

## CHAPTER 1

### Introduction

#### Science & Art: Friends or Foes?

*A rising lake, talk of building a dam, and the threat to a bird nature reserve...* In the book, Refuge, Terry Tempest Williams (1991), a naturalist in the Great Salt Lake area, told a touching human story of her mother's struggle and death by cancer. She revealed *the importance of respecting a balance of the earth's systems*: natural, scientific, and human. Multiple factors in relation to one another resulted in seven women in her Utah family living... and dying... with the challenge of cancer.

In beginning this study, I examined the relationship of science and art, the difference between objective and subjective views of the world, and the implications this relationship has to the human experience and systems theory in general. In earlier centuries, both science and philosophy were used to understand humankind and the world around them. Beginning in the 1800s, our society adopted a preference for the scientific paradigm and knowledge was equated with the scientific method of inquiry. The goal of the Industrial Age, to have a work force for manufacturing and factories, was served well by this preference. Today there is an increasing call for a new perspective of humans and the world. The *separation* between the objective and subjective views of the world, the *balance* of the science and art paradigms, and the possibility within balance of achieving a blending of the two was explored in this study.

#### The Separation

Science and art at times have represented seemingly opposite views: concrete vs. abstract, objective vs. subjective, rational vs. intuitive. The questions posed for this researcher as the integration of these two views was contemplated were "Are they opposites?" and "Do they have to be?" Historically, science was the idea that knowledge could be acquired through observation and experimentation, with an emphasis on objectivity (Schwartz, 1974). American psychologist, Clark L. Hull (1943) gave a description of a scientist's view of science:

The essence of scientific objectivity lies, in establishing rigorous mathematical

relations between measured variables. Given the values of one set of variables, science predicts exactly the values of another set. A genuine scientific theory must operate like a calculating machine, which, once the keys representing the dividend and the divisor have been depressed, determines the result automatically. (p. 24)

Prior to the dominance of the scientific method, labor was manual and difficult and medical knowledge was primitive. Science and its reductionistic methods provided the improvements of easier work with the aid of machines and saved lives with improved medical practices.

By contrast, the arts had not attempted to validate their claims of imagination and insight or to justify them by scientific criteria because their emphasis was on subjectivity not objectivity (Prior, 1962). The arts were seen as activities of the mind that used and transformed symbols and systems of symbols. They also involved emotions that “function cognitively—to guide the individual to make certain distinctions, to recognize affinities, to build up expectations and tensions that are then resolved” (Gardner, 1990, p. 9). These characteristics were true both in visual and musical artistic activities. In the 1400s, Isidore of Seville wrote in *Etymologiarum*:

Thus without music no discipline can be perfect, for there is nothing without it. For the very universe, it is said, is held together by a certain harmony of sounds, and the heavens themselves are made to revolve by the modulation of harmony. Music moves the feelings and changes the emotions. In battles, moreover, the sound of the trumpet rouses the combatants, and the more furious the trumpeting, the more valorous their spirit. Song likewise encourages the rowers, music soothes the mind to endure toil, and the modulation of the voice consoles the weariness of each labor. Music also composes distraught minds, as may be read of David, who freed Saul from the unclean spirit by the art of melody. The very beasts also, even serpents, birds, and dolphins, music incites to listen to her melody. But every word we speak, every pulsation of our veins, is related by musical rhythms to the powers of harmony. (as cited in Moore, 1996, p. 63)

Different assumptions are used by science and art because of their beliefs of “*How you know what you know*” (i.e., epistemology). According to Nice (1988), science epistemology was “the orderly, systematic method of trying to discover the true nature of the Universe without resorting to a divine explanation. Dealing only with what is measurable and quantifiable” (p. 23). An artist’s way of knowing was described as a subjective view that “the appreciation of world phenomena is seen as being dependent on the ability to understand the way in which human beings shape the world from inside themselves” (Morgan & Smircich, 1980, p. 497). These two tracks of thought have developed because art addressed the internal experiences of humans; whereas, science was formed as a need for more systematic study to explain the physical world.

