. These factors supported an environment conducive to the integration of the cognitive, affective, and psychomotor domains of learning.

Student-centered outcomes. The skills and actions involved in constructing a multigeneration family health history represented an educational experience that promoted attainment of health education goals. This learning activity encouraged development of health-related knowledge, examination of health-related attitudes, and consideration or enactment of health-related behaviors and intentions. The student-centered nature of the assignment offered a link between the schoolroom and real life experience.

Acquisition of life skills. The skills required for construction of a family health history were taught and

learned. If viewed as a set of lifeskills, the processes involved can be applied through the lifespan as family or personal health status changes. Knowing if or how that might happen reaches beyond this study's intent.

Determining what students know following an educational intervention serves as one basis for student and program evaluation. Knowledge can be measured in various ways. A particular interest in this study was determining how students processed and used health-related information and if knowing affected other health education outcomes.

To focus on these concerns, stories about the ways students collected, categorized, and prioritized information were considered in light of what type of meaning the students indicated was derived from being involved with the process of constructing their family medical tree. The assignment itself along with the interview schedule served as an enabling factor allowing the collection of the information. General classification and numbering systems helped the research participants visualize the information and place a value on the knowledge they gained.

The multigeneration family health history required students to engage in a research process that was personal, personalized, and action-oriented. Within the recommended process, students utilized the skills of interviewing, data collection, data analyzing, and data interpretation as a

means to understand and define degree of personal and familial health risk.

Students learned and practiced a method of collecting family health data within the personal health course. The skills were applied as students collected family health histories using a semi-structured interview schedule. No student had engaged in such an activity prior to the course assignment; all had some perception of their relative risk for various chronic diseases. Direct written and spoken comments support this statement.

The skills implied by the multigeneration family health history represented action necessary to ongoing assimilation and accommodation of health-related information. As information was integrated into knowledge stores, attitudinal adjustment occurred. The appeal of the personal nature of this knowledge increased likelihood of adoption of related health-promoting behaviors. The physical action of manipulating personal data tied the learning domains together. This total integration led to meaningful attainment of health education outcomes.

Summary

The process of theoretical coding revealed a number of significant relationships between the use of a multigeneration family health history construction project and health-related knowledge, health-related attitudes,

health-related behaviors and intentions. These codes provided the grounding for identification of several plausible relationships pertinent to health education curriculum and instruction.

This project offered students and instructor-researcher a vehicle to connect the three domains of learning comprehensively. It also offered students and researcher an opportunity to construct meaning, to make learning more important and useful.

Active learning served as the key ingredient for this process. As students became actively involved with the collection and manipulation of personalized data, concepts generally presented in a personal health course took on new meaning. The concepts of incidence and prevalence became real as disease occurrence was matched with living relatives or those pictured in old photographs. Construction of a family medical tree allowed students an opportunity to define the concept of relative risk as close connections to chronic disease were actually seen on paper.

Attitudes, beliefs, and values about the prevention and delay of chronic disease were reinforced and challenged as real knowledge of the family medical history increased. Most students have been exposed to the rhetoric regarding adoption of health lifestyles. Many would say adopting a healthy lifestyle exemplifies a worthy value.

Relative risk and the value of health and wellness tied together for these research participants. Value of the knowledge gained increased as information was manipulated to determine which factors were personally most significant. Lifestyle choices were examined and behaviors and intentions revealed. Knowledge of the importance of diet and exercise programs as preventive strategies transformed into some type of action for the research participants and some of their others.

Eisner (1991) suggested: "The ultimate test of a set of educational ideas is the degree to which it illuminates and positively influences the educational experience of those who live and work in our schools" (p. 2). The relationships discovered through this research project pointed to a strong relationship between the use of this authentic learning strategy and attainment of health education outcomes at the postsecondary level.

The essence of this research project was connecting theory with practice in the health education classroom. The spirit of constructivism influenced the selection of methodology and determination of environment particular to this project. The classroom environment encouraged flexible thinking, multiple outcomes, and process. In this environment, students engaged in the multigeneration family health history construction project with a goal of creating

personalized meaning. Knowledge emerged as meaning was created.

Curricular outcomes were positively influenced when students were given the responsibility to shape their own learning. Within the environment of this study, knowledge was gained, attitudes were examined, intentions determined, and behaviors chosen as students engaged in the processes involved with constructing a multigeneration family health history. These outcomes apply to the research participants and their others.

As educational planners consider the plausible relationships revealed through this study, applications to professional practice can be made. Facilitating an atmosphere where developing personal meaning is a goal empowers students. As these students were allowed the liberty of taking responsibility for their learning, they extended themselves as they realized personal connections between the schoolroom and daily living. Further study of that extension process may support education specialists as they select and implement curricular materials.

