

CHAPTER 4

Findings and Discussion

Metatheory, a study of theories, was the focus of this research. Ritzer (1991) discussed the three possible goals of metatheory as (a) seeking to understand theories, (b) to create new theory, and (c) to discover an overarching theory of social phenomena. Ritzer questioned the validity of the third, stating by integrating established theories one could weaken them. The second goal was proposed as the purpose of this project. The purpose of integrating theories was to see their commonalities and to broaden the view one was using to examine human-environment interactions. Specific theories may address the characteristics and processes of the parts, while a systems theory perspective would view that information in relation to the whole, thus providing a stronger, more in-depth, and complex framework to address dynamic, complex human issues.

The goal of this study was to integrate the systems theory perspective from multiple disciplines (i.e., human development, developmental psychology, educational psychology, family therapy) and the current social/psychology theories used in the field of CT into a theoretical framework and visual model. In doing this integration, cognitive theory, symbolic interaction theory, and cultural theory used in the field of CT have been brought together and expanded by viewing them through a systemic, holistic lens.

Documents pertaining to the systems theory perspective, systems theories found outside the field of CT, and the social psychology theories commonly used in CT were examined in this grounded theory study. Open coding was initially used to generate broad categories, or domains, from the data acquired from documents. The search was continued by using a heuristic method, discovering books, articles, and other references as the research was conducted. From these various documents cited references were obtained that provided leads to other relevant documents.

Initial documents that were analyzed from the systems theory perspective included early writings by Bertalanffy (1975), Erwin Laszlo (1972), Kenneth Boulding (1984), and other references that were discussed in the overview of systems theories in Chapter 2. Current writings from the human development discipline (Damon, 1998) were

also used. Systems theory was further explored by looking at documents found in the disciplines of economics, education, developmental psychology, family therapy, human development, philosophy, and sociology. Searches were made on computer database systems, using keywords such as systems theory, human development, and cybernetics. Databases searched included Article First, Dissertation Abstracts Online, ContentsFirst, FirstSearch, PsycFIRST, Social Science Abstracts, and WorldCat. Addison, an electronic card catalog, provided additional references to works by specific authors and listings of documents on specific subjects, such as systems theory that were owned by the library. Browsing the library shelves also resulted in findings relevant to the study of the systems theory perspective. References from sociology, adolescent development, and psychology were discovered in this manner.

The references discussed in the overview of Clothing and Textiles theories (Chapter 2) provided initial documents to begin the search in the field of CT. Kaiser (1990, 1996) and several other related references were analyzed and documents on human ecology theory as used in the discipline of Human Resources were reviewed (Compton & Hall, 1972; Pederson, 1984; Sontag & Bubolz, 1996; Sontag, Bubolz, & Eicher, 1993). Domains derived from these documents provided a guide to continue the search (Table 1). Addison was used to find additional documents by specific authors and to provide listings of references on specific subjects that the library owned. Computer databases, including Article First, Contemporary Women's Issues, ContentsFirst, Dissertation Abstracts Online, FirstSearch, and Social Science Abstracts were searched. Keywords used included clothing, symbolic interaction, dress, cultural, cognitive, human development, and human ecology. The Clothing & Textiles Arts CD-ROM, a database for the CT field, was explored using the keywords of symbolic interaction, systems theory, cultural, cognitive, theories, development, human, and ecology. Browsing the library shelves resulted in findings relevant to the theories used in CT. Several journal references, including Clothing and Textiles Research Journal, Family and Consumer Science Journal, and Home Economics Research Journal, were scanned from the current issues to approximately 1970.

Four domains were identified in the data through an examination of the systems theory perspective outside of CT and the social psychological theories commonly used in CT: *Relationship*, *Process*, *Organization*, and *Outcomes*. Each of these domains had several categories and sub-categories (Table 1). These categories constitute the findings of this study and served as the foundation for the proposed theoretical framework and model. A discussion of the domains, categories, and sub-categories will be given in this section.

Table 1.

Domains, Categories, and Sub-categories Identified in Systems Theory and CT Theories

Relationship	Process	Organization	Outcomes
<u>1. General Characteristics</u> -Holistic -Interrelation -Organism-environment unit -Coactive	<u>1. Characteristics of Interaction</u> -General characteristics -Human-environment <u>2. Development</u> -Organism -Human	<u>1. Levels</u> -Hierarchies <u>2. Structure</u> -World -Person-environment unit	<u>1. Humanistic</u> -Interpretations -Values -Quality of life <u>2. Symbols</u> -Codes -Social objects <u>3. Interdisciplinary</u> -Multidisciplinary -Transdisciplinary

Relationship

The domain of *Relationship* was identified in the data from all the theories that were analyzed. From the systems theory perspective the domain, *Relationship*, was defined as the relation of the parts to the whole that composed a system, or a system to system. *Relationship* was found in documents on systems theory from several fields. In the field of CT, an emphasis was specifically on the relation between humans and their environment. Table 2 lists the fields and references for the domain of *Relationship* from the systems theory perspective. Systems theory data referred to the relationships of the

Table 2.

References for the Domain of Relationship: Systems Theory Perspective

Fields	Date	Authors
Biology	1952	Bertalanffy
	1975	Bertalanffy
	1998	Gottlieb, Whalsten, & Lickliter
	1972	Rosen
Economics	1984	Boulding
	1995	Lane & Jackson
	1975	Wienberg
Education/Philosophy	1991	Banathy
	1972	Laszlo
	1994	Midgley
Developmental Psychology/ Human Development	1972	Heimstra & Ellingstad
	1998	Kiel
	1998	Krippner, Ruttenber, Engelman, & Granger
	1998	Lerner
	1998	Magnusson & Stattin
	1998	Overton
	1998	Wapner & Demick
Family Therapy	1972	Bateson
	1992	Breunlin, Schwartz, & Kune- Karrer
	1984	Watzlawick
Sociology	1969	Blumer
	1967	Buckley
	1968	Forrester
	1997	Johnson
	1991	Ritzer

parts to the whole that composed a system. These systems could be natural, social, cultural, or human systems. A relationship, between the elements involved in human interaction with their environments, was identified in data from the theories of the systems theory perspective, but also from cognitive theory in CT. Table 3 provides the references from CT for cognitive theory, cultural theory, human ecology, and symbolic interaction. Themes that were identified in the data were divided into two categories: (a) General Characteristics and (b) Human-environment Relations. The category of General characteristics referred to general relationship traits of living and non-living systems. Four sub-categories were identified as (a) Holistic, (b) Interrelation, (b) Organism-environment unit, and (d) Coactive. The category, Human-environment Relations, pertained specifically to humans and their relationship with their environments. Three sub-categories were identified as (a) General characteristics, (b) Social environment, and (c) Cultural environment.

General Characteristics

Several general characteristics of the relationships of living and non-living systems were identified in the data gathered mainly in fields outside of CT that used systems theory. The exception was human ecology theory that has limited use in CT, which also uses these categories as a basis for its paradigm. The first characteristic was the holistic nature of the universe. This pertained to viewing the whole and the relationship of the specific parts of a system, not simply each part singularly. The second characteristic interrelation was found between the parts of a system, between two systems, or between two or more people. Essentially, the idea was that everything in the universe was interconnected to everything else, and nothing was isolated. The data provided a theme of viewing living organisms in relation to their environments, as a unit (organism-environment unit) not individually. A coactive nature was the third characteristic found in the relationship between the parts of systems. Humans interacting with their environment were coactive in nature. According to systems theory, living organisms did not simply react to a stimulus as thought by the behaviorist psychologists

Table 3.

References for the Domain Relationship: Field of Clothing & Textiles

Theories	Date	Authors
Cognitive Theory	1980	DeLong & Larntz
	1986	DeLong, Minshall, & Larntz
	1990	Kaiser
	1996	Kaiser
	1995	Kwon & Parham
	1989	Lennon & Davis
	1997	Shim & Koh
	1987	Winakor & Navarro
Cultural Theory	1993	Brannon
	1994	Lennon & Rudd
	1995	Lynch, Detzner, & Eicher
	1997	Jirousek
	1990	Kaiser
	1994	Kaiser
	1996	Kaiser
	1992	Svensson
	1980	Wass & Eicher
1989	Weiner & Schneider	
Human Ecology	1979	Bubolz, Eicher, & Sontag
	1972	Compton & Hall
	1995	Eicher
	1987	Hamilton
	1984	Pederson
	1996	Sontag & Bubolz
	1993	Sontag, Bubolz, & Eicher
	1983	Vaines
Symbolic Interaction	1997	Arthur
	1999	Arthur
	1989	Davis
	1987	Hamilton
	1968	Horn
	1990	Kaiser
	1996	Kaiser

(table continues)

Theories	Date	Authors
Symbolic Interaction	1993	Kaiser, Freeman, & Chandler
	1995	Kaiser, Nagasawa, & Hutton
	1997	Kean
	1998	Miller
	1995	Roach-Higgins, Eicher, & Johnson
	1962	Stone

such as Skinner. Theories from outside CT, as well as human ecology from inside the field_supported these sub-categories—Holistic, Interrelation, Organism-environment, Coactive--as characteristics of the *Relationship* domain.

Holistic. The sub-category, Holistic, was defined as viewing the relationship of the specific parts of a system as a whole, not simply each part singularly. The holistic nature of the universe was identified as a sub-category of the category General Characteristics from data on the systems theory perspective found both in CT literature (Compton & Hall, 1972; Pederson, 1984; Sontag & Bubolz, 1996; Sontag, Bubolz, & Eicher, 1993) and systems theory literature (Banathy, 1991; Bertalanffy, 1975; Boulding, 1984; Forrester, 1969; Laszlo, 1972; Johnson, 1998; Wienberg, 1975). Bertalanffy (1975) has described the Holistic sub-category in general system theory:

In order to evaluate the modern “systems approach,” it is advisable to look at the systems idea not as an ephemeral fashion or recent technique, but in the context of the history of ideas...One formulation of this cosmic order was the Aristotelian world view with its holistic and teleological notions. Aristotle’s statement, “the whole as being greater than the sum of its parts,” is a definition of the basic system problem that is still valid. (p. 149).

All the systems in the universe are interconnected. A change in one system results in changes in the other systems. This holistic existence has many implications to human life and its existence on this earth. For example, if the rain forest in South America is entirely cut down that earth system is forever changed. This change impacts other earth systems by affecting the atmospheric oxygen levels, weather patterns, and the habitat for certain types of plants and animals native to that ecosystem.

General system theory, which supports the holistic concept, was developed as early as 1952 by biologist Ludwig von Bertalanffy, in opposition to the reductionistic, scientific method that attempted to understand the world by examining only its parts, separated from the whole. In the Industrial Age of the 1800s, specialization (i.e., knowledge of narrowly defined fields or a part of science) within the scientific field had

increased, along with great industrial and technological gains, but not always to the betterment of human life (Boulding, 1984). Focusing on only the parts of phenomena and objectifying humans were not giving the whole picture. Forrester (1969) discussed the industrial system and the methods used to structure knowledge that resulted in fragments of knowledge. Fragmentation and its weakness were described as the following:

Since we can't mentally manage all the facets of a complex system at once, we break the system into pieces and draw conclusions separately from the subsystems. Such fragmentation fails to show how the subsystems interact.”

(p. 3-3)

With World War I, World War II, and the view of humans as machines, scholars such as Bertalanffy (1969, 1975), Boulding (1984), Laszlo (1972), and Wienberg (1975) sought to bring human issues back into the consciousness of science. Laszlo spoke of wholeness as “the character of the system as such, in contrast to the character of its parts in isolation” (p. 36). One way to calculate the complexities of parts was by considering the relations between the non-summative parts. Laszlo stated the new view or perspective was illustrated by a person who looks at “a number of different and interacting things and notes their behavior *as a whole* under diverse influences” (Laszlo, p. 7). Weinberg simply stated “the world is one whole” (Laszlo, p. 21).

The idea of the holistic nature of the world has grown since the early 1950s and is now recognized in many fields of study, serving as a basis for academic knowledge and research design. Fields of study that utilize this aspect of the systems theory perspective include communications, engineering, mathematics, biology, developmental psychology, educational psychology, and human resources. Since the late 1960s, the discipline of Human Resources has discussed human ecology theory and the importance of a holistic view of the world that humans occupy (Sontag & Bubolz, 1996). Sontag and Bubolz discussed this theory by saying,

The past few decades have been marked by the emergence of a worldview characterized by systems thinking, a way of perceiving reality in which phenomena are seen as systems, interrelated with each other and with the

environment. There is growing awareness of the interdependence of humans with their physical, biological, and social environments. Destruction and contamination of the environment, genetic loss, and apparent depletion of fossil fuel and other resources are of increasing concern. A human ecological systems theory perspective provides an approach to conceptualizing this interdependence. This perspective pays attention to ways that people use and adapt to the environment in which they live, as well as how they change their environment to more closely meet their needs and desires. (p. 17)

Human ecology theory, a systems theory perspective, that supports this holistic concept, has been used in a limited manner in the CT area. Researchers discussing this theory included Compton and Hall (1972), Pederson (1984), Sontag and Bubolz (1996), and Sontag, Bubolz, and Eicher (1993). Although, Pederson (1984) called for more discussion of the use and application of the ecosystem framework to CT. An additional search of the Clothing & Textiles Arts CD-ROM, a database for the field, and other document sources provided evidence that additional holistic concepts, other than the human ecology theory, were not widely used in the field of CT.

The holistic view was that “the essential quality of the part resides in its relationship to the whole” (Banathy, 1991, p. 12) A holistic view broadens the scope of an inquiry to include the importance of the parts and their *relationships* as they interact together. Sociologist Johnson (1997) described a system saying,

In general, the concept of a system refers to any collection of parts or elements that are connected in ways that cohere into some kind of whole. We can think of the engine in a car as a system, for example, a collection of parts arranged in ways that make the car “go.” Or we could think of a language as a system, with words and punctuation and rules for how to combine them into sentences that mean something. We can also think of a family as a system—a collection of elements related to one another in a way that leads us to think of it as a unit. These include things such as the positions of mother, father, wife, husband, parent, child, daughter, son, sister, and brother. Elements also include shared ideas that tie those

positions together to make relationships, such as how “good mothers” are supposed to act in relation to children or what a “family” is and what makes family members “related” to one another as kin. If we take the positions and the ideas and other elements, then we can think of what results as a whole and call it a social system. (p. 13)

Interrelation. An interrelationship (Interrelation) between the systems of the world was the second sub-category of General Characteristics. Interrelationship means the interconnection between two or more things. This sub-category was defined from the systems theory data found in a variety of sources: general system theory references (Bertalanffy, 1952, 1969, 1975; Laszlo, 1972; Wienberg, 1975), human development (dynamic systems theory) (Tudge, et. al, 1997; Wapner & Demick, 1998), education (Banathy, 1991), sociology (Johnson, 1997), and human ecology (Sontag & Bubolz, 1996) within Human Resources and CT. In the additional CT theories, this sub-category was not identified. The themes of the sub-category interrelation were (a) *between systems* and (b) *human and environment*. The world, or universe, was seen by those with a systems theory perspective as an interrelated whole with *interrelations between levels of the systems* that composed the whole--the first theme. No system or part of a system was isolated. One presupposition of systems theory was that “the world is intelligibly ordered as a whole” (Laszlo, 1972, p. 8). A construct of systems theory was that the systems formed ordered wholes.