In Western society, the scientific way of knowing has been dominant since the eighteenth century, even though both the Church and humanists opposed this view. A mechanistic view of man prevailed (i.e., man as machine) and science defined truth through its facts and methods (Schwartz, 1974). In the 1900s, other methods used to obtain knowledge have been identified, including kinesthetic, visual, and auditory. While the present time is the *age of science*, art, literature, religion, dance, and other avenues have been important at other times in history...and could be again (Nice, 1988).

In Western thinking, there is a *separation* between two opposites. The attitude tends to be that if one is *right* the other must be *wrong*. A polarization often occurs instead of unity or a balance between the two. Scientists can insist that knowledge and truth is found *only* through the scientific method, valuing objectivism, facts, and logic over subjectivism, emotions, and intuition. Artists and philosophers can insist that the *only* true reality is the personal experience of an individual. A third perspective, Eastern thought, views two opposites, the yin and the yang, as giving completeness and balance (Ray & Myers, 1986).

#### A Balance

“*When opposites supplement each other, everything is harmonious.*” Lao Tsu  
(as cited in Herrmann, 1996, p. 137)

Our society’s swing toward science and analytical-dominant thinking has had

negative consequences in education, business, and families (Herrmann, 1996). Public schools focused on basic skills tests while reducing the arts in the curriculum (Gardner, 1990). MBAs graduating from colleges in the 1980s lacked the skills necessary to be creative in implementing American business, because the focus of their training was on analytical skills (Ray & Myers, 1986). Individuals seeking psychiatric help have been viewed objectively, not as part of a family system, and solutions have not included the total living environment so that negative conditions continue to impact the individual (Breunlin, Schwartz, & Kune-Karrer, 1992). A balance between the science and the art paradigms is needed. Susan Langer (1942) illustrated this balance in her book, Philosophy in a New Key:

But between the facts run the threads of unrecorded reality, momentarily recognized, wherever they come to the surface...the bright, twisted threads of symbolic envisagement, imagination, thought—memory and reconstructed memory, belief beyond experience, dream, make-believe, hypothesis, philosophy—the whole creative process of ideation, metaphor, and abstraction that makes human life an adventure in understanding. (pp. 236-237)

The blending of science and art addresses all the dimensions of human experience and could give a more accurate picture of the world.

Leonardo da Vinci lived during the Italian Renaissance, the time of the *universal man*. Many of his scientific studies and works of art are well known, but according to his personal notebooks, he studied many areas, including philosophy, anatomy, optics, astronomy, physics, geography, topography, atmosphere, flight, movement and weight, nature of water, inventions, warfare, precepts of the painter, light and shade, perspective, sculpture, commissions, casting, architecture, “jests” (humor), fables, a bestiary (animals), prophecies, and letters (MacCurdy, 1956). As a scientist, artist, and inventor, he had a holistic attitude toward the balancing of science and the arts (Renzi, 1996). Holistic means seeing the parts as an integrated whole. Da Vinci connected his scientific and technical research with his profession as an artist. He strove to place art with the other liberal arts, including science (Pedretti, 1997). He and other Renaissance artists

spoke of art as science. For example, in order to study and understand human anatomy, Leonardo da Vinci would sketch detailed drawings of the skeletal system, muscles, an eyeball, the hands, or other subjects of interest. Art and science were used as a way to see, to learn, to understand—a way of knowing.

The idea of using a balanced approach to thinking and problem solving has been supported since the mid-1900s. Many scientists, including Nobel Prize winners, have been active in the arts. Examples include Albert Einstein, physicist and musician; Barbara McClintock, geneticist, musician, and woodworker or related craft; Margaret Mead, anthropologist and poet; Marie Curie, physical chemist and poet; and Louis Pasteur, immunologist and woodworker or related craft (Root-Bernstein, 1989).