Recommendations for Future Research

Persons interested in these relationships may wish to consider the use of a similar project with diverse target groups. Those working in prevention and early intervention programs might use a multigeneration family health history

construction project to encourage adoption of health-promoting behaviors and abstinence from behaviors known to be threatening to health. Study of relationships noted by other population groups may support use of this strategy with varied target populations.

Studying the effects of incorporating multigeneration family health history findings into prevention, early intervention, or treatment programs may assist those dedicated to disrupting addiction and other chronic disease cycles. Hands-on manipulation of family data may offer the connection needed to influence the strong psychological mechanisms of denial and rationalization.

The research participants in this study noted a relationship between personally-constructed knowledge and health-related attitudes and health-related behaviors. Studying the type, duration, or intensity of behaviorally-based change connected to or resulting from engagement in a multigeneration family health history construction project may offer realistic evaluation information to program planners or program funders. Such information may encourage the development of realistic formative and summative goals for daily and long-term program planning.

Comparison of plausible relationships developed through study of the use of other authentic learning strategies may affirm the ongoing use of authentic learning strategies that

encourage personal construction of knowledge. Reports of such a comparison could support the development and use of similar projects in other appropriate circumstances.

Study of the effects of a multigeneration family health history construction project within an interdisciplinary unit of study offers yet another challenge for further study. The project could serve as the centerpiece around which other disciplines rally or as an outgrowth that allows students to get to some other result.

Conclusion

The purpose of this paper has been to provide a detailed description of the research processes utilized in this study and to provide some insights regarding findings. The processes described are reflective of qualitative inquiry and constructivist thinking. In this study, an authentic learning strategy has been used to demonstrate the spirit of constructivism and the educational potential of implementing authentic learning strategies into the health education curriculum.

The report itself represents the researcher's interpretation of the views of 4 particular research participants who constructed multigeneration family health histories within a personal health course at the postsecondary level. Data included in this report have been selected to illuminate those findings.

This project has served to affirm the researcher's convictions regarding the importance of allowing students to connect personally with their studies. It also affirms a belief that health education must embody a comprehensive philosophy that is based on theoretical underpinnings.

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APPENDIX A

PARTICIPANT INVITATION LETTER

AGREEMENT TO PARTICIPATE

CONFIDENTIALITY STATEMENT

FAMILY MEMBER/KEY INFORMANT FACT SHEET

PARTICIPANT INVITATION LETTER

Date

Participant Name
Address
City, State, Zip Code

Dear Participant,

I am a graduate student in the doctoral program at the University of Northern Iowa and am currently doing research in the area of health education curriculum and instruction. In the fall of 1996 students enrolled in HED 201 Foundations of Health Education will have the opportunity to participate in the research I am doing concerning the effects of authentic teaching and learning strategies. The purposes of the research is to learn how authentic learning strategies affect the health-related knowledge, attitudes, behaviors, and intentions of college students enrolled in an introductory health course and to determine how useful such strategies are to health education.

As the instructor for the course and the researcher, I am extending this invitation to participate to all students who enroll in the course. Throughout the semester you will be asked to complete a family health history, to analyze your findings, and to report on them. Four to six students will be selected as research participants following completion of the assignment. Those who are selected will be asked to attend two individual interview sessions, one with Nancy Hines, our campus nurse, and the second with me. The purpose of these interviews is to confirm your conclusions, to determine the effect of this teaching method, and provide any support you might need.

The interviews which take place will be tape recorded. Because family health information is very personal, all student materials will be stored in a locked filing cabinet. The campus nurse and I will be the only people to see the raw data and you as participant have the right to select what data from your overall family history we will see. All identifying characteristics will be removed before inclusion in the actual doctoral dissertation.

Your participation in the study is completely voluntary. No student will be penalized in any way for non-participation. If you are selected as a research participant you may remove yourself from the study at any time. Should you remove yourself, all raw data will be returned to you and none of your responses will be used.

If you choose to participate, all action will take place within the context of our class with the exception of the two interviews As instructor and researcher I have a unique opportunity to look at the effects of authentic teaching and learning strategies. By working together we may be able to add more knowledge to the data base on how authentic teaching and learning affect the health education process.

This letter was written to provide you with a preview of this opportunity. You are not expected to do anything at this time. All agreements and instructions will take place during the first two weeks of the term. If you have any questions or concerns that need to be addressed prior to the first class meeting, I can be reached at 333-6238. Thank you for considering this opportunity.