Laszlo (1972) stated “the world, i.e. the total of observable events, show structural uniformities, manifesting themselves by isomorphic traces of order in the different levels or realms” (p. 19). This similarity of systems was discussed in the writings of Bertalanffy (1952), the founder of general system theory in the 1920s:

The properties and modes of action of higher levels are not explicable by the summation of the properties and modes of action of their components *taken in isolation*. If, however, we know the *ensemble* of the components and the *relations existing between them*, then the higher levels are derivable from the components. (p. 148)

Bertalanffy, also stated “in order to understand an organized whole we must know both the parts and the relations between them” (1975, p. 153).

Sociologist Johnson (1997) used an analogy to a forest and trees to illustrate a holistic view of society and the interrelationship of the parts of a whole:

...a forest is simply a collection of individual trees; but it's more than that. It's also a collection of trees that exist *in a particular relation* to one another, and you can't tell what that relation is by just looking at each individual tree...The “empty space” that separates individual trees from one another isn't a characteristic of any one tree or the characteristics of all the individual trees somehow added together. It's something more than that, and it's crucial to understand the *relationships among* trees that make a forest what it is. (p. 12)

The second theme of Interrelation was *human and environment*. According to the dynamic systems theory found in the field of developmental psychology, humans and the environment are interrelated. Within this perspective, heredity and environment were completely integrated and fused, each constraining the other, but with each retaining flexibility (Lerner, 1998). Wapner and Demick (1998) illustrated the interdependence of humans and the environment stating, “The person-in-environment system operates as a unified whole so that a disturbance in one part affects other parts and the totality” (p. 770).

Examples from the data illustrate the view of phenomena as holistic and the interrelationship of all things in the universe. In discussing designing educational systems within the social community, Banathy (1991) encouraged viewing facts and events in the context of wholes that formed integrated sets that had their own properties and relationships in order to obtain a more holistic view to best create the future. He stated,

...the SYSTEMS DESIGN APPROACH proposed here seeks to understand the current crisis in education as an issue for systems design. It views the educational problem situation as a system of interconnected, interdependent, and interacting problems, seeking to create the design solution as a system of interconnected, interdependent, interacting, AND internally consistent solution ideas. The systems

design approach seeks to envision educational arrangements and the entities that attend to these arrangements as a **WHOLE SYSTEM** that emerges and should be designed in view of the synthesis of its interacting parts. A **SYSTEMS VIEW** suggests that the essential quality of the part resides in its relationship to the whole. (p. 12)

Laszlo (1995) described humans as natural entities and as inhabitants of several interrelated worlds--biological, social, and cultural systems--showing the interconnection of all systems. Tudge, et. al (1997) emphasized the interrelations between different levels of a system and the need to make comparisons across traditionally isolated levels of analysis in order to address more complex issues. Making comparisons across isolated levels of analysis would allow researchers to see that changes in one area of a life may cause reactions in a second area because of interrelationships of the parts.

The findings of this study on the interrelational nature of the universe are supported by the concepts of human ecology presently used in a limited manner in the CT field. Relationship thinking, within this human ecology theory, was described by Sontag and Bubolz (1996) stating,

This approach integrates concepts that describe ways in which living systems are dependent upon the physical and biological environment for survival and sustenance and how they are interdependent with the social-cultural environment in which they live....Survival, quality of life, and conservation of the environment, including sustained yields of natural resources, depend on how humans achieve adaptation. (p. 18)

The goal of research was not only to address human issues but also human-environment issues that ultimately were human issues, and also to encompass the universe not only the human element, as central to a researcher's focus and inquiry. Recognizing that the human-environment unit as it exists in the universe was central to inquiry would expand the static paradigm--to include the whole (i.e., parts, relationships, interrelations, and interactions) as the puzzle pieces were examined together. For example, if researchers viewed humans as central, the environment became marginalized. If the river was

polluted by industry because it was not considered important, people caught fish, ate the poisonous food, and harmed their health. Treating the sick person did not solve the problem because of the interrelationship of the human and the environment.

Understanding the human-environment unit provided a view of the interrelation. Examination of the parts together as a whole would reveal the *relationship* of the elements that were being studied.

Organism-environment unit. When a relationship was found between an organism and its environment, the relationship formed an Organism-environment unit. This sub-category, of the category General Characteristics, was identified mainly in systemic theories in the fields of biology (Bertalanffy, 1952, 1975), human development (Gottlieb, et. al, 1998; Lerner, 1998; Tudge, et. al, 1998; Wapner & Demick, 1998), and education (Banathy, 1991). Many fields, including sociology (Blumer, 1989, Ritzer, 1991), developmental psychology (Lerner, 1998; Magnusson & Stattin, 1998), human resources (Compton & Hall, 1972), and CT (Bubolz, et. al, 1979; Kaiser, 1990, 1996; Pederson, 1982) discussed a more specific human-environment unit while using the same principles discussed for organism-environment units. For all of these researchers, the interaction of the organism and the environment together as a *unit* was the focus of their work instead of a focus on the living organism and the environment as separate entities. A feature of the organism-environment unit was that the unit is embedded within a specific *context*, a theme of Organism-environment unit.

Biologist Ludwig von Bertalanffy (1975) said that in traditional biological thinking and research, the tendency was to reduce organic life and action to elementary units and process. An explanation of complex phenomena was made by adding the elements and processes. He said that this reductionistic view provided an inadequate understanding of an organism and advocated the concept of organismic, or *organism-environment unit*. Bertalanffy stated that

While the classical theory worked on a predominantly analytical basis, the necessity of considering and investigating the organism as *whole* became more and more evident. For the organism constitutes a *system* of elements in dynamic

interaction and this indicates that the behavior of the system cannot be accounted for by a mere summation of the behavior of its parts investigated in isolation....Organic life and its processes, the structure of units from the simplest chemical up to supraindividual organizations, their development and functioning, all appear as wholes within which the individual parts or the individual processes depend on all other parts, on all other processes. (p. 98)

Bertalanffy tied the organism to its environment by stating “a system may be defined as a set of elements standing in interrelation among themselves and with the environment” (p. 159).

Viewing an organism-environment unit in a specific context was important for understanding individual differences and variations of development. The organism embedded in a specific context was thought to influence different developmental outcomes for a specific organism attribute, which would be an outcome different than the outcome of an organism in another context (Banathy, 1991). According to Wapner and Demick (1998), the organismic or organism-environment unit worldview and philosophy conceptualized an organism, or person, and the environment as parts of a whole and emphasized the necessity to deal with the context of both parts of that whole. The organism-in-environment system as a unit was described by Wapner and Demick:

The organism and environment are linked by *transactions*, which include experience (cognitive, affective, valuative) and action. The organism and environment are the *structural* components of the system. The *dynamic* components are characterized in terms of ends or goals and means or instrumentalities. (p. 766)

The idea of an organism-environment unit encouraged a holistic view of the world and the necessity of addressing the needs of both a living organism and its environment to maintain the health and quality of both. The sub-category of organism-environment unit provided an understanding of the relationship that exists in nature between living things and the environment.

Coactive. The last sub-category of the category General Characteristic was the coactive relation between the parts of a system (Bertalanffy, 1975; Buckley, 1967; Lerner, 1998;). Coactive means the organism and environment actively codetermine each other. This concept was in opposition to the concept that an organism is merely reacting to a stimulus from its environment. Traditionally, the functioning of an organism was compared to that of a machine (Bertalanffy, 1975). The organism was considered “a structure which can only react to external impulses called stimuli, but cannot act without them” (p. 98). The general system theory viewed the elements or parts of a system as being in “*dynamic interaction*” (p. 98), not stable reaction.

This sub-category of a coactive relationship was identified in the data outside the CT field (Bertalanffy, 1975; Buckley, 1967; Lerner, 1998; Tudge, et. al, 1998). The following discussion provides examples of this concept from the fields of science and human developmental psychology. Buckley (1967) believed systems theory and sociology had in common the ideas of an intimate interchange or coactivity of an organism with an environment. This is illustrated with the following passage:

...while phenomena of widely differing kinds are wholes constituted by more or less permanent relations of parts, a crucial distinguishing feature is *the particular nature of those relations*... whereas the relations of parts of an organism are physiological, involving complex physico-chemical *energy* interchanges, the relations of parts of society are primarily psychic, involving complex communicative processes of *information* exchange, and that this difference makes all the difference. (p. 43)

The themes of (a) *levels and parts of systems* and (b) *organism and environment* was identified in the sub-category of Coactive.

In discussing patterns of change, Tudget, et. al (1998) stated *the levels of a system* were coactional. With an intermeshing of the elements in a system, coordinated changes occurred throughout all levels of the system. Lerner (1998) described the organism-environment unit not as just interactional but fused. He thought the dynamic interactions

between levels were “a reciprocal relation between components of an intermeshed systems” (p. 15). Lerner stated that

In sum, the influence of genes depends thoroughly on where they exist in space (within the developing person) and in developmental time (i.e., when, in the life of the person, they coact with the environment). Accordingly, it is important to understand that dynamic interactions between biology (organism, genes, or heredity) and context (the multiple levels of the human development) provide a basis for the relative plasticity of behavior and development” (p. 15).

Coaction between a living *organism and the environment* was an idea that served to challenge and change the direction of scientific research. It focused on the relationship between living organisms and environment, recognizing that relationship as a dynamic, or changing, complex interaction. Csikszentmihalyi and Rathunde (1998) defined a complex person as “one who has the self-regulative capacity to move toward optimal experiences by negotiating a better fit or synchrony of self with environment” (p. 651). The complexity was determined by the amounts both of differentiation and of integration that was achieved by an organism or individual. According to Csikszentmihalyi and Rathunde, “complexity is a measure of how well a person can take on *integrating and differentiating complex relationships*, including, but not exclusively, relationships with other persons” (p. 643). Differentiation was a state of individuality and separateness; whereas, integration was the blending of an individual with the environmental group. An example is a teenager’s individual development toward adulthood and search of self-identity, or differentiation, and, at the same time, the teenager has integration with a group by being a member of a family. A coaction occurs between the teenager and the family environment.

The *Relationship* domain had the general characteristics (category) of being holistic (sub-category), having a quality of interrelation (sub-category), forming an organism and environment unit (sub-category), and achieving a coactive (sub-category) relationship between levels of the systems. The chances of solving dynamic, complex problems should be increased by identifying the dynamic, complex relationship for the

systems of the universe and by explaining how living organisms relate to their environment. This section on characteristics of relationships reviewed the *Relationship* domain in general. In the next section, the *Relationship* domain is specified for humans, with discussions explaining their relationship to their environment.

Human-environment Relations.

Human-environment Relations was the second category of the *Relationship* domain. Humans, as specific living organisms and their relationship to their unique types of environment were identified as a category from the data. This category of humans existing in interaction with the total environment was recognized by Bubolz, et. al (1979) and called a human ecosystem. Included were the sub-categories of (a) General characteristics, the traits of a person's relation to the environment; (b) Social environment, the human experience of interacting with other people; and (c) Cultural environment, the socially constructed meanings that influence human development.

General characteristics. The General characteristics sub-category pertained to the traits of a person's specific interconnection to their environment, particularly the human-environment as a unit, human interaction with the environment, and human identification of the environment, or objects, and interpretation of the object's meanings (Bubolz, et. al, 1979; Keil, 1998; Krippner, et. al, 1985; Laszlo, 1972; Sontag & Bubolz, 1996; Sontag & Schlater, 1995; Wapner & Demick, 1998). The General characteristics, of the category Human-environment Relations, were the themes of (a) a *holistic* relationship, (b) the *human* component, (c) the *environment* component, and (d) the *context*.

First, the human-environment unit relationship had the theme of a *holistic* nature. From the systems theory perspective, Laszlo (1972) discussed integrated wholes and described systems, including human systems, as organized complexities with properties of their own. A human and the environment acted as an organism-environment unit. Wapner and Demick (1998) stated that

The person-in-environment system operates as a unified whole so that a disturbance in one part affects other parts and the totality. This holistic assumption holds not only for functioning among levels of integration (biological,

psychological, sociocultural), but also for functioning within a given level....The person, his or her environment, and the transactions (experience, action) between them involving means and ends are all assumed to be interdependent. (p.770)

The relationship between humans and the world, or the human-environment relations, had the characteristic of being holistic. The theme holistic was well documented in systems theory literature. The humanistic aspects in dynamic systems theory were included in order to prevent limiting the perspective of researchers (Keil, 1998). Viewing a human and the environment as a unit gave a holistic perspective.

In the field of CT, the theme holistic was found only in the literature of human ecology theory. A holistic perspective was a desirable way to view the relationship between the individual (or family) and the environment (Pederson, 1984). Compton and Hall (1972) saw human ecology as the study of humans in interaction with the near environment. They stated that “near environment includes his [their] housing, home furnishings, household equipment, clothing and textiles, food, and family” (p. 4).

The second and third themes of the General characteristics sub-category were two aspects of one concept--the *human* component and the *environment* component. As documented in the literature, the human and environment components of the human-environment relationships were diverse and varied. As described in the systems theory literature, the human component could be either an individual or a group of individuals and the environment component could be natural, human-made, or human-behavioral. The human-environment relationships that were found were person-self, person-object, person-sociocultural, and person-natural world. The same three concepts were also found in the human ecology theory in Human Resources and in a limited way in the field of CT and were stated as humans, the environment, and interactions between the two. The human part was identified as a single individual or a group of individuals who have some unity, share resources, goals, values and interests with a common identity. The environment was the total of physical, biological, social, economic, political, aesthetic, and structural surroundings.

The environment could be natural, human constructed, or the human behavioral environment. A natural system was defined as "...Any system which does not owe its existence to conscious human planning and execution is a natural system—including man himself, and many of the multiperson systems in which he participates." (Laszlo, 1972, p. 23). Human constructed environments were those built people. Examples of human constructed environments are technology and societies. In the field of CT, human behavioral environments were described as "the environment of human beings and their biophysical, psychological, and social behaviors" (Bubolz, et. al, 1979, p. 30). The natural environment was "formed by nature with space-time, physical, and biological components" (Bubolz, et. al, p. 29). Sontag and Bubolz (1996) used the Bubolz, Eicher, and Sontag model by changing the terms to reflect new visualization of reality. Three changes were made in the terms that described the relationships of humans and the different environments with which they interact. "Human enviroined unit" (Sontag & Bubolz, p. 29) was changed to "Human Group" (p.19). "Human Constructed Environment" (Sontag & Bubolz, p. 29) was changed to "Human-built Environment" (p. 19), and "Social-cultural Environment" (p.19). "Natural Environment" (Sontag & Bubolz, p. 29) was changed to Natural Physical-biological Environment (p.19). The new terms were to used to be more accurate in describing the phenomena.