Wallis (1926) discussed his process of thinking in four stages: preparation, incubation, illumination, and verification. Although written in a linear fashion, this was not a step-to-step, linear process. Instead he spoke of the thinking stages as occurring in a heuristic manner, with an indefinite path to the process. Herrmann (1996) used these stages to illustrate using different types of thinking in problem solving, not just the rational, linear process normally equated with the scientific paradigm. He encouraged people to improve their individual and work lives by expanding the process of thinking that they used. In science, “the difference between a technician and a discoverer is imagination” (Root-Bernstein, 1989, p. 313). And according to physicist Albert Einstein, “Imagination is more important than knowledge” (as cited in Stoddard, 1993, p. 371). Einstein’s view was that both imagination and facts were important, but if a person had to make a choice imagination would be the most valuable. Technical information was needed and useful, but without the ability to visualize, or imagine, its possibilities could never be realized.

Ray and Myers (1986) described the business climate of the 1980s, as “an ongoing storm of concern over the failure of the scientific, analytic approach as well as a freshening wind of hope in the intuitive alternative” (p. xii). Graduating MBAs had much factual knowledge, but their skills in applying it and forming new ideas were underdeveloped. The media sources described MBAs, and American business in general,

as “too analytical, too dependent on numbers, too conservative, unconcerned with people, shortsighted, and as a whole shamefully uncreative” (p. xi). In response Ray and Myers (1986), professors at Stanford University, developed a course to help students learn to use their inner resources along with logic for creativity in business. They taught that successful business people and scientists use the same approach that artists do. Each used creative thinking to recognize problems, form new ideas for solving those problems, and an ability to use more than just facts to arrive at new solutions. Intuition was described as recognition, “to know again” (Ray & Myers, p. 166), based on prior learning and experiences, not emotions. It served as a complement to reason. Blaise Pascal, French philosopher, mathematician, and physicist, expressed the value of a balance of objective and subjective thinking by saying, “we know the truth, not only by reason but also by the heart” (as cited in Ray & Myers, p. 164).

Csikszentmihalyi and Rathunde (1993) studied 200 teenagers looking at talent development in the arts and the sciences. The method included the use of the Experience Sampling Method (ESM), a technique to obtain accurate measures of thoughts, activities, and mental states by a student’s responses to an electronic pager and self-report forms. In addition, interviews, questionnaires, and standardized tests were used. They found that the students who developed their talents across all of the talent areas (i.e., arts and sciences) experienced and reported “personal enjoyment and the feeling that they were working toward important future goals” (as cited in Csikszentmihalyi & Rathunde, 1998, p. 673). Personal enjoyment was measured by a self-reported subjective state of flow—being involved in an activity to the point of losing track of time, unaware of fatigue, and everything else except for the activity itself (Csikszentmihalyi & Rathunde, 1993). The students who only developed in arts felt their activities did not relate to their future goals, and the students with development limited to the sciences felt less personally motivated. Research indicated that the teenagers benefited differently in the use of both approaches in teaching and learning. A child-centered approach, associated with the arts, created opportunity to differentiate the self, or becoming an individual, through learning discovered knowledge. In contrast, a parent-centered approach, associated with the

sciences, encouraged an individual to integrate the self by learning presented knowledge (Csikszentmihalyi, 1990).

John Steinbeck, novelist, and Edward Ricketts, marine biologist, (1941) illustrated the idea of the importance for a balance of science and art in describing the spine-count of a Mexican sierra fish:

The Mexican sierra (fish) has “XVII-15-IX” spines in the dorsal fin. These can easily be counted... We could, if we wished, describe the sierra thus: “D. XVII-15-IX; A. II-15-IX,” but also we could see the fish alive and swimming, feel it plunge against the lines, drag it thrashing over the rail, and even finally eat it. And there is no reason why either approach should be inaccurate. Spine-count description need not suffer because another approach is also used. Perhaps, out of the two approaches we thought there might emerge a picture more complete and even more accurate than either alone could produce. (pp. 2, 4)

A combination of both approaches gives a glimpse of the whole and a clearer view of reality. Acknowledging the value of both objective and subjective knowledge would end the separation and provide a balance of thought. Perhaps a balance of the two paradigms would give a more complete picture of life and a greater respect for humanity. The approach of this study was a part of this post-positivist perspective.