Sincerely,

Ragene Dalton Gwin

AGREEMENT TO PARTICIPATE

The purposes of this qualitative study are (a) to explore how the construction of a family health history affects the health-related knowledge, attitudes, behaviors, and intentions of college students enrolled in a personal health course and (b) to determine the usefulness of such a project within the health education curriculum. The researcher is interested in documenting what happens when students engage in an authentic learning activity and how that active learning affects curricular outcomes.

Participants in this study can expect to be involved in the following activities.

1. Baseline data regarding your knowledge of your family health history will be obtained using a paper pencil genogram activity. This will serve as a pretest of knowledge.

2. You will learn what kind of data to collect and how to collect it during practice sessions in class. Modeling and peer interviews will be used to learn the rudiments of the process.

3. You will be asked to identify and then talk with family members or friends who you think might be good information sources and to record pertinent data about their health and the health other relatives. Your findings will be summarized in a short reflective paper.

4. You will be asked to meet for one hour with the campus nurse for an individual interview to confirm the conclusions you have come to and for one hour with the researcher to discuss your findings and to evaluate the process.

All information gathered during this study will remain confidential. In order to protect your anonymity, no identifying information will appear in print at any time. Any discussion that may occur will employ the use of pseudonyms. All class members will be asked to sign a Statement of Confidentiality to assure that any information disclosed within the context of the classroom will remain there. All students who choose to serve as potential research participants will also sign this Agreement to Participate which signifies that participation was and is freely chosen. Any student materials that you submit will be reviewed and returned following analyzation of content. While those materials are in the possession of the researcher they will be coded to protect you and will be stored in a locked filing cabinet. Following completion of the dissertation audio tapes will be destroyed and written artifacts will be shredded.

Your participation in this research study is completely voluntary. If initially you choose not to participate, you will incur no penalties. Alternative assignments are available for students who cannot or will not collect a family health history. If you agree to collect the family health history and participate in the study, you may choose to discontinue that participation at any time thereafter, and non-participation will not result in any penalty or loss of benefits to which you are otherwise entitled. Under these conditions, you agree that any findings obtained from this study may be used by the reseacher to further educational goals.

As you meet with family members or friends to complete your family health history it is possible that you and those you interview may experience a variety of feelings. The information and stories that result from your research will be very personal and potentially emotional. If at any time you or your respondents feel they cannot continue, the interview or activity should cease. Any followup or continuance would be entirely based on the wishes of all the participants. A variety of resources will be made available to you should additional information or referral be needed.

If you have any questions regarding the data collection and analyzation process or the purpose of this study, contact Ragene Gwin, HPESS at St. Ambrose University, (319) 333-6238 or Dr. Joane W. McKay, Associate Dean at the University of Northern Iowa, (319) 273-7242.

For further information regarding this study you may also contact the Office of Human Subjects Coordinator, University of Northern Iowa, (319) 273-2748 or Dr. Ann Freeberg, Vice President for Assessment at St. Ambrose University, (319) 333-6000.

I am fully aware of the nature and extent of my participation in this project as stated above and the possible risks arising from it. I hereby agree to participate in this project. I acknowledge that I have received a copy of this consent statement.

_____

Signature of participant or responsible agent Date

_____

Printed name of participant

_____

Signature of investigator Date

CONFIDENTIALITY STATEMENT

In the process of collecting your family health history, you will be discovering information about yourself and various family members that is of a very personal nature. It is very important that througout the duration of the study that we all work together to protect the privacy of each other and our family members. Adherence to the following principles will help assure this confidentiality and privacy.

While no student will be asked to provide a public account of findings, it is possible that in the course of discussion a personal story or fact might be revealed. If this does occur, absolutely no information should be discussed outside of the classroom.

Written materials submitted to the instructor-researcher for evaluation will be kept in a locked filing cabinet to assure confidentiality. While no student should have access to another's data, it is possible that a classmate might choose to reveal or discuss his or her findings. In the instance that such materials are seen, this written information should also not be discussed with others.

Interviews with the campus nurse and instructor-researcher will be audio-taped to allow for transcription and analysis of data. All materials will be stored in a locked filing drawer and tapes will be destroyed following completion of the study. Any reference to a particular student that appears in the final report will be made through use of pseudonyms.

I, the undersigned, have read these confidentiality principles and fully understand their meaning. By signing this statement, I agree to adhere to the confidentiality principles listed.

_____
Name

_____
Date

_____
Witness

_____
Date

FAMILY MEMBER/KEY INFORMANT FACT SHEET

PROJECT PURPOSE

Students today often look for a connection between what they are doing in the classroom and what goes on in the real world. The family health history collection project is a uniquely personalized opportunity to learn about oneself and apply topics studied in health class to everyday living. By putting students at the center of the learning process through the use of an authentic learning strategy, it is hoped that better understanding of health topics, risks, and preventions will be achieved.