The theme of *context* was the fourth general characteristic sub-category, within the category Human-environment Relations. In Human-environment Relations, the context for humans was the environment around them. Context was known by researchers to influence the action of individuals. Individuals were documented as acting organisms that responded and interpreted the meanings of those environments or contexts. Individuals' actions were based on the context of their environments (Blumer, 1969). Scheler (1961) stated that

By virtue of spirit, man is capable of expanding the environment into the dimension of a world and of objectifying resistance. He is also capable of—and this is most remarkable of objectifying his own physiological and psychological

states, every psychic experience and every vital function. It is for this reason that this being can also throw his life away freely. (p. 40)

The context was emphasized in the cognitive theory used in the field of CT. A cognitive approach that focuses on the individual and the cognitive process of the individual was used in much of the research in the field of CT (e.g., DeLong & Larntz, 1980; DeLong, et. al, 1986; Kwon & Parham, 1995; Shim & Koh, 1997; Winakor & Navarro, 1987). Many researchers viewed the environmental contexts of cultural, social, psychological, physical, economic, and aesthetic as influencing an individual's cognitive processes (Horn, 1975; Lerner, 1998; Magnusson & Stattin, 1998). Theories in sociology influenced the field of CT for the study of people and dress (Kaiser, 1990; 1996). In discussing the history of sociology, Ritzer (1991) said that Kuhn's paradigms encompassed both intellectual (i.e., cognitive) and communal (i.e., social) aspects, but that most sociologists have emphasized the cognitive aspects. More attention to the social aspects, and the contextual interpretation that the social and cultural environments provide, would broaden the understanding of sociological phenomena.

Researchers in the field of CT concluded that visual perception, a cognitive process, was a social process as well as an individual one. In studying clothing as a nonverbal communication, visual perceptions appeared to be determined not entirely by the perceiver but also to be dependent on the social context and the social object (Lennon & Davis, 1989). Lennon and Davis discuss social cognition saying that

Social cognition researchers study the cognitive processes which are the bases for the perceptions and cognition individuals use to make judgment about people....Social perception researchers investigate perceptual processes using social objects, categorization is the process by which perceivers group social objects into categories, attribution theory deals with perceived causality of social behavior, and impression formation refers to the way that bits of information about people are organized into a general impression based upon the "collected knowledge one person possesses about another" (p. 41).

Kiel (1998) discussed the development of the field of cognitive science and stated that the structure of the environment and the information to be learned in that context to be more ecologically honest. Mutual interdependence existed between social and physical cognition. Kiel stated,

First, it has been the primary force in bringing evolutionary and comparative issues into cognitive science. Its long history of looking across species is only now being understood as essential to cognitive science as a whole. Second, it has made much clearer the issue of ecological validity and why it is important to study how our minds are cognitively adapted to particular environmental niches....Developmental studies force us to be more ecologically honest and to pay more homage to the structure of the environment and the information to be learned....Finally, developmental studies have made clear the mutual interdependence of social and physical cognition in any reasonable cognitive science. (p. 400)

In summary, the sub-category of General characteristics within the category of Human-environment Relations had four themes. The Human-environment relationship was holistic in nature and interactive. The human component was be a single individual or a group of individuals. The environment component was natural, human-constructed, or human-behavioral in nature. The context setting was important to the relationship of the human-environment unit. An understanding the second characteristics of the *Relationship* domain between humans and the environment may contribute to solutions or current and future societal problems faced by researchers and educators inside and outside the field of CT.

Social environment. Systems theory outside of CT and symbolic interaction, cultural theory, and human ecology within the CT field stated that humans inhabit a social world. The sub-category, Social environment, was identified in the data as being very important in human interaction (i.e., coaction). For the sub-category, the themes of (a) *context*, (b) *coactive*, and (c) *human learning and development* were identified. The social environment serves to provide a specific contextual setting for a relationship and

provides meanings as outcomes of the relationship. In all the theories, humans were coactive with their environments, not merely reactors, and the social environment was identified as essential to human learning and development:

A social system was defined by Banathy (1991) in systems theory literature as:
...a deliberately constructed complex human activity system, operating at several system levels, embedded in and co-evolving with the larger society, interacting with other social service systems, and designed to carry out the specific societal function of nurturing learning and human development. (p. 31)

This coaction within the social environment was found in many research studies. Evidence in theories was found that stated that the parts of society are not merely independent but act as an interrelated whole. A sociocultural pattern was generated by the rules, norms, and values and the interactions between the individuals and subgroups in an ecological setting (Buckley, 1967). Forrester (1968) stated people lived and worked within increasingly complex, social systems. One of several interrelated worlds that humans are noted to inhabit was the social world (Laszlo, 1995). Laszlo in speaking of human creativity states that, “Social and cultural influences on the minds of creative people are undisputed: no individual is a Robinson Crusoe, least of all sensitive persons such as creative artists, writers, composers, theoreticians, and others of their kind” (p. 127).

A social *context* was a setting for an individual interacting with a group of people. According to CT researchers Roach-Higgins et. al (1995), these social contexts could include family, economy, politics, religion, and special associations such as schools and clubs. Bengtson and Allen (1993) saw the family as a micro-social group within a macro-social context with a shared history. The family was interacting within ever-changing social contexts, across ever-increasing time and space. Bengtson and Allen stated,

As we apply the life course perspective to processes of family change, we will be arguing that the family is a microsocial group within a macrosocial context, a collection of individuals with a shared history who interact within ever-changing social contexts across ever-increasing time and space” (p. 470).

An example of using this perspective is a study of socioeconomic changes in the decades of the mid-19th to mid-20th centuries and the effects it had in the family. The farm family that acted as a working unit was displaced by the bread-earner/homemaker unit. This new context had one parent away and employed, and one parent home caring for children. This family was then replaced more recently by the dual-earner with two adults employed and away from the family unit (Hernandez, 1993). In the 1990s, the family unit most commonly now is the dual-earner unit.

The *coactive* theme for the social aspect of the Human-environment Relations was seen in several writings. Banathy (1991) described three levels of purpose for social systems. The levels were to serve the purpose (a) for which they were designed, (b) of the people in the system, and (c) of the environment that was the larger societal system. In looking at these social systems and their purposes. Banathy stated that

The use of the SYSTEMS-ENVIRONMENT lens enables us to take a BIRDS-EYE-VIEW, and describe an educational system in the contexts of the community and the larger society. We can define the "rules of the game" that govern systems-environment relationships, interactions, and mutual interdependence. A set of inquiries helps us to make an assessment of the environmental adequacy and responsiveness of the educational system and, conversely, the adequacy of the responsiveness of the environment toward the system. (p. 33)

A goal of the discipline of Human Resources, formerly Home Economics, of which CT is a part, was to study the individual as a social being that related to their immediate environment. In the use of symbolic interaction by CT, the reciprocal, or coactive nature of the human-social environment relationship was examined. This relationship created a symbolic world that then shaped behavior (Tudge, et. al, 1997). Human ecology theory had a systemic perspective that focused on a study of interactive relationships which was identified in the work of Sontag and Schlater (1995). A "sense of commonality" (Kaiser, 1990, p. 42) or a shared social world with others was fundamental to symbolic interaction theory (Kaiser). According to symbolic interaction theory, people acted toward the environment and others based on the meanings derived from cues that they receive from

the environment (i.e., social context). Cues were interpreted and human actions are organized accordingly toward them. Kaiser illustrated coaction by this example:

Through people's joint actions, the meanings assigned to clothing and appearances in certain social situations are *socially constructed* or mutually defined. It may be necessary for people interacting to "work out" their interpretations of clothing, so their interactions and communication will proceed smoothly...self-indications about one another may be altered or refined as necessary so...interaction can occur. A symbolic-interactionist perspective focuses on this process of *negotiation*... (p. 41)

The theory of symbolic interaction in the study of clothing and appearances emphasized the coactive, social process and the meanings derived from the human-environment relationship (Davis, 1989; Horn, 1968; Kaiser, Hutton, et. al, 1995; Michelman, 1997; Roach-Higgins, et. al, 1995). An example of the outcome of this coaction of human with the social environment was stated by Blumer (1969): "symbolic interactionism sees meanings as social products, as creations that are formed in and through the defining activities of people as they interact" (p. 5). Kean (1997) discussed the interdependent relationship of technology and society and the affect of technology and globalization on the systems in the field of CT. Kean summarized this interdependence by saying,

Technology and globalization of markets are two factors that affect the ability of firms in the fashion system to obtain powerful market position through rapid production and distribution of "like" goods to sell to consumers on a world-wide basis. Consumers' selection of fashion goods in the marketplace is limited to what is being mass produced and distributed. The true differentiation of the product is reached through manipulation by consumers seeking individuality. (p. 176)

In much of the literature, the social environment was described as necessary in *human learning and development*, with most of learning and problem solving being done within social settings, and not by isolated individuals (Shweder et. al, 1998). In discussing the personality development of an individual, Csikszentmihalyi and Rathunde

(1998) said that the formation of a person depended on the ability to interact and function within a sociocultural context. Many of the things a person learned depend on their socialization that occurred as a child. Socialization was the process in which society teaches an individual what are appropriate behaviors and attitudes for their gender, social class, or other situations. An individual learned, grew, and developed within a social environment. Csikszentmihalyi and Rathunde discussed an example of this learning by stating that socialization occurred and influenced the cultural mask, or role an individual borrows to wear that would best represent their inborn talents. A person was described by Csikszentmihalyi and Rathunde as,

Each person borrows a particular mask from the cultural repertoire so as to represent a given identity that will express and amplify his or her inborn talents. In this process of borrowing and adapting, the individual constructs a personality. (p. 637)

A person needed to be complex and have complex relationships for optimal human development. The amount in which an individual was differentiated or operated as their individual self, and was integrated, or blended in relationships with other people in a group, determined his/her complexity. Complexity was described as the person's ability to have stable ways of relating to the environment. The social context established in childhood was found to be important for adult complexity (Csikszentmihalyi & Rathunde, 1993). An environment that was both supportive and challenging was found to foster complexity and optimal development and learning in children. A supportive environment enabled children to learn and develop in affective aspects, such as artistic expression of emotions. A challenging environment enabled children to learn and develop in cognitive aspects, such as logical thinking skills.

Gender distinctions and roles were another aspect of a person's learned identity that was influenced by the social environment. Researchers in CT recognize and study extensively gender in relation to the social environment of dress and appearance. Examples from the CT field are from Arthur (1997, 1999) Hamilton (1987), Kaiser, Chandler, et. al (1993), and Miller (1998). The beliefs regarding gender distinctions were

made within social contexts by Hamilton (1987). Roach-Higgins et. al (1995) found that in the social context of work, a professional woman who was too masculine in appearance resulted in diminishing her professional role and her chances of future promotions. Kaiser, et. al (1993) studied gender responses to questions about an article of favorite clothing in order to understand how and why some clothes become meaningful to individuals, both male and female. Kaiser, et. al described the male's response saying,

The most prominent tendency among the male's responses was a tendency for them to speak of their favorite clothes with a tangible orientation to *referents in the past*—to experiences or accomplishments that the clothes had come to symbolize....For these men, favorite clothes seemed to have *mnemonic value*, serving as reminders of good times or accomplishments. (p. 30)

The females' responses to favorite clothing were described as, "They spoke of the clothes as part of an ongoing sense of process and focused on the aesthetic qualities of their clothes (e.g., the color, design) in relation to *how they feel when they wear the clothes*" (Kaiser, et. al, p. 34). Miller found gender differences of the meaning in dressing in reenactment costumes, which suggests differences in socialization, or learned behaviors from the social environment. In a study, Arthur (1997, 1999) illustrated the social construction of femininity in two sororities using the symbolic meaning of clothing. In order to be accepted into a sorority, the girls had to engage in time consuming appearance management behaviors, such as shopping for and dressing in particular styles of clothes and maintaining particular types of hairstyles, to acquire a particular look of femininity. By becoming embedded in the specific social environment of the sororities, the girls embraced a particular gender role. The embracing of a gender role, or role embracement, was described by Arthur (1999):

...in the sororities, the interaction of identity salience and commitment was seen in the visible symbol of commitment to the sorority—the idealized image. The social construction of femininity in the sororities occurred through role embracement.

...In the two sororities under investigation, adherence to idealized images and specific notions of femininity were expected to lead to happiness and success.

...The social construction of gender occurs through adherence to a system of gender role obligations. (p. 93)

Gender distinctions were one example of how the relationship between humans and the social environment influences and determines the learning and development of individuals.

In summary, the sub-category of Social environment provided a specific context for human-environment interaction. Typical social contexts included family, economy, politics, religion, and special associations such as schools and clubs. The relationship of humans and the social environment was of a coactive nature. Types of human learning were found to be dependent on human-social interactions. The social environment also served as a context and influence in the human learning and development of gender distinctions and roles. Information from CT literature about the social environment provided an expanded view of the *Relationship* domain.

Cultural environment. Cultural environment was the third sub-category of the category Human-environment Relations. According to Johnson (1997),

Culture consists primarily of *symbols*—especially the works contained in language—and various kinds of ideas that shape how we think about everything from our relations with other people to the meaning of life. It also includes practices such as music art, dance, and religious ritual. It includes how we shape the physical world around us... (p. 38).

The sub-category of Cultural environment was identified from data gathered in the fields of human development (Brandstadter, 1998; Bronfenbrenner, 1989; Shweder, et. al, 1998), sociology (Johnson, 1997), family therapy (McGoldrick, et. al, 1989; Travis, 1988), and CT (Brannon, 1993; Bubolz, et. al, 1979; Jirousek, 1997; Kaiser, 1990, 1996; Lennon & Rudd, 1994; Lynch, et. al, 1996; Svensson, 1992; Wass & Eicher, 1980). The cultural environment was delineated in three themes: (a) *A larger context* for human-environment interaction, (b) *symbols* that provide socially constructed meanings to

human life, and (c) *individual development* (i.e., change over time) *and gender distinctions*.

The first theme was that culture provided a larger social *context* and history than the individual or social contexts that influenced human-environment interaction. Culture was defined as the macrosystem that guided humans to construct social meanings pertaining to their world (Kaiser, 1990). The human-cultural environment relationship was also found to promote the development of the individuals of a society. According to Kaiser, every social system had a culture, that provided “a context within which people experience and evaluate their lives” (p. 48). Kaiser used a contextual perspective framework that emphasized the person-context-environment, or human-context-environment, relationship. This human-context-environment relationship included the cultural environment. The goal of CT research on dress and appearance was “to study how people manage and perceive appearances in everyday life, considering the actual social situations, as well as the larger cultural or historical context, in which people find themselves” (p. 58). Culture was seen by Hamilton (1987) as dynamic and systemic, and existed in both the physical and social environments. Hamilton describes her unifying metatheory for CT by stating that

...it assumes a dynamic, interacting and changing system, whether change is internally or externally motivated....culture is assumed to be dynamic (not static) and systemic (the parts are interrelated, dependent on , and interactive with one another). Further, it recognizes that any cultural system exists in both a physical and social environment, either of which may require changes of the cultural system. (p. 5)

The second theme of the sub-category, Cultural environment, was *symbols*. Symbols were viewed by researchers to give meaning to social objects and to aid in constructing reality. Beliefs and values were socially constructed and represented by symbols and also influenced the interaction found in the human-cultural environment relationship (Bubolz et. al, 1979; Hamilton, 1987; Kaiser, 1990). Davis (1982) discussed the need to focus on the symbol of the interaction and the symbol-cultural context of

social relations. As a nonverbal symbol in a study of the people of Yoruba in Nigeria, dress was an intimate environment and part of the total communication process that developed “within social ethnic, and temporal contexts and become a stimulus for invoking associations, notions, and ideas” (Wass & Eicher, 1980, p. 318). In research on an African tribe, modes of dress indicated meaning to the members of the tribe by conveying gender and cultural associations for the people in that group. In a study of a Turkish tribe, Jirousek (1997) presented the forms of dress, their social use, and their transitional cultural meanings. Arctic clothing, another example or nonverbal communicator, was found to be a means of physical protection and a cultural statement of identity (Svensson, 1992). He states that

Clothing is viewed as the most efficient means of non-verbal communication of cultural identity as well as culture-specific values and standards. These cultural symbols serve as a language that influence thinking and help shape relationships with other individual and the other environments with which interact.