During the Industrial Age, our society adopted the scientific method as *the* way to knowledge, and a separation occurred between science and art. Objective and subjective thinking became polarized. Behaviorism was seen at the objective end of the spectrum with extreme subjectivism at the opposite pole, both focusing only on a part of human beings and their world (Moon, Dillon & Sprenkle, 1990). A middle ground perspective would more likely incorporate the idea of a balance of scientific and artistic thought, making an integration of the two more possible. Figure 1 illustrates the polarization, the balance, and an integration of the science and art paradigms. Bohm (1971), professor of physics, supported this idea by warning against taking a Universe that is *a seamless garment* and breaking it apart through rationalization, which resulted in fragmentation.

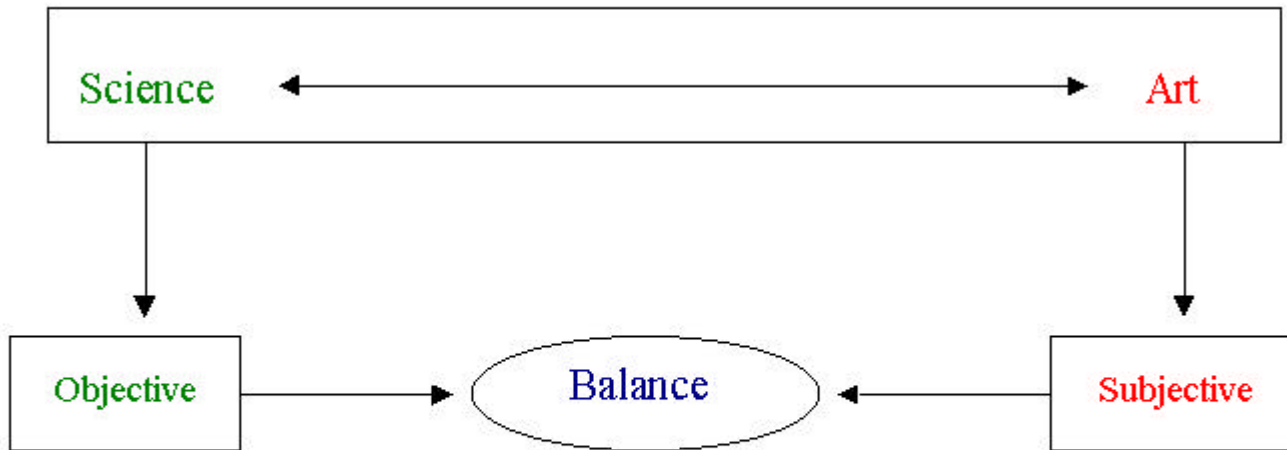


Figure 1: A Balance of Science and Art Paradigms.

Instead of linear progression, all movement “between man and man” and “between man and nature” was seen as an “unbroken totality of movement in many directions at once, and not to a series of fragmentary steps from one place to another, in a definite direction” –a holocyclation (Bohm, 1971, p. 10). This view differed from the early reductionism theories, that reduced something to its different parts to understand it, and allowed for a view of *the whole* (Bohm, 1971). This call for using new language to form a new view of social reality was consistent with the systems theory of social constructionism. Social reality was linked to the language that was chosen to establish a socially constructed meaning.

Other theories from the systems perspective may blend science and art. Bertalanffy (1975) believed in a balance of science and art which led to his development of the general system theory (i.e., open system theory). This theory was founded in a scientific field but is anti-mechanistic or against viewing humans as machines. Open system theory tended to blend the concepts of a world that were external (objective/science) and the dynamic relationships between humans, their contexts, and environments (subjective/art) (Morgan, et al., 1980). Another systems theory, constructivism, focused on the creating of meaning by systems but in a closed way within the structure of the system, and possibly making it not as compatible with this idea of integration (Glaserfeld, 1984). Social constructionism definitely would lend itself to the arts with its reliance on symbolic forms and language, though it may not accept scientific knowledge readily (Gardner, 1990). The important question for this study was, from the systems theory perspective, can a balance of objective and subjective thinking be achieved for the field of Clothing and Textiles? The systems theories of social constructionism, general system theory, and constructivism were examples of efforts to view humans as a whole, holistically, in the context of the systems in which they exist.