RESEARCH PURPOSE

All students will complete the family health history assignment. Those who cannot or will not complete the assignment will be asked to complete an equivalent activity. Four to six students will be selected as research participants. These students will work with the researcher to describe how the use of this project helps in furthering the general health education goals of increasing knowledge, examining attitudes, and influencing behavior. Interviews with the research participants will focus on the connection between the project and how health education outcomes were affected.

STUDENT ACTIVITIES

Identify family members/friends to interview. Collect family health information through face-to face or telephone interviews. Create a family medical tree. Summarize findings. Submit project materials to instructor. Meet with campus nurse to look at medical implications and possible prevention/intervention needs. Meet with researcher to discuss findings and effect of the learning activity on health education outcomes. Review researchers final report to verify accuracy of information.

FAMILY MEMBER ACTIVITIES

Provide family health information to student through stories, documents, photographs, or other family artifacts. Help identify other key informants that might be helpful in completing the medical tree.

GENERAL PROCEDURAL INFORMATION

All student information will remain confidential and anonymous. Pseudonyms will be used in any discussions or written documents.

Student materials will be kept in a locked filing cabinet until data has been analyzed and then will be returned intact. Audio tapes will be destroyed and written notes shredded following submission of dissertation.

The potential for emotional distress exists with this project. If at any time the student or a family member chooses to discontinue interviews or the entire project, no penalty will result. The student should schedule an appointment with the instructor to determine alternatives at that time should the need arise. Information and referral services will be made available upon request to any student who requests

APPENDIX B

COURSE SYLLABUS

FOUNDATIONS IN HEALTH EDUCATION **MRS. RAGENE GWIN**
HED 201 SPRING 1996 2 S. H. **PEC 216 EXT 6238**
M 6:35 - 8:10 PEC 226 **OFFICE:**

COURSE DESCRIPTION

HED 201, Foundations in Health Education, offers students the opportunity to examine basic health concepts from personal and community health perspectives. A holistic approach will be utilized to emphasize the impact of health choices on academic, social, and personal success. Students will be encouraged to increase knowledge of current health-related issues and to assess individual health attitudes and behaviors through a variety of classroom activities and assignments. Methodology will include mini-lectures, cooperative and small group work, multi-media presentations and resource speakers.

COURSE OBJECTIVES

- To increase knowledge of current health-related topics and issues.
- To enhance ability to speak and write effectively regarding health-related topics and issues.
- To assess the relationship between health knowledge, attitudes, and behaviors.
- To encourage recognition of health-compromising behaviors and adoption or maintenance of health-enhancing behaviors.
- To utilize group process skills for exploring solutions to timely health-related problems.
- To develop strategies for identification of and access to health services and providers at local and regional levels.

TEXT

Krause, C. (1995). How healthy is your family tree? A complete guide to tracing your family's medical and behavioral history. New York: Simon and Schuster.

Additional materials will be provided by the instructor or are available in the Education Curriculum Lab or the SAU Library..

COURSE CONDUCT

To provide for the most comprehensive understanding of course concepts, students will participate in a variety of classroom experiences. Final grades will be based on scores generated from a variety of out-of-class assignments and classroom experiences. Active participation in all classroom activities is recommended for optimal gain.

Health education is about constructing one's own meaning regarding health knowledge, attitudes, and behaviors. To encourage this process and to accommodate individual needs, each student will be asked to contract for his/her desired grade. Grades will be assigned based on competent completion of selected assessment activities. Brief descriptions of activities which may be selected to complete course requirements follow.

Attendance - Each student will attend class and will be encouraged to consider his or her personal role in making this course a successful experience. Active participation in class discussion and classroom activities, sharing of relevant observations and experiences, and questioning of peers and instructor is expected. **Two absences will be accepted without question.** After two absences contract grade will be affected. Students are encouraged to inform instructor regarding personal or special circumstances.

Reading Assignments - Students will complete reading assignments to maintain and enhance knowledge of current health related topics. Class members will select topics to be

Journal Critiques
Suggested Procedure

Due Date: March 4, 1996
Required for grade of C

The Journal Critiques assignment is designed to help you become familiar with health-related topics of your choice through critical review of selected literature. You may select one topic and read three articles on that topic or you may select three different topics for this assignment.

Limit your selections to articles from **refereed journals.** By selecting current, refereed journals you will be reading the results of recent studies being conducted in the topic area. While this reading is sometimes difficult it gives some perspective on current knowledge, research, and practice.

Name
Journal Critique #1

Marinelli, R. D. (1995). The genogram in health education. Journal of Health Education, 26(4), 243-244.