The communicative power of clothing is especially salient in various inter-ethnic contexts. (p. 62)

The third theme was that the cultural environment *influenced individual development*. Cultural environment provided an even larger setting, or level of environment, than the social environment. Culture provided a structure of values and accepted behaviors within which an individual learns and develops. According to Boesch, (1991), culture was proposed to foster stability and change by circumscribing classes of goals and behavior while allowing for individual freedom of choice within a zone of tolerance. Hamilton (1987) described culture as a dynamic system of influence and change. In describing cognitive development, Bronfenbrenner (1989) said, “Any assessment of the cognitive competence of an individual or group must be interpreted in the light of the culture or subculture in which the person was brought up” (p. 209). Brandtstadter (1998) stated, “Cognitive structures develop from the individual’s interaction with cultural symbols as well as with material objects and tools, which, as objectified ideas and problem solutions, organize thought and action” (p. 813). Cultural

environment was believed by many researchers and theorist to influence the cognitive development of individuals.

In the field of human development, many researchers recognized the theme of cultural influence to an individual's learning and development. The development of children's knowledge, or sense, of self as an individual personality, was derived in part from cultural and historical constructions. A child's development was seen as the result not only of a personal but also as a collective activity. The cultural system served to guide and regulate development and without it development would be difficult (Brandtstadter, 1998). According to Brandtstadter,

Every cultural system has at its disposal a broad armamentarium of techniques, institutions, or rules to regulate development, and without such cultural proxies and scaffolds, human development would be virtually impossible. Neonates and young children vitally depend on persons who care for their physical and psychological development and who organize environmental contingencies in ways that enhance growth and fend off harmful influences. (p. 809)

Cultural communities determined to a large extent what an individual knows, thinks, feels, wants, and values. Patterns of sociocultural participation, in other words the ways of being a person in the world, have been associated with cultural and social groups across history. Researchers have recognized that people from different cultural contexts had different patterns of participation (Shweder, et. al, 1998). Cultural differences result in individual differences.

Research within the field of CT as well as in the discipline of family therapy found that gender identification was influenced also by cultural environment interaction, as well as the social environment. Examples of research illustrating this influence were identified in the literature. Lynch et. al (1996) discussed Hmong Americans changing cultural identities and how female gender roles were being transmitted and reconstructed in an American context through traditional rituals and the changing dress worn. Rules for feminine behavior and roles varied greatly from culture to culture (McGoldrick, et. al, 1989). The strong influence of the cultural environment was illustrated by a discussion of

immigrant families and their acculturation into American society. With an increasingly technological society, immigrant women adapted quicker to the new culture. Many immigrant women preferred to adopt a less subservient role than their traditional culture required. This change in gender roles caused, in some cases, a cultural clash within the couple. McGoldrick, Garcia-Preto, Hines, and Lee (1989) illustrate this change in gender roles by stating,

In recent years, however, because of our increasing technological society, immigrant men from traditionally patriarchal cultures (for example, Hispanic, Greek, Italian, and Chinese) have been at an increasing disadvantage. Their wives and children often have more flexibility in adapting to the new culture. The balance between the spouses shifted as the wife gained power—she more easily learned the language, she more easily found a job, and she learned, particularly through her children, about the ways of the new culture. (p. 171)

The cultural context of body ideals in American society and the relations to gender roles was another example of cultural environment influencing development and was identified in social comparison theory. According to social comparison theory, the cultural body ideals were different for males and females, with a mesomorphic, or muscular, body type preferred for males, and an ectomorphic, or long and thin, body type preferred for females (Lennon & Rudd, 1994). “Each gender role has explicit and implied standards of dress subject to culture and historical interpretations” (Brannon, 1993, p. 105). These cultural and historical interpretations influence the appearance behaviors adopted by an individual. Travis (1988) discussed that a person striving toward either a unisex, thin body shape or an obese one could be seen as an attempt to reject a culturally defined role. “Thus, one could say that both normative and non-normative behavior are shaped by culture” (Travis, p. 160).

The Cultural environment, a sub-category of the category, Human-environment Relations, provided a larger contextual setting, consisted of symbols that provided meanings to human life, and influenced individual learning and development. The

cultural environment gave a structure of values, social behaviors, and symbolic languages that enable humans to communicate, learn, and develop.

Discussion of Relationship

The *Relationship* domain was developed from the data of the systems theory perspective outside of CT and the theories inside the field of CT. The systems theory perspective emphasized the relationship between the systems of the universe and the parts of a system to the whole, whereas, CT focused mainly on the relationship between humans and their environments. Systems were discussed in a limited amount of literature in CT from the human ecology theory used in the discipline of Human Resources, of which CT is a part. The data suggesting the category of General Characteristics was found in the systems theories used outside the field of CT and the theory of human ecology from within CT. The category of Human-environment Relations was identified from both outside CT in the systems theories and within cognitive theory, symbolic interaction, cultural theory, and human ecology theory within CT. In the field of CT, the main focus was specifically the human-environment relationship.

The systems theory perspective provided understanding of the universe and the systems that compose it, their relationship, process, organization, and outcomes. The domain *Relationship* was identified from the systems theory literature. General system theory stated that certain qualities exist that are universal, common to all types of systems (whether human constructed or natural), levels of systems, and disciplines. A relationship is identified between both the parts of system and two or more systems. This relationship is holistic in nature of the universe, with the whole being more than the sum of its parts, or non-summative. The interrelation between systems and the parts of systems exists in a coactive relationship. In living systems, an organism and the environment relates to one another as a unit.

Systems theory that was reviewed from the fields of economics, education, family therapy, human developmental psychology, and sociology focused on the relationship between humans and their environment. Humans have an interconnection to their environment. On the social environment level, an individual or groups of individuals

have a relationship with other people. On the cultural environment level, an individual or groups of individuals have a relationship with the social culture that provides a context of socially constructed meanings, values and an influence to their development.

Systems theory was related to the human ecology theory that was found in the discipline of Human Resources of which CT is a part. Human ecology provided a systems theory perspective to the field of CT, though its use has been limited. The principles of human ecology theory used systems theory as its basis. Systems theory outside of CT and human ecology theory shared the ideas about the general characteristics of the *Relationship* of systems, a domain identified in this study. Human ecology theory focused specifically on the relationship of the human-environment unit, particularly the family system and its relationship and interaction with the environment.

The field of CT's main focus was on human interaction and the relationship with their environment. Using the theories of cognitive theory, symbolic interaction, and cultural theory, CT recognized the domain of *Relationship*--the relationship human have with the natural, social, and cultural environments. These theories focused on specific aspects of these relationships in order to understand the influence of those specific aspects on human dress and appearance. The relationship with the social environment provided a context for interaction and the forming of social meaning to human concerns such as gender and dress. The human relationship with the cultural environment provided an even larger context for social constructed meanings and values that influence an individual's development of self through gender distinctions and roles, appearance management, and the symbolic meaning of dress.

Process

The second domain was *Process*. Process was the interaction between two systems. Specifically for this study, *Process* was the interaction between humans and the environment. This domain referred to the question of how something happened. The *Process* domain was formed from the system perspective in the fields of family therapy, developmental psychology/human development, science, education, and sociology. Table 4 shows the references from the systems theory perspective. Also, *Process* was found

Table 4.
References for the Domain Process: Systems Theory Perspective

Fields	Date	Authors
Family Therapy	1972	Bateson
	1992	Breunlin, Schwartz, & Kune-Karrer
	1988	Falicov
	1983	Keeney
	1989	McGoldrick, Anderson, & Walsh
	1974	Minuchin
Developmental Psychology/ Human Development	1993	Bengton & Allen
	1998	Brantstadter
	1989	Bronfenbrenner
	1998	Bronfenbrenner & Morris
	1993	Csikszentmihalyi
	1998	Csikszentmihalyi & Rathunde
	1997	Dent-Read & Zukow-Goldring
	1998	Fisher & Bidell
	1998	Fisher, Jackson, & Villarruel
	1998	Gardner
	1972	Heimstra & Ellingstad
	1998	Keil
	1985	Krippner, Ruttenger, Engelman, & Granger
	1991	Lerner
	1998	Lerner
	1998	Magnusson & Stattin
	1971	Maslow
	1998	Shweder, Goodnow, Hatano, LeVine, Markus, & Miller
	1998	Spelke & Newport
	1998	Thelen & Smith
1997	Tudge, Shanahan, & Valsiner	
1998	Tudge, Shanahan, & Valsiner	
1998	Valsiner	
1998	Wapner & Demick	
Economics	1984	Boulding
	1983	Solomon
	1948	Wiener

(table continues)

Fields	Date	Authors
Education/Philosophy	1991	Banathy
	1972	Laszlo
Science	1975	Bertalanffy
	1998	Gottlieb, Whalsten, & Lickliter
	1993	Lockman & Thelen
	1982	Lewontin
	1987	Maturana & Varela
	1991	Gottlieb
Sociology	1969	Blumer
	1968	Forrester
	1997	Johnson
	1991	Ritzer
	1965	Stone
	1991	Tseelon

within the literature of the CT field from cognitive theory, cultural theory, symbolic interaction, and human ecology. References from CT are listed in Table 5. Two categories that were identified from the data were (a) Characteristics of Interaction and (b) Development. Characteristics of Interaction were the characteristics or traits found in the processes of systems, with two sub-categories of (a) General characteristics and (b) human-environment. The category Development referred to the process of growth and change over time and had two sub-categories of (a) organism and (b) human.

According to Sontag and Schlater (1995), CT researchers used mainly a subject-object reactive approach; whereas, researchers using a systems theory perspective focused on the process or interaction. The amount in which CT researchers studied process was limited to having the subjects make judgments about an object according to criteria supplied by the researcher or themselves. A few CT studies have used a subject-object interaction approach that focused on process (Fratzke, 1976; Maher & Sontag, 1986; Sontag, 1985-1986). Instead of studying the subject's reaction to an object using a questionnaire and terms supplied by the researcher, the subject-object interaction approach tended to study how something occurred in the natural setting and in the subject's own words were solicited. This approach may need longitudinal studies to provide data on the changes over time and a holistic, systems theory perspective to view the interactions within the context of the whole.

Characteristics of Interaction

Characteristics of Interaction was a category of the *Process* domain. The processes discussed in the documents that were explored for this study had several traits or characteristics involving the interaction between systems and between humans and the environment. This category was present in data from all the theories examined, the systems theory perspective and the theories inside the CT field. This category had the two sub-categories of (a) general characteristics and (b) human-environment. The processes of the human-environment interaction included a person and the self, a person and the social environment, and a person and the cultural environment.

Table 5.
References for the Domain Process: Field of Clothing & Textiles

Theories	Date	Authors
Cognitive Theory	1984	Damhorst
	1985	Damhorst
	1977	DeLong
	1986	DeLong, Minshall, & Larntz
	1980	DeLong & Larntz
	1987	Kwon
	1994	Kwon
	1995	Kwon & Parham
	1997	Lennon
	1987	Lennon & Davis
	1989	Lennon & Davis
	1993	Liskey-Fitzwater, Moore, & Gurel
	1971	Richards & Hawthorne
Cultural Theory	1997	Arthur
	1997	Eicher
	1996	Feather, Ford, & Herr
	1997	Feather, Ford, & Herr
	1997	Forney & Rabolt
	1994	Hamilton
	1997	Johnson
	1994	Johnson, Crutsinger, & Workman
	1991	Kaiser
	1993	Lee & Burns
	1995	Lynch, Detzner, & Eicher
	1998	O'Neal
	1973	Roach & Eicher
1991	Ryan	
Human Ecology	1993	Bubolz & Sontag
	1995	Eicher
	1997	Eicher & Erkomsima
	1982	Olson
	1984	Pederson
	1995	Sontag & Schlater

(table continues)

Theories	Date	Authors
Symbolic Interaction	1997	Arthur
	1990	Forney & Rabolt
	1997	Hamilton
	1990	Johnson
	1993	Kaiser, Freeman, & Chandler
	1991	Kaiser, Nagasawa, & Hutton
	1995	Kaiser, Nagasawa, & Hutton
	1996	Kaiser, Nagasawa, & Hutton
	1997	Kaiser, Nagasawa, & Hutton
	1990	Littrell
	1998	Miller
	1997	Schofield-Tomschin

General characteristics. General characteristics was a sub-category of the category Characteristics of Interaction, and consisted of the processes pertaining to the themes of (a) *direction* and (b) *behavior* of general systems or the specific organism-environment unit. Process, or the characteristics of interaction, was defined as how the system operated through time from the systems theory perspective (Banathy, 1991). Instead of the view that organisms merely reacted to stimuli, general system theory stated that an individual organism coacted with the social and ecological systems (Laszlo, 1972).

Laszlo stated that

The systemic hierarchy of nature does not stop at the boundaries of the individual organism: it continues into the environment. The latter may include interpenetrating sets of *socio-* and *ecological systems*, in which the subsystems are coacting individual organisms. All species of organisms integrate their life patterns to some extent in social and ecological systems: these range from primitive communities in desert and arctic regions to the complex socio-ecosystems wherein man [humans] plays a dominant role. (p. 97)

Interactions were conceptual constructs not directly seen or perceived by researchers (Bertalanffy, 1975), and were defined in human ecology theory as “a relationship of reciprocal influence among a system’s components” (Bubloz, et. al, 1979, p. 30). The themes of the direction and behavior of interactions are closely related but will be discussed separately as much as is possible.

The first theme of the sub-category general characteristics was the *direction* of the interaction. The development of a system or a living organism was believed to be caused by the coaction of at least two components, not the components themselves, in the field of biology and general system theory (Bertalanffy, 1967) and developmental psychology (Gottlieb, et. al, 1998). These

...coactions occurred vertically, as well as horizontally, in all developmental systems. All parts of the system are capable of influencing all of the other parts of the system, however indirectly that influence may manifest itself. (Gottlieb, et. al, p. 8)

An example of the bi-directional processes of systems was given from the founder of general system theory. General system theory stressed a holistic view, recognizing inter-level interactions of the organism. Bertalanffy (1967) stated that

Psychopathology attests to the interwovenness of both halves of experience, body, and mind, physiological function and consciousness...There is no sharp borderline between bodily functions of the unconsciousness, and the conscious mind. In the last...they may be the very same things. (p. 99)

Coinciding with general system theory, cybernetics was developed in the form of feedback system principles from the technology field (Bertalanffy, 1975). The feedback systems theory discussed the direction of the interaction between the parts of a system or between two systems. The two types of feedback systems were closed systems and open systems. Forrester (1968) also described the feedback system as a closed system. Additional information from human ecology theory is that the closed system was influenced by its own past behavior by responding to negative or positive feedback within its own structure (Sontag & Bubolz, 1996). In the mid-1920s, Bertalanffy formulated the basic concepts “concerning the organism as an open system” (Laszlo, 1972, p. 3). According to Bertalanffy, an open system was a

...system exchanging matter with environment as every “living” system does....The intuitive choice of open system as general system model was a correct one. Not only from the physical viewpoint is “open system” the more general case (because closed systems can always be obtained from open ones by equating transport variables to be obtained from open ones by equating transport variables to zero); it also is the general case mathematically because the system of simultaneous differential equations (equations of motion) used for description in dynamical system theory is the general case from which the description of closed systems derives by the introduction of additional constraints... (p. 154)

The second theme of the *direction* of interaction processes being an open system for living organisms was found in the fields of biology, human development, and human ecology.