#### Statement of the Problem

Humans are not simple, mechanistic beings, but dynamic, complex systems. Each individual possesses biological, psychological, social, and behavioral systems functioning in a sociocultural context (Magnusson & Stattin, 1998). Humans and their interaction

with other systems are ever changing and complex. Humans are both objective and subjective beings and operate in a world with both objective and subjective reality.

The complexity of human systems contributes to the difficulty in solving human problems. One example of a complex human problem is eating disorders. Currently, more than five million Americans have eating disorders. Fifteen percent of all young women have disordered eating attitudes and behaviors, with approximately one thousand deaths of women a year to anorexia nervosa. One in ten college women have a clinical or nearly clinical eating disorder (ACEN, 1999). This is a complex problem, not remedied with simple answers. It includes the interactions of multiple systems, often resulting in negative outcomes for the people involved.

The field of family therapy and psychology might study the problem of eating disorders by focusing on the individual and the family system (Akan & Grilo, 1995; Minuchin, 1974; Thelen & Cormier, 1995), and studies in Human Nutrition and Sports Physiology may concentrate on food attitudes, physiological functioning, and exercise habits (Bartlewski, Brewer, & Van Raalte, 1998). The field of Clothing and Textiles (CT) traditionally studied the human issues of body image by focusing on cultural effects, an individual's self-perception and appearance management responses (Kaiser, 1990; Lennon & Rudd, 1994; Littrell, Damhorst, & Littrell, 1990). Appearance management responses could include disordered eating patterns to achieve the *ideal body* image. The subject of body image and eating disorders is a multifaceted problem. Current theory to research this problem is often single focused and not holistic. The purpose of this research study was to develop a theory about dynamic, complex human systems, their needs and development, and their interactions with other systems that impacts their own. This theory could aid in the understanding of human issues in all areas of the CT field. Specifically, this new theory could provide a more integrated and holistic approach for CT researchers in study of body image and appearance management behaviors as related to eating disorders.

The present theories in the field of CT are inadequate for addressing the complexity and dynamic nature of human systems. As other disciplines develop new

understandings of the complex interaction of humans and other systems, a need exists for the CT field to continue the development and modification of current theoretical perspectives pertinent to its research that impacts human life. “Progress needs to continue toward building integrated theory and conducting integrative research in human ecology” (Bubolz & Sontag, 1988, p. 12). Kaiser (1990), discussing the area of social psychology of clothing, said “Knowledge in this area, as well as in any other area, must be evaluated in relation to larger societal issues and trends. As necessary, theoretical perspectives will continue to be modified” (p. 26). A need exists for the discipline to build theory to aid in the understanding and discussion of the complex nature of human issues.

Theory building has become important to the field of CT in its present goal to grow as a mature scientific discipline (Damhorst, 1991). According to Damhorst, theory building was a process of five stages. The discipline of CT in the research of body image and appearance management has been in Stage 1--Demonstration and Description, describing the ways that dress affects perceptions of others and personal interactions such as the appropriateness of women’s dress; Stage 2--Problem Solving, answering practical, everyday problems; and Stage 3—Application of Theories from Supporting or Related Fields, testing existing theories from social psychology and psychology (Damhorst, 1991). Damhorst stated, “To become a thriving field of scientific endeavor, a discipline ultimately should strive to encompass simultaneous efforts at each level of research, but with emphasis on Stage 4 [Development of Existing Theory] and Stage 5 [Development of New Theories of Dress] theory development” (p. 197). Two suggestions were given to foster theory development: (a) to pursue programmatic inquiry and (b) to continue to increase level of diversity and complexity in research perspectives and methods (Damhorst). In Sontag & 979, Bubolz, Eicher, and Sontag presented a model of human ecology as “a first step in building propositional theory” (p. 31). The authors suggested that “additional concepts are necessary for building a dynamic systems model and for extending the model for research and analysis” (p. 31). This study was an additional step in identifying concepts and building a dynamic, systems-based theory.