Synopsis

In this first section provide a brief review of the article you read. Major points, conclusions, and author opinions should be included in your own words. Cover the content thoroughly yet concisely, rather like an abstract does. Use approximately 1/3 of the page.

Reaction

Your reaction should follow the review section and use the rest of the page. This is the more important section. Try to react to the article content as it relates to this class and/or your personal or professional development. Questions that you might try to answer could include any or all of the following: What was the value of this article? Did it change or confirm your opinions? How could this information affect you professionally?

While the reading of the material certainly CAN boost your knowledge in the topic area, this is also an opportunity to work on your writing. The better critique will double spaced, 10-12 type size, and completely fill the page without going over. It will also be carefully worded which means taking some time to consider what you really want to say and then how best to say it.

The following criteria will be applied when evaluating the critique.

- Format includes summary and reaction sections
- Paper is one type- or computer-written page in 10 or 12 point type
- Proofreading has eliminated spelling and typographical or other preparation errors
- Grammar, style, and punctuation are in agreement with generally accepted writing techniques
- Depth and preparation reflect college caliber.

The following journals are suggested. No popular magazines for this assignment..

- Health Education or The Journal of Health Education (might be listed either way)
- American Journal of College Health
- Journal of School Health
- Journal of the American Medical Association
- American Journal of Public Health

Family Health Tree Project **Due Date: April 8, 1996**
Suggested Procedure **Required for grade of B**

The Family Health Tree Project is designed to help you to critically examine your family's health history. You will complete a fairly detailed, comprehensive analysis of genetic, occupational, and familial health-related conditions among your close relatives. The purpose of this research is to provide you with personally tailored health and disease information that can help guide daily and future decision making which relates to your health and well-being and that of your close relatives.

The project has two parts: information gathering and summarization. Approaching this assignment in steps has provided best results in the past.

Information Gathering Guidelines

1. First identify the names of the persons you will research. It is recommended that you do a minimum of four generations including yourself (self, parents, grandparents, and great-grandparents). If a student is unable to trace the family tree four generations, special accommodations will be made.

2. Using the interview packet provided in class, record demographic information for each person. Include the person's name(s), date of birth/death, marital status, and occupation. Continue following the interview format to record how the looks or any other important identifying information.

3. Next you will gather information about significant medical conditions, disorders, or surgeries for each person. You will also want to note certain lifestyle or occupational factors that may affect well-being. The sources of your information might range from your own or your parent's memories to actual medical records. Older relatives or their friends also often remember important information or know where to find it.

   You will note significant **medical conditions, surgical procedures,** etc. which apply for each individual. **Health-related habits** such as smoking, drinking should also be noted. If **occupational or other environmental factors** (may) have influenced health status, then that information such also be listed. Use the list which follows to look even more extensively.

   Possible Disorders to Include on the Family Health Tree

   More than 2000 genetic diseases have been identified with more being discovered as time passes. Many other conditions, while not inherited, also exist. In both instances, certain diseases or health-related conditions occur more frequently in some families than others. The following list represents the most common genetic and familial health-related problems. This list is only a beginning point for investigation. Include other diseases/conditions as they apply to your family.

   •alcoholism
   •allergies
   •arthritis
   •asthma
   •blood diseases (sickle cell disease, hemophilia, thalassemia)
   •cancer (several forms have shown a familial relationship)
   •cardiovoascular disease (high blood pressure, atherosclerosis, heart attack, hyperlipidemia, stroke, congenital heart defects)

The successful summary paper will meet the following criteria:

- Format includes standard introduction, body, conclusion
- Paper is 3-5 type- or computer-written pages in 10 or 12 point type
- Proofreading has eliminated spelling and typographical or other preparation errors
- Grammar, style, and punctuation are in agreement with generally accepted writing techniques
- Evidence of personal research is detailed in narrative
- Summary references information included in graphical representation of genogram
- Depth and preparation reflect college caliber.

As instructor I recognize that this information is of a sensitive nature. Be assured that all information will be kept confidential.

Group Presentation **Due Date: Week After Session**
Suggested Procedure **Required for grade of "A"**

The purpose of the group presentation is to allow students to examine a current health topic in depth and to become personally involved in the process of health education. Students will work in groups of three (3) to create a 75 minute presentation that increases or reinforces the knowledge base, challenges class members to examine attitudes and beliefs about the topic, and provides resources or strategies for change or maintenance of health-enhancing behavior.

Following a nominal process exercise, topics to be studied throughout the semester will be identified. Those interested in this assignment will form small groups and select topics and presentation dates. With the number of students preregistered this semester, it would seem that 7-8 groups will be involved. Some coaching and planning time will be provided during class to decrease meeting time needed outside of class.