Behavior of the interaction was the second theme of the sub-category general characteristics. The general characteristic of behavior was that an organism coacted with the environment in a structure of an ecosystem or ordered whole. Examples are given from the data that were gathered from the fields of general system theory/philosophy (Laszlo, 1972) and human ecology (Pederson, 1984). The human ecological model used by Pederson defined an ecosystem as the organism + the environment + interaction. Laszlo discussed the behavioral characteristics of systems as being ordered wholes with the ability to self-stabilize by the presence of fixed forces. These fixed forces held the structure of the system, bringing it back to its stable configuration, while unconstrained forces caused system modification. Stable equilibrium was defined as “the capacity of self-regulation by compensating for changing conditions in the environment through coordinate changes in the system’s internal variables” (p. 40). The general characteristics of interaction were found to be bi-directional and coactional between systems and parts of systems, with the organism-environment acting as an open system. The behavior of the systems was interaction in a structure of ordered wholes.

Human-environment. Human-environment was the second sub-category.

Documents offered data on the characteristics of interaction of human-environment specifically. The interaction between both humans and the environment was seen as the primary concern of human ecology theory found in the field of CT (Sontag & Schlater, 1995). The sub-category of Human-environment consisted of the themes of (a) *general characteristics* of the human-environment process, that included the direction and behavior of the relationship of a person and their environment or self-interaction as found in cognitive theory studies (Richards & Hawthorne, 1971); (b) *social environment*, which included details about the importance of human and social environment interactions; and (c) *cultural environment* or the process of human interaction with a cultural environment. The themes of the sub-category Human-environment was identified in the fields outside of CT, including biology/general system theory (Bertalanffy, 1975; Forrester, 1968), economics (Boulding, 1984), education (Banathy, 1991), human developmental psychology (Magnusson & Stattin, 1998; Tudge, et. al, 1998; Wapner & Demick, 1998),

and sociology (Blumer, 1969; Ritzer, 1991; Stone, 1962), and inside the field of CT (Burns & Lennon, 1993; Damhorst, 1984-1985; DeLong, et. al, 1986; Eicher, 1997; Feather, Ford, & Herr, 1996, 1997; Forney & Rabolt, 1997; Hamilton, 1994; Johnson, 1997; Johnson, et. al, 1994; Kaiser, 1991; Kaiser, Chandler, et. al, 1993; Kwon, 1994; Lee & Burns, 1993; Lennon, 1997; Lynch, et. al, 1996; Miller, 1998; O'Neal, 1998; Roach & Eicher, 1973).

General characteristics, the first theme of the sub-category Human-environment focused on the processes of interaction specific to humans. General characteristics that were identified were (a) the direction and behavior of interaction, (b) the effects of the characteristics of space and time on human processes and (c) the cognitive processes of an individual. Processes within the human-environment occurred across space and time.

The first group of general characteristics was the direction and behavior of the human-environment interaction. In the human ecosystem developed by Bubolz, et. al (1979), the main interaction was between people and the environment and could be observed simultaneously among three interrelated environments (i.e., natural, human constructed, human behavioral). According to theories in developmental psychology, each system within the total person-environment system was interacting with and was dependent on the systems at higher and lower levels (Magnusson & Stattin, 1998). The person or human in the human-environment unit was “comprised of mutually defining physical/biological (e.g., health), intrapersonal/psychical (e.g., self-esteem), and sociocultural (e.g., role as child, student, family member) aspects” (Wapner & Demick, 1998, p. 771). The environment was “comprised of mutually defining physical (e.g., natural and built objects), interpersonal (e.g., rules and mores of the home, school, country, and other cultural contexts) aspects” (Wapner & Demick, p. 771). The natural environment was formed by nature and composed of the components of space-time, physical, and biological.

The second group of characteristics was space and time and how they contributed to the dynamic nature of the processes between humans and the environment or the proximal processes. Proximal processes were defined by Bronfenbrenner (1998) as

“particular forms of interaction between organism and environment...that operate over time and posited as the primary mechanisms producing human development” (p. 994) and that “cannot function effectively in environments that are unstable and unpredictable across space and time” (p. 1019). Space was defined in human ecology theory, as “the unlimited three-dimensional expanse in which events occur and in which matter and energy exist” (Bubolz, et. al, 1979, p. 29). In human development field, Keil (1998) stated that “Spatial knowledge is a form of knowledge shared with virtually all other animals. The ability to move about brings with it the need to know where one is, where one has come from, and where one is going” (p. 362). The role of space in understanding the process of human-environment interaction was illustrated by Keil in discussing an individual’s knowledge of the location other things in space:

The causal interactions among entities are also critically dependent on which entities retain their identities over time and space, but perhaps the strongest links are to representations of space. Understanding where one is in a layout is not even a coherent question without a simultaneous understanding that there are unique locations in space that are dependent on the presence of unique individuals who help to define that space. (p. 358)

Time was defined as “the continuous duration in which events occur and were sequentially related to one another, in the past, present, and future (Bubolz, 1979, p. 29). Bronfenbrenner (1998) described the dimensions of time as

Mesotime refers to continuity versus discontinuity within ongoing episodes of proximal process. *Mesotime* is the periodicity of these episodes across broader time intervals, such as days and weeks. Finally, *Macrotime* focuses on the changing expectations and events in the larger society, both within and across generations, as they affect and are affected by, processes and outcomes of human development over the life course. (p. 995)

Change occurred over time and space and generates uncertainty and ambiguity, but it happens to all individuals, the systems they were a part of, the system around them, and the environment at all levels. It was universal, on going, and increased with time, and

thus change occurs faster today than it did in the past. A person's management, or interaction with change occurred by deliberately designing a specific action to it, instead of simply reacting (Banathy, 1991). Tudge, et. al (1997) discussed the ecological paradigm as "conceptualizing the changing, maturing person in relation to a changing environment-social, physical, and psychological" (p. 72). A person developed and grew as he/she aged, in other words he/she changed over time, as he/she interacted with an environment, or contextual space, that also continually changed over time. The characteristics of space and time were interconnected with human-environment processes. In the field of CT, Eicher (1995) in analyzing the dress of the Kalabari people of Nigeria stated that

Time and space add dimensions to the analysis of dress as does the consideration of gender. Is the space occupied by the person or group geographical, psychological, social, or cultural? Can or do these spaces overlap? What is the time frame/ Are we viewing the units of analysis at one point in time, over time, or contrasting one point in time with a parallel unit from an earlier or later time? Can specify a year, a decade, a historical period? Are time and space considerations different for men and women? (p. 9)

The third general characteristic of human-environment interactions was the cognitive process, or an individual's thinking process. The cognitive process was found mainly in the field of CT and only a limited amount in fields using the systems theory perspective. According to Blumer (1969), outside the field of CT, the human act of thinking and behavior was self-formed and self-directed. Humans could change and manipulate the environment, referred to as self-stabilization (Olson, 1982). Bertalanffy (1975) said

...knowledge is not a simple approximation to "truth" or "reality." It is an interaction between knower and known, and is dependent on a multiplicity of factors of biological, psychological, cultural, linguistic, etc. nature. Physics itself tells us that there are no ultimate entities like corpuscles or waves existing independently of the observer....Against reductionism and theories declaring that

reality is “nothing but” (a heap of physical particles, genes, reflexes, drives, or whatever the case may be), we see science as one of the “perspectives” that man [humans] with his biological, cultural, and linguistic endowment and bondage has created to deal with the universe into which he is “thrown,” or rather to which he is adapted owing to evolution and history. (p. 166)

Bertalanffy described the cognitive process as the “... process is constituted by a flow of self interaction in which the individual indicates various things and objects to himself, defines them, judges them, selects from among them, pieces together his selections, and thereby organizes himself to act” (p. 95). Scheler (1961) said,

Man alone—in so far as he is a person—is able to go beyond himself as an organism and to transform from a center beyond the spatiotemporal world, everything (himself included) into an object of knowledge. (p. 46)

Within the field of CT, the systems theory perspective from human ecology theory used feedback principles that included cognitive processes. Using feedback principles, an optimal value state of what ought to be was described as the information perceived, or input, from the system-environment interaction matches the internal codes, or values, of the individual. Humans had the ability to examine themselves and their behavior through the feedback process and to make changes in line with their goals and values (Sontag & Bubolz, 1996). The families’ ability to evaluate themselves illustrated this process:

Evaluation includes controlling, checking, and adjusting to assess how well goals are being met or whether plans need to be changed, additional resources gained, or some goals discarded and new ones established. Feedback processes involve evaluation in which family rules, values, goals, and policies serve as standards by which outputs are assessed. (p. 36)

A part of the human-environment interaction was the individual’s thinking processes, or the cognitive process.

In human-environment interactions described by CT researcher Kaiser (1990), people were motivated to explain social events or outcomes in terms of other people or

situations, in a desire to determine the cause of those events or outcomes. She further stated that an individual's cognitive processes were used to make sense of everyday life using appearance cues to assign expected behaviors and personality traits to others. This micro-level focus was found to lead to social perception (Kaiser). Lennon and Davis (1989) discussed in CT literature the individual cognitive processes that are active in the human-environment relationship or stages of social cognition. The three cognitive processes that they noted were pre-processing, processing, and post-processing. Lennon and Davis concluded that

All of the pre-processing factors reviewed were shown to have implications for research in clothing and human behavior. Of the processing factors discussed, individual differences, the role of the self, and cognitive schemata were shown to be directly related to existing clothing research. There has been no clothing research designed within the framework of post-processing factor. (p. 6)

In the field of CT, cognitive theory was used as a framework to research specific aspects of human questions rather than broad issues as researched in studies using theories with a systems theory perspective. The use of the cognitive theory approach gave data on only a specific part of an individual's cognitive processes or a snapshot of time (Damhorst, 1984-1985; DeLong, et. al, 1986; Kwon, 1994; Lennon, 1997; Liskey-Fitzwater, Moore, & Gurel, 1993; Richards & Hawthorne, 1971). For example, DeLong, et. al studied the category-based processing strategies, or the use of schema in their cognitive processing, that consumers used to evaluate apparel products. In stating the problem of a research study on clothing choices of adolescents, Liskey et. al illustrated a cognitive theory approach saying,

Clothing is important to adolescents as it affects the way they view their physical bodies (body image) and their inner selves (self-concept). Objectives of this study were to investigate differences in clothing importance factors and self-perception domains between female adolescents with scoliosis and those without scoliosis. Additionally, relationships were investigated between clothing importance factors and self-perception domains within and between both groups of young women.

(p. 18)

Cognitive theory was used extensively in CT research to study cognitive processes of consumer choices, due perhaps in part to convenience, ease of measurement and the availability of survey participants. CT research using cognitive theory usually looked at person-environment issues and objects in a larger context.

The second theme of human-environment interaction was the *social environment*. The social environment (a) provided context for social construction and (b) interacted with humans in a dynamic, complex manner. Inside the field of CT, Kaiser (1990) explained the interaction between humans and the social environment as a process where people actively acquire meanings based on social interaction, or the interaction of humans and the social environment. She stated that

Meanings are not just passively received; each person must learn, discover, or develop a meaning on his or her own. This process of discovery is generally linked to social experiences or quasisocial exposure to appearances (such as the media). (p. 42)

Outside of CT in the field of sociology, Blumer (1969) stated the process that formed human behavior was people engaging in the action of interacting with one another, an interaction between humans and the social environment.

In human-environment interaction, the social environment was the context of peer groups for the process of the social construction within society—the context for social construction. In developmental psychology theory, society, or the social environment, determined certain pathways for individual development, while the individual selected the types of environments they preferred and organized their own development. The social environment provided a frame of reference for the behavior of individuals and changes in one level affected a change in the other levels of environment (Magnusson & Stattin, 1998).

The theme of social environment as a context for the process of social construction was identified in the data found outside of CT. Examples were from the fields of education, human developmental psychology, and sociology. Blumer (1969)

explained the process of human with the social environment interaction as the act of coping with the world through self-construction, the social interaction yielding an interpretation to what confronts them, and joint action to organize a social act. Buhler and Allen (1972) saw humans as active mediators of their own existence. This coaction was described as a

...*positive* form of adaptation—the ever-regenerating *vision* of a fuller, richer reality. Any living being moves into his reality with the expectation and anticipation of being able to extend himself and accomplish some purpose....In this arena humans live out the creative struggle that brings new cultural products into being. This is an aspect of human intentionality,....” (p. 47)

Banathy (1991) gave an example of social construction of the process of human interaction with the social environment, in his description of self-reflection. The self-reflective nature of humans was to create an image, or cognitive map, of one’s self, the world around self, and one’s role in the world. Banathy described this process in which humans engage, within the context of the social environment by saying, “Goals and strategies are easy to perceive. But, it is design that creates the system that enables us to attain those goals and carry out the strategies” (p. 26). He further stated that through the process of self-reflective consciousness “individuals, groups, organizations and societies make representations of their perceptions of the world—and their understanding of their place in the world....by constructing an image—a cognitive map—of the desired future, it guides individual, social, and societal evolution and development” (Banathy, p. 26).

In the context of the social environment, humans interacted with each other, and perceived and interpreted each other and themselves (Tudge, et. al, 1997). The relationship between a person and the social environment was seen by researchers from both the systems theory perspective and CT as perception and was dynamic across time. The perceiver and environment were defined as inseparable (Gibson, 1973). Gregory Stone (1962), a early writer on appearance, described the symbolic interaction process in terms of program, an individual’s acting out social roles of gender, age, and occupation, and review, other people challenging and validating the individual. He defined the terms

as ... (1) responses made about the wearer of clothes by others who, ... *review* his clothing; and (2) responses made about the wearer by the wearer--we shall call these responses *programs*" (p. 221).

Within the field of CT, individual identity was socially constructed, or acquired through social interaction in social, physical, and biological settings (Roach-Higgins et. al, 1995). An interpretive process was used by an individual to acquire meanings from clothing and appearance. Change and fluctuations were normal and contexts could effect that change. In CT theories, humans were seen as creative and dynamic, with strand of continuity that influence future behavior and social order (Kaiser, 1990). Symbolic interaction theory, used in CT, examines and explains the human and social environment processes. Symbolic interaction was used by many studies of culture and dress, as well as person-person impression formation (Burns & Lennon, 1993; Johnson, et. al, 1994; Kaiser et. al, 1993; Miller, 1998). For example, Miller investigated dress that individuals used to express their private and secret selves and found women have more sexual fantasies about dress and more childhood memories of dress than men do. A basic assumption of symbolic interaction was that humans partly created their own realities, for example using appearance management (Kaiser).