### Purpose of Study

The purpose of this study was to explore current theoretical models and to propose a dynamic, complex, and systemic theory for use in future research design and methodology in the field of CT. An expanded theoretical perspective would promote a holistic approach in the research of problems facing our society and new educational and prevention practices in the field of CT. This research can increase awareness of the complexity of human interactions and enhance the quality of life through all phases of our work. The theoretical framework developed from the findings of this study was discussed within the CT area of social psychology, specifically the subject of body image and eating behaviors.

Traditional definitions of the term *theory* were based on a scientific, quantitative approach to research. Creswell (1994) defined theory, as used in quantitative studies, as “an interrelated set of constructs (or variables) formed into propositions or hypotheses that specify the relationship among variables (typically in terms of magnitude or direction)” (p. 82). Reynolds (1971) stated that two conceptions of scientific theory dominate. One was the conception of theory as “a set of well-supported empirical generalizations or “laws,” ...referred to as the “set-of-laws” form of theory” (p. 10). The second was the conception of theory as “an interrelated set of definitions, axioms, and propositions (that are derived from the axioms), was borrowed from mathematical conceptions of theory and is called the “axiomatic” form of theory” (Reynolds, p. 10). The theory described in these traditional definitions is deductively derived.

A qualitative research approach takes an alternate view of theory. The theory will have all the attributes (e.g., a set of interrelated constructs used to explain a phenomena) described in the traditional definition; however, the process of theory development is different. In quantitative design, a researcher begins with a theory to test or verify (i.e., deductive reasoning). In qualitative research, an inductive approach is used and the theory emerges during the data collection and analysis and/or is used late in the research study to compare and contrast it with other studies (Creswell, 1994). In a grounded theory study, the theory is “inductively derived from the study of the phenomenon it

represents...data collection, analysis, and theory stand in reciprocal relationship with each other. One does not begin with a theory, then prove it. Rather, one begins with an area of study and what is relevant to that area is allowed to emerge” (Strauss & Corbin, 1990, p. 23).

Regardless of how theories are formed, they have several important parts: ideas, concepts, and statements (Reynolds, 1971). According to Reynolds, a theory starts with a formal description that attempts to describe an *idea*, the most important part:

Scientific activity should be directed toward asking useful and important questions, even if they are in the middle of the block where the ‘illumination’ provided by quantification is weak. In other words, even an approximate answer to an important question is more useful than a precise, elegant, and quantified answer to a trivial question. (p. 64)

To share an idea, one must convey the idea through some form of written or verbal language, a *concept*. The description of a relationship between two or more concepts is a *statement*. *Theories* are collections of statements (Reynolds). Damhorst proposed an operational definition of theory as “a set of related or internally consistent propositions, which explain, interpret, describe, and/or predict a type of phenomenon in a highly simplified and generalized manner” (p. 192). Strauss and Corbin (1990) described theory as (a) using *concepts* similar data which are grouped, interpreted, and given conceptual labels, and (b) concepts which are related by using *statements* of relationship. Theories can be represented both in textual or graphic forms. A model is described as “a set of internally consistent propositions which map out the components of a system or process and indicate relationships among the components...often, but not always, presented visually in pictorial symbols” (Damhorst, 1991, p. 192).