Using the list of topics, issues of interest or need within each topic area will be brainstormed by the entire class. Using the information gained from class members the group will plan a class presentation that

- involves all group members in all aspects of the design and delivery of the session
- uses methods that get class members actively involved
- provides current, accurate content information about the topic(s)
- helps student clarify their own beliefs and knowledge about the topic
- identifies resources available for classmates who might need information or assistance
- identifies resources used in preparation and/or delivery

Persons considering this contract option should be aware that full participation in this assignment will be necessary. All group members are expected to participate in the research, design, development, and evaluation of their session.

Copies of materials used should be turned in to the instructor with a general outline (or lesson plan) of procedure. Objectives of the session must be included. Each student in the group will write a 1-2 page type- or computer-written synopsis of the work he or she did and how that effort contributed to the successful implementation of the session. In addition each student will be asked to evaluate the overall conduct of the session as well as to comment on the contribution made by the members in the work group.

APPENDIX C

HEALTH HISTORY INTERVIEW SCHEDULE

PROCEDURAL AND CLARIFYING QUESTION SAMPLES

TRACKING GRID

FAMILY HEALTH HISTORY

The family health history allows individuals and families to construct a comprehensive picture of their potential health risks. The purpose of this questionnaire is to provide an organized method for gathering important information about chronic disease, accidents, surgeries, or other health-related medical or lifestyle conditions that exist within your family.

You will be collecting detailed health information about yourself, your parents, your grandparents, and maybe even the brothers and sisters of those people. For more distant relations, brief notations may also be helpful. The attached forms should be used to record the data you collect.

For each family member you will include name, date of birth, date of death when applicable, and occupation. Next you will note all significant medical and surgical conditions using the list supplied. Any known health-related habits should also be recorded. If a person is deceased the age at death and cause should be noted.

From this information a genogram will be constructed using standard recording techniques. The medical genealogy that results can illuminate potential genetic trends and occupational risks. It may also serve as the basis for prevention, early diagnosis and treatment decisions.

Finding the Population

_____ Number of brothers
Names: _____

_____ Number of sisters
Names: _____

_____ Number of paternal uncles (father's brothers)
Names: _____

_____ Number of paternal aunts (father's sisters)
Names: _____

_____ Number of maternal uncles (mother's brothers)
Names: _____

_____ Number of maternal aunts (mother's sisters)
Names: _____

Health History

Your Name: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

People to Contact

Name: _____ Relationship: _____ Occupation: _____
Address:

Name: _____ Relationship: _____ Occupation: _____
Address:

Name: _____ Relationship: _____ Occupation: _____
Address:

Name: _____ Relationship: _____ Occupation: _____
Address:

Next we want to look at the health histories of your close relatives. Use the same method to record information about your family members. The number of people you interview will depend on a) the size of your family, b) the knowledge base of the selected key informants, and c) the amount of time available for data collection.

Mother/Father Data

I am going to ask you some questions about your health and that of others in our family. The answers you give will help us to look for trends and patterns and to identify potential family and individual health risks.

Mother : _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Father: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Grandparents Data

Now I am going to ask you some questions about my grandparents' health and lifestyle and any other relatives you might be able to talk about.

Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Great Grandparents Data

I am going to ask you some questions about my great grandparents' health and other things you might know about how they lived. If you have information about other people that would give us more clues, please tell me about them, too.

Great Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Great Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Great Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Great Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Great Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Great Grandparent: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Other Relatives Data

Now let's talk about other or more distant relatives in our family that we may not have already mentioned. Any important information that you have that might help us should be given now.

Relative: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Relative: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies	___ 7. Hearing Defects	___ 13. Abuse/Addiction
___ 2. Arthritis	___ 8. Heart Defects	___ 14. Tuberculosis
___ 3. Cancer	___ 9. High Blood Pressure	___ 15. Visual Defects
___ 4. Diabetes	___10. Mental Illness	___ 16. Other Disease Occurences
___ 5. Drug Abuse/Addiction	___11. Mental Retardation	___ 17. Occupation/Lifestyle Factors
___ 6. Epilepsy	___12. Obesity	___ 18. Others Affected By Above

Comments:

Relative _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Relative: _____ Date of Birth _____ Place _____
Current Age _____ Single __ Married __ Divorced __ Occupation _____
Children's Names & Birthdates _____
Date of Death _____ Cause _____
Physical Characteristics:

___ 1. Allergies
___ 2. Arthritis
___ 3. Cancer
___ 4. Diabetes
___ 5. Drug Abuse/Addiction
___ 6. Epilepsy
___ 7. Hearing Defects
___ 8. Heart Defects
___ 9. High Blood Pressure
___10. Mental Illness
___11. Mental Retardation
___12. Obesity
___ 13. Abuse/Addiction
___ 14. Tuberculosis
___ 15. Visual Defects
___ 16. Other Disease Occurences
___ 17. Occupation/Lifestyle Factors
___ 18. Others Affected By Above

Comments:

Procedural and Clarifying Question Samples

As you begin you may wish to assure the responder that the information he or she provides will be kept anonymous and confidential. In no instance will family or given names be used in print. Pseudonyms will be used in all reports to protect responders and their families. Student data will be coded and originals returned.