The social environment interacted with humans in a dynamic, complex manner—dynamic complex interaction. This theme was discussed by several authors outside of the field of CT. Beginning with the Industrial age and into the present technological one, modern society had become more complex (Bertalanffy, 1975; Forrester, 1968). With this complexity of the dynamic social system, "...identifying and expressing the body of universal principles that explain the successes and failures of the systems of which we are a part" was difficult for researchers (Forrester, p. 1-2). Banathy (1991) suggested transformation, or development of a new creation, instead of improvement of an industrial societal model to match a rapidly changing society. He said that the total system needed to be viewed and not separate disciplines or subsystems. Banathy emphasized the rapid changes of society that face humans by stating,

Over the past four or five decades, we have been faced with increasingly more complex and pressing problem situations, embedded in interconnected systems which operate in dynamically changing and turbulent environments. In addressing these problem situations and working with their relevant systems, we have learned to recognize the limitations of the perspectives, methods, and tools of traditional scientific orientation. This orientation reigned during the industrial age and was the genesis of its explosive machine technology. But it has been found less than useful in the context of the new era that emerged around the middle of this century. (p. 31)

In human ecology theory and the field of CT, change was described in a subject-object interaction approach. The approach “focused on mutual or reciprocal changes that occur both in the human system of study (i.e., individuals, groups, or societies) as well as in the environment as a result of subscribing to valued features of domains of objects” (Sontag & Schlater, 1995, p. 5). In both the fields outside of CT and inside CT, humans and the social environment interacted in a dynamic or ever-changing manner, resulting in more complex social situations.

The social environment was the second theme of the sub-category Human-environment of the category of Characteristics of Interaction. The social environment provided two important functions in the *Process* domain, by providing a context for the process of social construction and interacting with humans in a dynamic, complex manner. Many examples of these functions were found in the CT literature, which covered clothing choices. Schmidt (1989) discussed how clothing interacted with the social environment saying,

Clothing was one aspect of visual communication that was particularly vital in early America. Though only a handful of historians have considered its significance, dress was clearly instrumental in defining age, social status, gender relations, and political authority. (p. 38)

The *cultural environment* was the last theme of the sub-category Human-environment. Cultural environment was primarily composed of symbols, or languages,

that communicate ideas that shape how humans think about everything in their lives and how they shape the physical world around them (Johnson, 1997). Outside the field of CT, the field of sociology provided data for the theme of the cultural environment's interaction with humans (Braithewaite & Scott, 1991; Johnson, 1997; Ritzer, 1991). Cultural theory fit into the systems theory perspective as it examined the process of the human and cultural environment relationship. Extending this focus to include the other systems, such as individual human, social environment, and natural environment, that interacted with individuals and culture would broaden this perspective also. According to Kaiser (1990) in the field of CT, culture was the macrosystem that guided a person to construct social meanings pertaining to their world. Cultural theory, which provided the resources for describing the human process with the cultural environment, was used extensively in studies of different national and ethnic groups in the field of CT (Feather, et. al, 1996, 1997; Forney & Rabolt, 1997; Hamilton, 1994; Lee & Burns, 1993; Lynch, et. al, 1996; O'Neal, 1998). Cultural studies of CT have focused on historical and studies of other ethnic groups and the symbolic meanings of their dress.

The cultural-environment was identified in systems theory as a major influence in its interaction with individuals. The cultural-environment provides (a) human values and symbols of meaning, and (b) gender distinction. According to Braithewaite and Scott, (1991) social scientists have consensus that values are centered in the person, a human, not an object. It is the human conception of desirability that determines worth or value—it is culturally derived. According to a cultural perspective, people had the potential to change, or transform, their own reality by manipulating the objects in their cultural environment. Cultural activities were the production of food, clothing, shelter, etc., or objects, in order to survive—the process of objectification (Ritzer, 1991). Johnson (1997) stated that culture consisted primarily of *symbols*, including music, art, language, religious ritual, and ideas, that served to provide meaning and construct reality. He described culture by saying,

Culture consists primarily of symbols—especially the words contained in language—and various kinds of ideas that shape how we think about everything

from our relations with other people to the meaning of life. It also includes practices such as music, art, dance, and religious ritual. It includes how we shape the physical world around us, from using sand to make silicon that goes into computer chips to building cities to arranging flowers and plants in that familiar form known as a garden. Culture is both material—the “stuff” of social life—and nonmaterial—the symbols and ideas we use to think and give meaning to just about everything. (p. 38)

In CT literature, culture provided abstract representations of social life. An individual could perceive the culture’s images, or messages, by actively participating in the process of signification. Kaiser discussed signification of clothing as a cultural object:

The buying, selling, and wearing of clothes all contribute to **signification** or the product that results in the process of signification, but it is also the *way people relate to these products and what they do to or with them...the perceiver of a cultural message is a vital part of the process of signification.* (p. 48)

The development of meanings was associated with cultural items such as clothing that are bought, sold, and possibly worn. This interaction was called a process of signification. These items made a network of tangible products to which people sharing a common culture were exposed and from which they perceived a specific cultural message. Cultural messages were created, changing elements of reality by reinforcing status quo or creating new meanings, or the process of representation (Kaiser, 1990). In this process, the context acted as a backdrop that interacted with an individual’s, or group’s, own action and interaction (Kaiser). An example from CT was the meanings of clothing and appearance being altered and /or enriched by the contexts of different cultures in which they are found. Humans and dress, which was the nearest environment to humans, interacted in multiple ways, including aesthetically, in a culturally pleasing way, and socially, developing meanings by a unique combination of cultural and societal characteristics (Roach & Eicher, 1973). Clothing was identified as the nearest human constructed environment to an individual (Bubloz, et. al, 1979). For example, Forney and Rabolt (1990) studied two Middle Eastern cultures to research and found the

interactive sociocultural factors served to shape human behavior and influence the dress of different people and the fundamental values that guide them.

Social interaction between the individuals was defined as an influence on gender distinctions or roles that were socially constructed based on historical and cultural beliefs, although these ideas were changeable (Kaiser, 1990). Kaiser used the term social construction to discuss gender and used a contextual perspective to explain it. Kaiser said, "Through people's joint actions, the meanings assigned to clothing and appearances in certain social situations are socially constructed or mutually defined" (p. 40). The contextual perspective included social meaning of clothes in social situations and the larger cultural/historical contexts framing space and time. These concepts were supported by this study. Eicher (1997) used Bronfenbrenner's (1979, 1989) child development model to discuss the material object of cloth and its complex social significance. The use of a system based model to the research served to discuss and understand a more complex phenomena that occurred in an individual, society, and a culture-- in Eicher's research study, the symbol of madras cloth. The cultural environment interacted with the human-environment unit through several processes that provided human values and symbolic meanings, and influenced gender distinctions.

In summary of the Characteristics of Interaction processes, the field of CT had examples of many narrowly focused explanations of specific human-environment interaction but lacked a holistic paradigm to view the relationship of the systems that are coactive, interrelated and compose the universe. The literature from the systems theory perspective provided this holistic view of the human-environment process but lacked specific examples that were applicable to clothing experiences.

Development

Development was the second category of the *Process* domain. Development was defined from the systems theory perspective as change over time (Bengtson & Allen, 1993; Lerner, 1998; Tudge, et. al, 1997). Change was the process through which development occurred (Lerner). The category of Development was identified from data in the fields of family therapy (Bateson, 1972; Breunlin, et. al, 1992; Falicov, 1988;

Keeney, 1983; McGoldrick, et. al, 1989; Minuchin, 1974), human developmental psychology (Bengton & Allen, 1993; Brantstadter, 1998; Bronfenbrenner & Morris, 1998; Csikszentmihalyi, 1993; Csikszentmihalyi & Rathunde, 1998; Dent-Read, Zukow-Goldring, 1997; Fisher & Bidell, 1998; Gardner, 1998; Keil, 1998; Lerner, 1991; 1998; Shweder, et. al, 1998; Tudge, et. al, 1997; Valsiner, 1998) and biology/human development (Gottlieb, et. al, 1998; Lewontin, 1982; Maturana & Varela, 1987). The category of development was not common in the literature of the field of CT, except in the area of person-cultural environment interaction (Arthur, 1997; Forney & Rabolt, 1990; Gurel & Beeson, 1979; Kaiser, 1990; Roach-Higgins, 1995). Development, which was the process of change and growth, had two sub-categories: (a) Organism, the development of living systems, and (b) Human, the growth and reach for optimal development.

Organism. Organism was the first sub-category of development. Two themes for this sub-category were (a) *organism-environment unit* and (b) *a codetermined interaction*. The development of a living organism was dependent on the interaction within the organism-environment unit. The organism-environment process was codetermined. From a systems theory perspective, Lewontin (1982) found that the organism-environment codetermined each other in an active way. Lewontin explained that the organism-environment was coactive, with the organism not merely fitting in with the environment. He stated that "...each organism is the subject of *continuous development throughout its life*;...the developing organism is at all times *under the influence of mutually interacting genes and environment*" (p. 15). Several systemic models showed this process. Equilibration models illustrated the process of the novel mechanisms emerging from the organism in ways that coordinated with the demands of the context, and the coordination was called adaptation (Valsiner, 1998). Differentiation models showed ongoing development in terms of transformation, the process of changing in the direction of greater complexity, and regression, the process of changing in the direction of less complexity. Because of the processes of transformation, unlike natural systems, living organisms could "oppose the drift and move in the opposite direction developing more

complex structures and greater concentrations of energy (Compton & Hall, 1972, p. 11). Gottlieb, et. al (1998) described the process of the development of an organism by stating,

...Individual development is characterized by an increase of complexity of organization (i.e., the emergence of new structural and functional properties and competencies) at all levels of analysis (molecular, subcellular, cellular, organismic) as a consequence of horizontal and vertical coaction among the organism's parts, including organism-environment coalitions. (p. 7)

According to the data, an organism and the environment acted as a unit to codetermine each other. The organism-environment coaction had the ability to transform, or regress, in an on-going development process to levels of greater complexity.

Human. Human was the second sub-category of the category of Development. The themes of (a) *general characteristics*, (b) *psychological*, (c) *biological*, and (d) *sociocultural* processes were found. Human development had three *general characteristics*: (a) change over time, (b) fused interaction of the levels of organizations within the structure of the human-environment unit, and (c) unique processes of the human interaction with the environment.

The first *general characteristic* was that human development changes over time. Human development literature emphasized process to provide explanations of how behaviors were organized and how they change over time (Lockman, & Thelen, 1993). Researchers in life span developmental psychology saw human development as a lifelong process where the developmental change was multidirectional (Bengtson & Allen, 1993). Change occurring over time was constant and continuous. Changes seen at one part of time with one set of variables from multiple levels may not be seen at other points of time, or temporality (Lerner, 1998). Tudge, et. al (1998) stated that the study of development must be concerned with the processes that operate over time, regulated by physical, biological, social and cultural contexts. Valsiner (1998) described human development as "the complex--yet dynamic and often ill-defined--nature of the developing structure (organism, person, social network...) and its equally dynamic and

structured environment” (p. 191). In the field of CT, Eicher and Erekosima (1997) used Bronfenbrenner’s (1989) description of human development. They stated,

For Bronfenbrenner (1989), time and environment emerge as important aspects that must be analyzed together with the person to understand human development. He reports that his research focuses “on developmental changes triggered by life events or experiences that may originate in the external environment or within the organism...Whatever their origin, the critical feature of such events is that they alter the existing relation between person and environment, thus creating a dynamic that may instigate developmental change”...(p. 416)

The second general characteristic, of the sub-category Human was the fused interaction of the levels of organizations of the structure of the human-environment unit. Bronfenbrenner’s (1998) ecology of developmental processes model was comprised of four main parts—process, person, contexts, and time-- and the dynamic, interactive relationships between them. New developmental theories recognized the multiple levels of organization that were a part of a fused developmental system (Lerner, 1998; Valsiner, 1998). All levels were integrated and not functioning as a consequence of their own isolated activity (Lerner, 1998). Lerner described this by saying,

In sum, the influence of genes depends thoroughly on where they exist in space (within the developing person) and in developmental time (i.e., when, in the life of the person, they coact with the environment). Accordingly, it is important to understand that dynamic interactions between biology (organism, genes, or heredity) and context (the multiple levels of the human development) provide a basis for the relative plasticity of behavior and development. (p.15)

Fischer and Bidell (1998) said that

Whether the focus is on knowledge, action, emotion, social interaction, brain functioning, or some combination, the dynamic structural approach puts the person in the middle of things and frames the person’s activity in terms of multiple components working together. (p. 468)

The third general characteristic of human development was that several processes are unique to the human interaction with the environment—unique human-environment process. From a systems theory perspective, these processes were described with several features. In the person-context model, the characteristics of both the person and the environment were considered jointly (Bronfenbrenner, 1989). Optimal relations between the person and the environment, or adaptation, were achieved in many ways (Wapner & Demick, 1998). A coactional, hierarchical system resulted in increasingly complex biological, behavioral and psychological organization in the course of individual development and emergent, or epigenesis (Gottlieb, et. al, 1998). Development of humans and other living organisms occurred in systems that had a hierarchical, horizontal structure and the relationships within the system were bi-directional (Shananan, et. al, 1997). Functioning at one level required functioning at another level, with the higher level functions, integrating and transforming the lower levels not substituting for them (Wapner, & Demick, 1998).

The same final state of development was also described by many authors from the systems theory perspective and may be reached in different ways or may emerge from different initial conditions, or equifinality (Krippner, et. al, 1985). Human's self-determination of development was described by Compton and Hall (1972) as an open energy system. Humans were not subject to entropy as were natural systems. Krippner et. al described the open system and the intentionality of humans by saying, "Creativity, more than any other human behavior, show that the person is an open system with certain freedoms of operation and potentials for growth" (p. 111). Humans could make decisions, based on their values and beliefs, and codetermine their developmental outcomes.

Another unique process of human development was that the actual development represents only a fraction of the possibilities, only part of the gene is expressed in any context (Gottlieb, et. al, 1998). In research based on systems theory, humans were found to be changeable and moldable or to have the trait of plasticity, with most developmental changes occurring during the childhood developmental phase (Lerner, 1998). All living systems, including human systems, must be flexible and able to adapt to new processes

and variations (Fischer & Bidell, 1998). Optimal development of humans was described by developmental psychology as

...a differentiated and hierarchically integrated person-in-environment system with flexibility, freedom, self-mastery, and the capacity to shift from one mode of person-in-environment relationship to another as required by goals, by demands of the situation, and by the instrumentalities available. (Wapner & Demick, 1998, p. 775)

The uniqueness of human development was often found in systems theory literature. The more differentiated and hierarchically integrated a system is, the more highly developed it is said to be (Wapner & Demick, 1998). Individual differences were related to the variability in humans, or equifinality. This theme of uniqueness was not found in CT literature.

Psychological was the second theme of the sub-category Human in the Development category. The data indicated that the human psychological system codetermined human development. From the systems literature, several views of the psychological development process were found. Humans have a psychological system that interacts with other systems and codetermines human development. In the psychological process, optimal functioning was a progression toward optimal self-world relationships. In other words, an individual's psychological functioning helps determine the quality of the human-environment relationship (Wapner & Demick, 1998). Humans play a part in their own development. Continuity and discontinuity were a dimension of intra-individual change (Lerner, 1998). Lerner stated,

The life-span perspective is linked, then, to a concern with issues about the relations between evolution and ontogeny, about the role the developing person plays in his or her own development, about human plasticity, and therefore about life course continuity and discontinuity. (p. 7)

...neither continuity nor discontinuity is absolute. Both are probabilistically present features of change, and the actualization of either is dependent on prevailing developmental conditions within the organism as well as its context.