For this study a grounded theory research design was used. A qualitative, grounded study research design supported the purpose of this research and allowed the exploration of the research question by an inductive approach. Grounded theory design was “the process of developing a theory, not testing a theory” (Creswell, 1998, p. 241). This research design allowed the researcher to use a combined approach to research. A

combined approach to research, as opposed to positivism or a strict qualitative paradigm, has been suggested by some researchers (e. g., Creswell, 1996; Moon, Dillon & Sprenkle, 1990). Moon et al. (1990) discussed post-positivism as a bridge between quantitative and qualitative paradigms, making use of combined research methods. Advantages gained were congruency with the field, respect of people, valid and reliable results, and increased levels of accountability to a profession. One problem with post-positivism was the idea of the leveling of the hierarchy, resulting in no experts. While this promoted respecting all people, for example attempting to raise the oppressed, it raised real implications for professionals in fields such as family therapy and medicine (Hayward, 1996; Launer, 1996). These issues included the role of an objective reality, inappropriate uncertainty in doctors dealing with life and death situations, and the view of power. When faced with situations that defied scientific analysis, medical doctors and therapist were challenged to rethink what they knew as *fact*, how they viewed and listened to patients, and what their power was in making decisions that directly affect other people. In spite of scientific diagnosis and treatment, some patients failed to improve and some patients improved when all scientific evidence indicated death.

A theory with a balance of science and art perspectives would serve the field of CT by an acknowledgment of the different ways of knowing—rational, objective, and concrete plus intuitive, subjective, and abstract (Nice, 1988). A broadened acceptance of knowledge would encourage the use of non-traditional research techniques if helpful to addressing human issues. Individuals, families, and society would be seen as a whole, though specifics could be addressed whenever necessary. An understanding of the dynamic development of humans and the psychological process would better prepare researchers and professors to understand and respect individual differences. Helping people problem-solve more effectively and creatively would serve to empower individuals and improve their quality of life (Herrmann, 1996). A theory which achieves a balance between objective and subjective perspectives does not exist within CT. Current theories lack the balance of the two approaches that are represented in science and art. By reviewing the systems theory perspective and the CT theories, in grounded

theory research design a new holistic theoretical framework emerged with a balance of the best of both perspectives.

#### Research Question/Subquestion

Recognizing the dynamic, complex nature of the human system and its interaction with multiple other systems led this researcher to ask questions. What multidimensional theoretical framework would address this complexity and provide an expanded view for research and education in the field of CT? After the theoretical framework and model were developed another question was asked. Could the developed theory and model be useful to the social psychology area of CT, specifically in studying the issue of body image and eating disorders of women? The field of CT had traditionally borrowed theories and models from other disciplines, including sociology, psychology, and anthropology (Kaiser, 1990), but exploring answers, unique to the field of CT, to these questions was the goal of this research study.

#### Delimitation and Limitations

For the purposes of this study, the sample consisted of social psychological theories found within the field of CT and theories that pertained to the social sciences from the systems perspective outside the field. A unique interpretation of the reviewed theoretical models was formed and resulted in the use of terms from multiple disciplines. These terms may have some difference in meanings across fields. In this study, the development of a theoretical framework that was grounded in the literature allowed for generalizability in the field of CT (Merriam, 1988). The characteristics of a qualitative study were that (a) a concern with *process* instead of outcomes or products; (b) an interest in *meaning* from a subject's viewpoint; (c) the researcher was the *primary instrument* for data collection and analysis, but assumptions, biases, and values of the researcher would be articulated; (d) *fieldwork* was involved to get a first-hand account; (e) the research was *descriptive*, interested in process, meaning, and understanding from words or pictures; and (f) the process was *inductive*, building abstractions, concepts, statements, and theories from the details (Merriam).

A subjective viewpoint and the researcher as the primary instrument for data collection were characteristics of the qualitative research design that limited replicability. In the procedures, these factors of a qualitative study were reported, as well as a detailed report of data collection methods, sources, and analysis. An auditor who is a professional in the field monitored the process and outcome of the research (Creswell, 1998). Multiple data sources also provided verification. Peer-checkers verified the findings derived from the data. This detailed report would allow another researcher to conduct a *similar*, though not exact study, by using the same procedure.