For each item on the list ask the interviewee if he or she is or has been affected in any way. If the answer is affirmative place a check (√) on the accompanying line. Note the number in the comment section below and write any descriptive notes that will help you analyze your results.

This part might sound like this:

> **"Mom/Dad I'm going to ask you some questions about your health and some specific medical conditions. If you currently are affected or have been in the past tell me about it. Do you have any allergies? Tell me about it/them."**

Let's say the answer was yes. Place a check on line one and write something like this in the comment section.

> **"1 - Hay Fever, fall & spring, treat with antihistamine."**
>
> OR
>
> **"1 - Amoxicillin, life threatening, NO PENICILLIN to be given, first reaction 5/95 small rash, last reaction 10/95 hives, swollen joints. Wears bracelet."**
>
> OR
>
> **"3 - Breast cancer, lumpectomy 1994, mother, sister, grandmother affected."**

Continue with the list until all fifteen categories have been introduced. This process will probably be time consuming. Try to be as patient and consistent with your questioning as possible. It will get easier as you practice and develop a style.

Category 16, Other Disease Occurrences, may include a variety of medical or lifestyle conditions. Have a sample list with you so you can prompt the interviewee if it seems necessary or to double check that all possibilities have been considered. Possible entries include: diseases specific to a culture or group such as Tay-Sachs disease or sickle cell anemia, congenital defects such as cleft palate, miscarriage, surgeries, multiple births, gall bladder removal, male pattern baldness, psoriasis, muscular distrophy, etc. In addition for all females who have given birth, noting the number of children, birthdates and stillbirths may be helpful.

Use Category 17 to ask about lifestyle or occupation especially if some hazards exist. For example you may ask about exercise or diet or maybe even hobbies as that will tell you something of the person's outlook and beliefs. Lifestyle choices such as regular exercise or lack thereof, dietary regimen, If a person has had no known medical or lifestyle problems you should still list him or her and note **"excellent health"** in the comment section. The list in your syllabus can be used as a starter if needed.

As above place a check on line 17 and then name and describe the condition in the comment section. Be sure to give your responder time to think about each category. It is possible the person may get confused if you try to hurry. Your lead in to this category might sound like this:

> **"Mom/Dad this last section gives us a chance to talk about any other conditions or problems that you know about. Can you think of any specific conditions that you are concerned about or that keep showing up among our family members? Do you know of anything about the way grandpa lived or anything about his job that may have affected his heatlth? What about . . .? Tell me what you remember."**
>
> **"Sometimes this type of information is a memory and not so clear or it might be things you remember older people talking about when you were a child but never saw for yourself. It's ok if you can't call a condition by name, we can note the signs or symptoms you remember seeing or hearing about. Any and all information can be used as clues."**

Have enough sheets with you that if your mom starts to talk about your dad's great aunt you can capture that data quickly and easily on the appropriate page. If you have some familiarity with the general family tree structure in advance of the interview, you will probably be able to do this rather easily.

Continue questioning your parent(s) until you are satisfied that you have gathered the important information. Make your notes as good as possible so that when you analyze your data later you will be able to remember what you meant. As you finish talking with your parent(s) be sure to ask them to identify any other family members that they think would know more. It is also possible to talk with people not in your immediate family but who were always around like neighbors or other family friends. In some cases the only information available about a particular person might be the records found at the courthouse. Do your best to seek out the best people to answer your questions. Also remember information that might be unobtainable during the semester may appear at a later time and can be added to your data base.