(p. 6)

Self-organization was a human cognitive process that presented unresolved problems for the developmental sciences (Thelen & Smith, 1998). Individuals were not seen as reactors to a stimulus, but they could adopt different cognitive attitudes and intentions regarding their self-world relations and experiences, which was called multiple intentionality (Wapner & Demick).

One type of psychological process identified in the data was the cognitive process. Cognitive development studies focused on several of the psychological processes of humans--how well people are identified over time and space, how they navigate about their world, how they utilize language to communicate messages and meaning, how they compute mathematical problems, how they categorize their physical and social worlds for understanding, or the process of categorization, and how they understand the causal nature of their physical and social worlds (Keil, 1998). One function of an individual's cognitive capacities is to master and use symbolic systems for survival of the person and their culture (Gardner, 1998). Gardner stated that

...human beings are organisms for whom the use of symbols is wholly natural, important from an early age, crucial for survival, and indispensable in educational, occupational, and cultural institutions...Human beings all use certain external symbols, such as natural language and the gestures accompanying speech; other symbol systems may be particular to certain cultures (written language) or subcultures (calculus)...The skills involved in the use of symbols are cognitive...One must learn to "read" and "write" symbols. (p. 421)

According to Scheffler (1997),

We live in a world of symbols as well as other things, and our commerce with them is itself continually mediated by symbols. As it matures, our thought increasingly grows in its capacity to weld appropriate symbols in reflecting, acting, reasoning, and making. (p. 11)

Perceptual development, a cognitive process, was a view found in systems theory literature. In this view, perceptual development was universal for humans but was

variable due to different life experiences and cultural variations. Perceiving and remembering were tied to the immediate context, were temporally extended, and emerged from the preceding activity. The process changed as a direct consequences of one's own activity, and experiences strengthened thinking and behavioral patterns (Thelen & Smith, 1998).

The third theme of the sub-category Human was *biological*. Within systems theory literature, human biological process was recognized as a part of the developmental process of a human—part of human development. Bronfenbrenner's bioecological model (1998) describes this systemic relationship and assumed that biological factors and evolutionary processes set limits on development and impose requirements in regard to environmental conditions and experiences required to optimal development. He defined the construct of process in human development by saying, "...this construct encompasses particular forms of interaction between organism and environment, called *proximal processes*, that operate over time and are posited as the primary mechanisms producing human development" (Bronfenbrenner, p. 994). The presence of a biological theme within human development was also noted by Wapner and Demick (1998). Optimal functioning depended on physical, mental, and interpersonal well being, the absence of disease, illness, and suffering (Wapner & Demick). Even within systems theory, changes in the biological theme were noted. Gottlieb, et. al (1998) discussed that the genetic or biological predetermination notion was outdated and that variability was due also to environmental influences experienced by an individual. Embryonic development was not preprogrammed but the results of an interaction between events in the nucleus, a form of self-organization (Thelen & Smith, 1998). Humans show spirit and emotions, a wide variability. This variability occurred for two reasons—(a) genotypes and environment vary and (b) no two people have the same fusion of genes and environment throughout their lives (Lerner, 1998).

Systems theory literature noted that by the mid-1900s, more research was needed on the biological and other human processes to explain the how of psychobiological systems. In response to this call, Lickliter (Gottlieb, et. al, 1998) studied how social

interaction facilitates perceptual reorganization through tactile contact prenatally in birds. Authors in systems theory stated that the significance of genes and other biological functions must be understood in relation to the system, no single element or level would be the main causal element (Gottlieb, et. al). Heredity and environmental constrained each other but with flexibility through mutual interaction (Lerner, 1998). Lerner stated that

...the influence of genes depends thoroughly on where they exist in space (i.e., within the developing person) and in developmental time (i.e., when, in the life of the person, they coact with the environment). Accordingly, it is important to understand that dynamic interactions between biology (organism, genes, or heredity) and context (the multiple levels of the human development) provide a basis for the relative plasticity of behavior and development. (p. 15)

These comments in systems theory provided further evidence that biological process must be part of a systemic approach.

Sociocultural, the fourth theme of the sub-category Human development, involved the processes of sociocultural environment interaction with a human individual, which contributes to development and growth—influences human development. According to systems theory, the sociocultural environment influences and provided the context for human development, and the sociocultural environment's processes provided social meanings for individuals in society. Valsiner (1998) said,

...it is not possible to ignore the major characteristic of human psychological phenomena—their socially constructed meaningfulness...human psychological phenomena exist within the *semiosphere*--a sphere of semiotic signs being constituted and reconstituted by active persons who are involved in processes of acting and reflecting on actions in parallel act. (p. 215)

In 1940, a Committee on Human Development described the sociocultural component of human development. The committee said that human development was interactional with family, social, and cultural contexts over a lifetime, was holistic in nature, and required multidisciplinary tools to understand (Bergtson & Allen, 1993). In

sociocultural interaction described in systems theory literature, the processes, in which individuals are continually located, shared meaning and resulted in a variety of responses (Tudge, et. al, 1997). Optimal development of humans with the sociocultural environment was defined as fulfilling a value characteristic of contemporary society (Banathy, 1991). Within this sociocultural environment, society and culture, which included politics and religion, influenced clothing choices and contributed to first impressions that played a very important part in social interaction between people (Ryan, 1991). In an example from research in the field CT, Forney and Rabolt (1990), in a study of women in Middle Eastern cultures, saw values as a reflection of individual interpretations of sociocultural environments, showing the influence of the human-environment interaction. Also, Eicher and Erekosima (1980) used Brofenbrenner's (1989) ecological systems model to explore the affect of the sociocultural environment's influence on the meaning of madras cloth in the Kalabari society. They found

...that Kalabari use of madras cloth celebrates and affirms links within a complex web of social relations. These links connect the Kalabari individual to persons in their immediate sphere of social interaction, as well as to Kalabari persons outside this sphere. (p. 426)

Cultural systems were seen in literature outside of CT to regulate and constrain the developmental processes of an individual over their life span (Brandtstadter, 1998). Tudge, et. al (1997) stated that human development was constructed in interaction with the sociocultural environment. An example of this human development was in the influence of sociocultural factors on gender identity formation. The influence of multiple societal systems, such as religious, economic, and political, was shown to define, support, and reinforce the power and influence of the sexes. This cultural influence of human development is also noted in writings on gender by CT authors. Gender was socially constructed in social, historical, and cultural contexts through appearance management using clothing, hairstyles, and other items of dress (Kaiser, 1990). Socialization in a sociocultural setting used dress to help form the gender identity of an individual (Roach-

Higgins et. al, 1995). An example of this socialization is discussed by Roach-Higgins et. al in this passage:

Each society, or subgroup of a society, has its own rules regarding which body modifications or supplements should declare gender roles;...A ribbon, but a tiny attachment tied to a wisp of a baby's hair, can announce a gendered identity as feminine. Similarly, within a specific cultural group a short haircut can be a body modification that invests a baby with a masculine identity. (p. 102)

An unanswered question for systems and CT researchers has been the accounting for individual human differences. Cognitive science and its study of individual thinking processes was recognized by Keil (1998) as a common ground in which to discuss cultural difference. According to Spelke and Newport (1998), "People from different cultures are not immeasurably, unfathomably different. Rather, people differ in specific, understandable ways. Beneath these differences, the knowledge, beliefs, and values of all people build on a common foundation" (p. 328). In a study of culture the variety of cultural beliefs accounted for individual differences in human development, and with many culture differences, the human universals disappear (Keil). In CT, Gurel and Beeson's (1979) explanation for some differences in dress was that individual differences occurred to meet different climate needs, religious meaning and aesthetics.

Several sociocultural environment processes found in literature provided social meanings for individuals in society. Acculturation referred to "the transfer of culture from one group to another" (Fisher, et. al, 1998, p. 1162). An individual changed in "cultural attitudes, behaviors, beliefs, and values..." (Fisher, et. al, p. 1162), by adopting different cultural identity. Three levels of acculturation were described, in the CT literature, as traditional, bicultural, and acculturated. Traditional acculturation was when the individual is immersed in his/her culture of origin. Bicultural was when the individual is immersed in both the culture of origin and the dominant culture. In the acculturated level, the individual was immersed in the dominant culture only (O'Neal, 1998).

Cultural authentication was another aspect of the sociocultural theme and was described as the "process of assimilating an artifact or idea external to a culture by

accommodative change into a valued indigenous object or idea” (Eicher & Erekosima, 1980, p. 83). Levels of cultural authentication are selection, characterization, incorporation, and transformation. Selection occurred whenever a western item was adopted by an indigenous group. Characterization was when the item is “symbolically appropriated by the culture” (Arthur, 1997, p.129). Incorporation was when the item designates “categorical membership to a role or a group” (Arthur, p.129). Transformation occurred when the original item was modified for “cultural distinctiveness” (Arthur, p.129). Arthur suggested that the levels could occur in a different order due to different cultural contexts.

The processes of human interaction with the sociocultural environment influenced growth and development of the individual and the society as a whole. The sociocultural environment gave a context for human-environment interactions to occur and social meanings are a result:

Not only do other people know us primarily through role relationships, but this is also a major way that we know ourselves...As we construct the ideas and feelings about who we are that constitute the self, we depend primarily on information that comes from outside ourselves. (Johnson, 1998, p. 146)

Discussion of Process

Systems theory outside CT provided most of the general characteristics of interaction, the first category for the *Process* domain. The interaction process was bi-directional with coaction between systems and the parts of systems. The organism-environment was an open system. These characteristics also pertained to human environment interaction, but general system theory did not focus on the human process specifically. Several social science fields have applied systems theory specifically to human-environment systems. In this application, human-environment interaction was coactive between a human and his/her environment, an open system, which was dynamic in nature across time and space. Humans had the ability to codetermine the outcomes of their relationships and interactions with their environments.

The second category Development for the *Process* domain was built primarily from systems theory outside of CT. The process of the development of living organisms, through growth and change, was identified mainly from literature in the fields of biology, human development, and developmental psychology. The field of biology discussed the development of organisms and the interaction with their environment. Human development, the process of change over an individual's lifetime, is composed of psychological, biological, and sociocultural elements.

Human ecology theory shared with systems theory the concepts of the domain *Process* and its general characteristics of interaction that are bi-directional, coactive, and the human-environment system was an open system. Systems theory found outside of CT addressed the process of development in living systems; whereas, human ecology theory used in CT did not.

The domain of *Process* was also identified in the literature from the field of CT. Through the theories of cognitive, symbolic interaction, and cultural theory, CT literature explained the process of human-environment interaction on the personal, social and cultural levels and its influence on dress and appearance management behaviors. Cognitive theory looked specifically at an individual's thought processes and perceptions of other people and the environment. In the literature, CT researchers used cognitive theory to research a particular human question at a specific time and place. Symbolic interaction theory was used by CT to study person to person impression formation and the influence of culture on human dress. Cultural theory viewed the interaction of an individual or group of individuals with the society and the larger culture of which they are a part, and examined the way in which culture influences symbolic meanings such as dress, appearance management behaviors, and the values contributing to their formation. The field of CT did not have extensive data on the category of Development. Cultural theory was used to study the affects of culture and the individual, but did not focus on the developmental processes—of how an individual changes over time.

Organization

The domain of *Organization* pertained to the form or structure of a system or human-environment interaction. The *Organization* domain was developed from the systems theory perspective data found in the fields of human developmental psychology, sociology, and family therapy. A list of references is given in Table 6. The domain also has basis in data from the field of CT as listed in Table 7. Two categories that were identified from the data were (a) Levels and (b) Structure. The category Levels referred to the complex, multilevel form of nature as described by many studies. A sub-category of Levels was Hierarchies. The category Structure described the characteristics of the form of a system and was divided into the sub-categories of (a) World and (b) Person-environment unit.

Levels

The category of Levels was identified as a complex, multilevel form of nature. This idea was described by the systems theory perspective outside the field of CT and inside CT in the human ecology theory that is used in a limited use as a way to understand the organization of the universe. Levels were described as being hierarchical in form.

Hierarchies. The system's levels of organization were described as Hierarchies, the sub-category of the category of Levels. (Forrester, 1968). Laszlo (1972) described the systems theory perspective of the world as being a complex hierarchy of organized natural systems. He said that, "There are general laws of natural organization cutting across disciplinary boundaries and applying to organized entities in the microhierarchy at each of its many levels" (Laszlo, p. 32).

The multiple levels of organization were seen by human developmental psychologists to comprise the basis, the "substance of life" (Lerner, 1998, p. 7), for contemporary theories (Lerner). Bronfenbrenner's (1989, 1998) sociocultural ecological theory described the world of humans and consisted of five environmental systems or levels. Those levels were the microsystem, the setting in which an individual lived (i.e., the family, school, peers), mesosystem, relationships between microsystems or the

Table 6.
References for the Domain Organization: Systems Theory Perspective

Fields	Date	Authors
Economics	1984	Boulding
Developmental Psychology/ Human Development	1989 1998 1985 1998 1998 1997 1942 1999	Bronfenbrenner Bronfenbrenner Krippener, Ruttener, Engelman, & Granger Lerner Magnusson & Stattin Tudge, Shanahan, & Valsiner Waddington Wapner & Demick
Family Therapy	1992	Breunlin, Schwartz, & Kune-Karrer
Philosophy	1972	Laszlo
Science	1975 1991	Bertalanffy Gottlieb
Sociology	1968 1991	Forrester Ritzer

Table 7.
References for the Domain Organization: Field of Clothing & Textiles

Theories	Date	Authors
Cultural Theory	1987	Hamilton
Human Ecology	1995 1997 1990 1997 1984	Eicher Eicher & Erekosima Kaiser Miller Pederson

connections between contexts (i.e. the relationship of the family to school experiences), exosystem, the social setting experiences of an individual who does not have an active role influences what another person experiences in an immediate context (i.e., a mother's employment influencing the relationship with the child), macrosystem, the culture in which an individuals lives, and the chronosystem, the patterns of environmental events and transitions over a lifetime and sociohistorical circumstances. A description of Bronfenbrenner's levels of organization was,

These levels range from the inner biological, through the individual/psychological and the proximal social relational (e.g., involving dyads, peer groups, and nuclear families), to the sociocultural level (including dey macro-institutions such as educational, public policy, governmental, and economic systems) and the natural and designed physical ecologies of human development. (Lerner, p. 7)

Another example of the sub-category Hierarchies of the levels of organization was by sociologist, Ritzer (1991) who discussed two basic social continua, or levels, saying that

...The microscopic-macroscopic and objective-subjective continua—and their interrelationship. The microscopic-macroscopic dimension relates to the magnitude of social phenomena ranging from whole societies (or even more macroscopic world systems) to the social acts of individuals, whereas the objective-subjective dimension refers to whether the phenomenon has a real, material existence (e.g., bureaucracy, patterns of interaction) or exists only in the realm of ideas and knowledge (e.g., norms and values). (p. 152)

Examples of horizontal as well as vertical levels of organization and interaction were found in the literature. According to Gottlieb (1991), a systems theory perspective of individual development was hierarchically organized into multiple levels that mutually influence each other. The levels included genes, cytoplasm, cell, organ, organ systems, organism, behavior, and environment. Gottlieb's explanation of levels agree with Bronfenbrenner's levels of organization. In the CT, researchers using human ecology

theory and the systems theory perspective have borrowed the concepts of Bronfenbrenner.