### Significance of the Study

As human systems and the systems with which they interact were better understood, conditions that promoted optimal human development could be better provided and the prevention of many problems may be achieved. This research was an effort to understand people in order to improve their development and quality of life. Many research areas in the field of CT could be aided by having a theory with a multidimensional perspective to address the complex human issues facing our society. In the area of apparel design, clothing could be developed to meet the multiple needs of specific individuals instead of one need for multiple persons. In economics and marketing research, a holistic perspective would be used to meet the needs of consumers while gaining economic success. Doing research using this theory, the area of textile science could view the systemic nature of life and focus on healthy environmental practices and the development of new textiles. In the area of social psychology, dress and appearance should be studied using this theory by examining dress and appearance in a broad view. Dress and appearance should be examined in relationship to “the everyday lives, aspirations, and fantasies of individuals and groups of individuals” (Kaiser, 1990, p. 27). Building theory in the field of CT gives an additional paradigm to address human issues within the field.

In the late 1980s, the Association of College Professors of Textiles and Clothing (ACPTC) met “to clarify the uniqueness, breath, and depth of our subject matter in order to shape our future more effectively” (Kaiser & Damhorst, 1991, p. iii). They worked to

understand the critical linkages in the diverse subject matter found in the field of CT and to determine the implication of the linkages for the development of the knowledge base, methodological advances, and for practice (Kaiser & Damhorst). A three-part mission was identified for future activities: (a) incorporating theoretical development, (b) research, and (c) knowledge dissemination (Kaiser, Dallas, DeJonge, & Rhodes, 1985). This study contributed to these goals by addressing important theoretical problems and an expansion of the concepts found in theoretical models. Researchers, educators, and students could benefit from a holistic framework from which to formulate studies, design curriculum, and to learn a way of thinking that addresses human complexity.

The study supported the mission of the College of Human Resources and Education, which was

The College of Human Resources and Education strives to enhance the quality of life for individuals and families through excellence in instruction, research, Cooperative Extension, and outreach. We are dedicated to the creation and dissemination of information that empowers people as individuals, family members, and consumers; and to the improvement of educational policy and practice. Our educational services are delivered to university students, businesses and industries, private and public agencies, public schools, professional organizations, and citizens of the Commonwealth of Virginia and the world. (About, 1998-1999)

Also, this research matched the mission of the Department of Near Environments. The stated goal of the Department of Near Environments was

...to enhance quality of life through the design or management of interior spaces, housing, apparel, personal finances, and other consumer resources. The Department has active instruction, research, and extension programs in merchandising management, apparel design, housing, interior design, household equipment, resource management, family economics/family financial management, and consumer studies, and offers the BS, MS, and Ph.D. degrees.

The focus of all programs is on the interaction of people with their near environment, the external forces that shape the near environment, and the human and material resources necessary to help people achieve goals and ultimately improve their quality of life. (Near Environments, 1998-1999)

### Summary

The relationship of science and art has often been disjointed in the past, with science usually being favored by society as a whole. In recent times, the idea of combining and balancing the two paradigms has been suggested and would give a more complete picture of reality (see Figure 1). All the theories of the systems perspective viewed the world in a more integrated way than reductionist perspectives, though systems theories have their own levels of bias. A search for a theory that can reach a balance of the two paradigms was where this research study began. However incomplete, however dim our view of life, in embracing the strengths and knowledge from both science and art we have the *best of both worlds...* and could gain a more complete understanding of our worlds and ourselves.

*You do not have to be good.*

*You do not have to walk on your knees*

*for a hundred miles through the desert, repenting.*

*You only have to let the soft animal of your body love  
what it loves.*

*Tell me about despair, yours, and I will tell you mine.*

*Meanwhile the world goes on.*

*Meanwhile the sun and the clear pebbles of the rain*

*are moving across the landscapes,*

*over the prairies and deep trees,*

*the mountains and the rivers.*

*Meanwhile the wild geese, high in the clean blue air  
are heading home again.*

*Whoever you are, no matter how lonely,  
the world offers itself to your imagination,  
calls to you like the wild geese, harsh and exciting—  
over and over announcing your place  
in the family of things.*

*Mary Oliver—“Wild Geese”*

(Williams, 1991, p. ix)