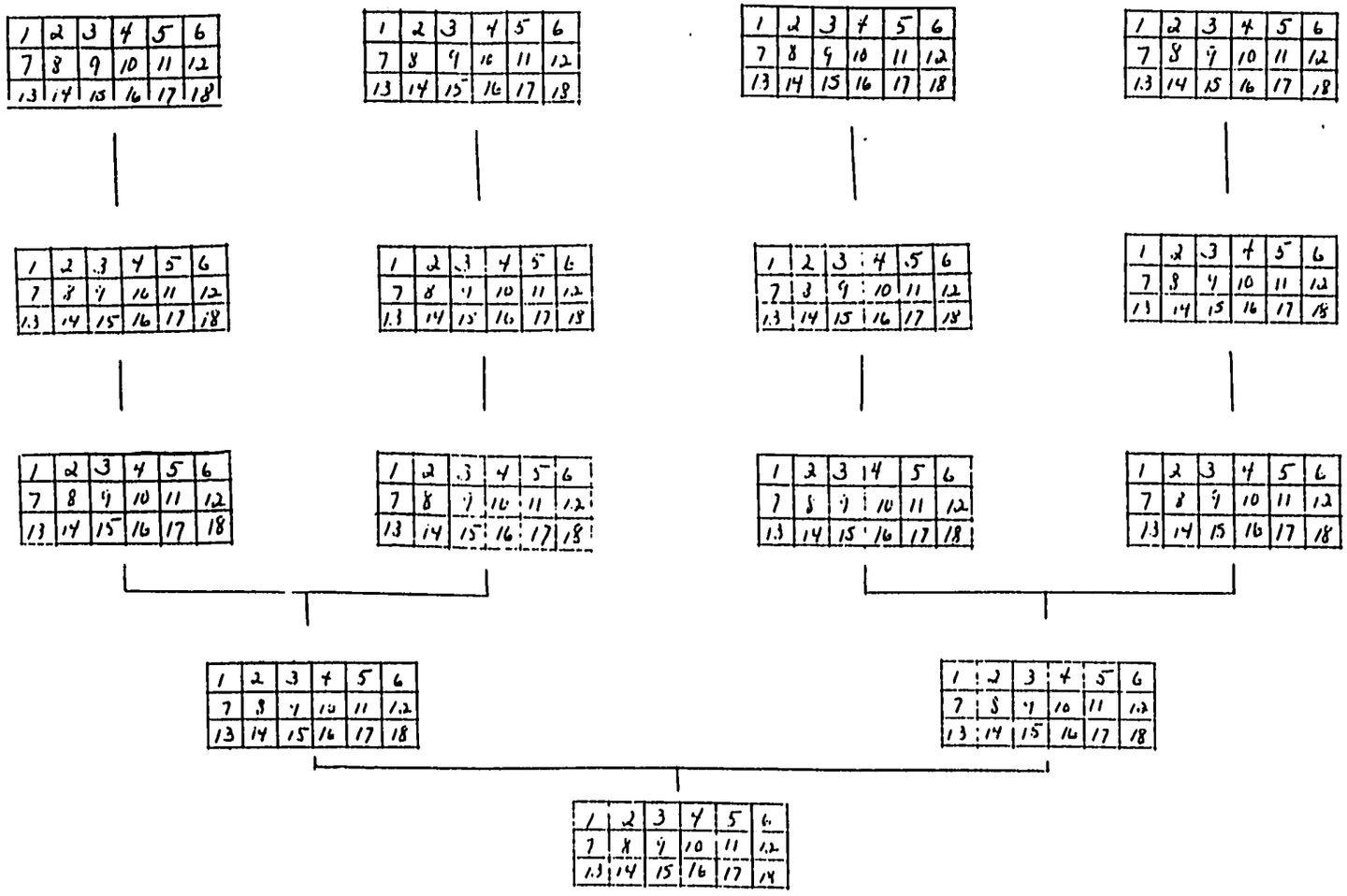
Adopting an open, non-judgmental tone and presence will provide the most safety for your responders. Remember that probing for this type of information is bound to cause some discomfort for you and/or your responder. Some issues, like child abuse, alcoholism, divorce, or mental illness can be very difficult to talk about. Be aware of your responder's comfort level and let your instincts guide you. Your grade will not suffer if an individual cannot answer or feels unable to finish the interview. Also, it may be that certain gaps will exist no matter how well you interviewed or how much you and your responders thought they knew.

Some people are more difficult to talk with than others. If you get stuck or feel you need more information, you might try these:

> **"Wow, that's really interesting. Tell me more about that."**
> **"I'm not sure I understand. Could you describe it for me?"**
> **"What else do you remember about _____?"**
> **"What an incredible story. So what happened after that?"**
> **"I'm sure that was difficult for you. How did you handle it?**
> **"It's hard to believe all that could have happened. I'll bet it was difficult for them. Do you remember anything else that might tell us more about _____?"**
> **"Oh, so you thought it was ____. For what reason do you say that?"**

In the course of the interviewing process you may find that the information given to you by one person does not match what someone else said. If this occurs, don't worry about who might be right, confused, or wrong. Take down the information as it is given to you and ask one more person to see if some consensus appears. If there is no resolution note the disparity and move on.

As you complete the data collection, tell the responder you will let them know of your results and that you appreciate their help with your project. Once the data is in you will analyze what you found by looking for patterns and trends. Use the data to construct a report that tells your story.



Tracking Grid