Structure

Structure was the second category of the *Organization* domain. Structure described the characteristics of the organization, or form, of systems and human-environment interaction. From the systems theory perspective, Breunlin, et. al (1992) stated that a system's organization defined how its various parts were structured and functioned as part of a whole. "Any system—a society, a corporation, a motor, a living cell, or a family—can be studied, to find the patterns that reflect the rules guiding the way in which the parts are interrelated (that is, the *structure*)" (Breunlin, et. al, p. 125). According to Miller (1971) in the field of CT, "The *structure* of a system is the arrangement of its subsystems and components in three-dimensional space at a given moment of time. This always changes over time..." (p. 284). Consistency was found across the literature about structure. Structure defined the patterns of systems and subsystems that are interrelated and function as a whole. The two sub-categories were (a) World and (b) Person-environment unit.

World. The sub-category of the world as a system was identified from literature of the systems theory perspective. According to Laszlo (1972), the world was seen "as an integral network of ordered interdependency of which man is a part" (p. 12). The world was an organization of biological, behavioral, and social universes (Laszlo). A theme of the sub-category, World, was *systems and subsystems*. In the reviewed literature, systems theory viewed physical phenomena as ordered organized, complex systems and subsystems not separate particles. Laszlo stated "the new scientist, however, concentrates on structure on all levels of magnitude and complexity, and fits detail into its general framework" (p. 13). Constructivists viewed organism-environment as a structural component. Wapner and Demick (1998) said,

At the most complex level, the organism-in-environment is described as a *person-in-world system*. The person (P; acculturated human being) transacts with the

environment characterized as world (W), which includes sociocultural objects such as a university or political, religious, and kinship rules and regulations. (p. 767).

No information about the sub-category of World was found in the field of CT.

Person-environment unit. Person-environment unit, a sub-category of the category of Structure, was developed from the systems theory perspective outside the field of CT and the theories of symbolic interaction and human ecology theory within CT. A structure of a person-environment unit was found in human developmental, social, and cultural levels. The broad definition of person-environment unit structure was that the structure of the organization levels was of functionally integrated systems that ranged from the inner biological to individual/psychological and proximal social relations to sociocultural and the natural, physical ecologies of human development (Magnusson & Stattin, 1998). Gottlieb, et. al (1998) described the human organism's structure, or levels, as genetic, neural, and behavioral and the environment's levels as physical, social, and cultural. Dynamic systems theory viewed genes as only one component in a hierarchy of influences that contribute to canalize, or set behavioral development, and were not genetically determined as earlier suggested by Waddington (1942). From the field of CT, Miller (1997) differentiated three aspects of the individual, public, private, and secret, and used symbolic interaction to study how the self was communicated through the use of symbols. These were communicated when a person dressed for reality, fun, and fantasy. Miller discussed an individual's structure in speaking about the expanded model resulting from her study. The model

...increases expression of public, private and secret aspects of the self through fantasy dress: 1) when costumes are worn in public and do not hide identity (public self); 2) when costumes are worn as an expression of fantasies among family and close friends (private self); and 3) when costumes are worn in private or with one other person (secret self). (p. 232)

The person-environment unit had several characteristics described in the data. The levels of organization of systems, including the person-environment systems

organization, were described as having structural similarity, or isomorphism (Breunlin et. al, 1992). In the field of family therapy the principle of isomorphism was expanded by Breunlin et. al. The authors stated that, "...we also see that structure as evolving over time and across contexts, rather than as static, and has entertained other explanations for family behavior, including the effects of our interactions with the family or of the therapy context itself" (Breunlin et. al., p. 140). The ecological environment of the person-environment unit was conceived as a set of nested, concentric structures, similar to a set of Russian dolls. The levels ranged from micro to meso to macro levels (Bronfenbrenner, 1998; Lerner, 1998). The human ecological model used a holistic, complex family-dynamic environment unit, focusing on the family group and a changing environment with which the family interacted (Pederson, 1984). The organization of the person-environment relationship was found to be hierarchical multiple levels with a dynamic structure of system and sub-systems.

Discussion of Organization

The categories of the domain *Organization* were identified in the data from the systems theory perspective. In systems theory, the organization of the universe is described as multiple, hierarchical levels. The structure was the world as a system or network of systems and the form of human systems more specifically a person-environment as a unit. Human ecology theory shared the view of the organization of levels and the structure of the universe as systems theory described the domain. That organization was one of a hierarchical, multiple levels and that structure was one of a person-environment unit.

The domain *Organization* was not identified in CT theories. The theories of cognitive theory, symbolic interaction, and cultural theory in CT did not include explanations of the organization of the universe or the systems composing it. The *Organization* domain was found only in the human ecology theory used by a few researchers in the CT field.

Outcomes

Outcomes was the domain that covered the end results of the relationship and process of systems. The *Outcomes* domain was identified from the fields of sociology, family studies and human development, psychology, economics, as well as theories in the field of CT. The references for the systems theory perspective are shown in Table 8. The references for CT are listed in Table 9. Three categories within *Outcomes* were (a) Humanistic, (b) Symbols, and (c) Interdisciplinary. The humanistic category contained the themes of feeding the human spirit and promoting human betterment. Three sub-categories were (a) Interpretations, (b) Values, and (c) Quality of life. The category of Symbols had to do with the products of society and cultures and had two sub-categories of (a) Codes and (b) Social objects. Interdisciplinary was a category describing the nature of the study of the systems theory perspective and human issues. Transdisciplinary and Multidisciplinary were sub-categories of this category Interdisciplinary.

Humanistic

Humanistic was the first category in the *Outcomes* domain. This category encompassed the essence of humans, their beliefs, values, and the ability to assign meanings to various objects and happenings in their lives. The ability to interpret situations, make decisions, and take action based on values that an individual holds was what separates humans from the animals. The interpretation of social phenomena and the application of beneficial values were humanistic characteristics that served to raise the quality of human life.

Interpretations. Interpretations was the first sub-category of the Humanistic category. Data for this category came from the fields of human development, sociology, as well as CT. Interpretations was defined across the literature as the meanings derived from the human-environment relationship. The sociological term of life course was used by researchers with a systems theory perspective in order to include the importance of social meanings applied to life events-- individual development and the development of relationships over time (Bergtson & Allen, 1993). Meanings gave significance to things,

Table 8.

References for the Domain Outcomes: Systems Theory Perspective

Fields	Date	Authors
Communications	1972	Thayer
Economics	1984	Boulding
	1984	Nissel
	1983	Solomon
	1948	Wiener
Education/Philosophy	1991	Banathy
	1972	Laszlo
	1995	Laszlo
	1976	Kang
Human Development/ Psychology	1993	Bergtson & Allen
	1991	Boesch
	1981	Csikszentmihalyi & Rochberg-Halton
	1998	Gardner
	1971	Maslow
	1997	Michelman
	1996	Morgado
	1998	Shweder, Goodnow, Hatano, LeVine, Markus, & Miller
	1999	Spelke & Newport
Science	1998	Gottlieb, Whalsten, & Licklieter
	1972	Rosen
	1993	Lockman & Thelen
	1975	Bertalanffy
	1972	Zerbst
Sociology	1969	Blumer
	1976	Kang
	1962	Stone

Table 9.
References for the Domain Outcomes: Field of Clothing & Textiles

Theories	Date	Authors
Cognitive Theory	1971	Richards & Hawthorne
Cultural Theory	1987	Hamilton
	1990	Kaiser
	1991	Lurie
	1980	Wass & Eicher
	1989	Weiner & Schneider
Human Ecology	1972	Compton & Hall
	1995	Eicher
	1997	Eicher & Erekosima
	1994	Littrell
	1982	Olson
	1998	O'Neal
	1993	Sontag & Bubolz
	1996	Sontag & Bubolz
	1995	Sontag & Schlater
	1988	Winakor
Symbolic Interaction	1993	Cerny
	1984	Davis
	1968	Horn
	1994	Johnson, Crutsinger, & Workman
	1990	Kaiser
	1990	Littrell
	1995	Morgado
	1994	Nagasawa, Kaiser, & Hutton
	1972	Roach & Eicher
	1989	Schmidt

objects, people, social groups, guiding ideas, for humans. They were derived from social interaction, and through an interpretative process were handled and modified by the individual (Blumer, 1969). In CT, the sub-category of Interpretations was restricted to dress, and meaning was derived from dress at several levels. Collective meanings were a sociocultural dynamic on a macro-level (Blumer), interaction between wearer and perceiver resulted in meaning (Davis, 1984), and individual meanings were seen as a social psychological dynamic at a micro-level (Michelman, 1997; Stone, 1962). According to Michelman, Roman Catholic nuns were an example of the personal meaning that can be derived from social interaction, in their case with the church:

The perception was that habits communicated a social identity that inhibited personal identity expressions. The habit symbolized total commitment to the order and was described by women religious as an impediment to interaction. The habit made them feel less than fully human. (p. 350)

Meanings were found in the CT literature as an outcome of person-environment interaction. Cerny (1993) stated that “Society consists of many interrelated and interdependent sub-cultures. Membership in these subcultures is based on common roles, interests, beliefs, and/or values and is consequence of such factors as age, sex, ethnicity, and/or occupation” (p. 79).

Examples of the sub-category of Interpretations were found in CT studies. In a study of tourists, travelers were found to assign meanings to the textile crafts they acquired on trips (Littrell, 1990). In early America eighteenth-century, Christians in North Carolina and Virginia used dress as a “vital part of the complex system of communication involved in ritual” (Schmidt, 1989, p. 46). It was a “visual, richly symbolic medium...capable of communicating a multiplicity of meanings” (p. 48). An outcome of human-environment interaction was interpretations of meanings of social events and objects.

Values. Values was the second sub-category of the category Humanistic. Values were found in the literature to be an (a) *outcome of culture*, and (b) *unique to humans*, serving to guide their interpretations and actions in life. Values were defined as “trans-

situational goals that serve as guiding principles in a person's life" (Braithwaite & Scott, 1991, p. 662). A part of the values of systems philosophy was relations of human and the world (Bertalanffy, 1975). Values were specific to humans and human culture.

Many researchers outside the field of CT (Banathy, 1991; Boulding, 1984; Laszlo, 1972; Maslow, 1971; Midgley, 1993; Morgado, 1996; Nissel, 1984; Wiener, 1948) and inside CT (Goldsmith, et. al, 1991; Olson, 1982; Sontag & Bubolz, 1993; Sontag & Schlater, 1995; Richards & Hawthorne 1971) have identified the importance of values to humanistic outcomes. Laszlo (1972) said, "We have to preserve human values and dignity" (p. 191). Wiener (1948) thought the Industrial Revolution was negative to many ways to humans. "The answer, of course, is to have a society based on human values other than buying or selling. To arrive at this society we need a good deal of planning and a good deal of struggle..." (Wiener, p. 38). Postmodernistic thinking had to do with cultural values and the belief that one can no longer assume rational thinking and science would lead to humanitarian ends (Morgado, 1996). In response to the value-free, value-neutral, value-avoiding model of science, Maslow (1971) said,

Even more dramatically is this value-free philosophy of science unsuitable for human questions, where personal values, purposes and goals, intentions, and plans are absolutely crucial for the understanding of any person, and even for the classical goals of science, prediction, and control. (p. 5)

Values have been recognized outside and inside CT literature as an influence and outcome in human-environment interactions—an *outcome of culture*. Midgley (1993) believed that the values that were adopted by people determined where the boundaries were that defined which knowledge was accepted as important and which knowledge fell in the margins. In planning and creating the future, value structures direct the vision of humans and societal groups in their future development. The core values and ideas constituted an inseparable, coherent whole (Banathy, 1991) Economist, Ken Boulding (1984) spoke of how a common set of values provided moral order in society and cultures. The quality of life was no longer measured by the level of economics, but by shared values. Nissel (1984) who stated that social well being depended on non-material

aspects of life also emphasized the importance of values. Sontag and Schlater (1995) stated that values were conceptions of the desirable, good, right, and worthwhile that served to motivate and guide human decision and action.

In CT, Olson (1982) used Laszlo's human valuing process model to study the role of values in the behavioral response. Values as an outcome of the cultural environment were needed for human betterment. Human ecology theory emphasized human values and their goal in the systems interaction of the person-environment unit. Sontag and Bubolz (1993) stated that "in order to achieve changes that are needed for human betterment, realization of universal values, and for improved quality of human life and quality of the environment, both locally and globally" (p. 443). Sontag and Schlater (1995) described their research on human values in the follow passage:

Measurement of human values from the perspective of *subject-object interaction* focused on the mutual or reciprocal changes that occurred both in the human system of study (i.e., individuals, groups, or societies) as well as in the environment as a result of subscribing to valued features of domains of objects. (p. 5)

Examples of how values influence human-environment interactions were found in CT. Values appeared to influence dress and the relationship of humans with their closest environment (clothing). Basic values were found to affect body cathexis and clothing attitudes for males (Richards & Hawthorne, 1971). Social values were found to influence the fashion leadership for women (Goldsmith, et. al, 1991). Meaning were associated with appearance symbols that emerged from social interactions with others (Kaiser, 1990).

Also, values and dignity were the elements of being human and were *unique to humans* and human culture (Laszlo, 1972). Maslow (1971) said bringing the human values of personal goals, purposes, intentions, and plans into the science of the study of life was crucial for understanding people. The integrated theoretical framework proposed in this study incorporated this need into its model, believing human needs and problems would be better addressed with recognition of these real characteristics of being human.

Boulding (1984) in discussing human values, said,

The distinction between 'facts' and 'values' is a very tenuous one. Both of them exist, if they exist as objects, in the complex structure of human nervous systems, and the processes by which our images of fact and our evaluation of these images are conducted are not very different. (p. 1)

Quality of life. Quality of life was the last sub-category of the Humanistic category. Quality of life was described in CT as "...the level of satisfaction or confidence with one's conditions, relationships, and surroundings relative to the available alternatives (McGregor & Goldsmith, 1998, p. 2). Other terms that were used in the literature with similar meanings were well being and human betterment. Well-being was "the state of being well, happy, or prosperous" (McGregor & Goldsmith, p. 2). In the field of economics, Ken Boulding (1984) saw economics as the means, or the productive activities, that influenced essential human values, stating economics were about people first and about things as far as they contributed to human betterment. Human betterment was "a process through time in which in terms of some human valuations the state of a system later in time is evaluated as superior, or "better" than the same system earlier in time" (Boulding, p. 1).

In studies of family systems the concept of quality of life was important for consideration. In human ecology theory, the family quality of life had effects on the individual and their society's welfare and stability (Compton & Hall, 1972). Quality of life issues were a concern in a ten-year study on farm families and the human-environment interaction (Sontag & Bubolz, 1996). Sontag and Bubolz viewed quality of life as "the degree of fulfillment or satisfaction of physical, biological, psychological, social, aesthetic, and economic needs which are met by resources that people possess or derive from the environment" (p. 39).

In summary, the Humanistic category was identified as a themes pertaining to the human life experience. Sub-categories were (a) Interpretations that gave meanings giving significance to human individuals and society, (b) Values that served to guide the interpretation and actions of people, and (c) Quality of life, or a sense of well being and a

striving for human betterment. Many CT and systems theory researchers recognized these human traits and the role they play in human-environment interaction.

Symbols

Symbols was the second category of the *Outcomes* domain. Symbols were an outcome of the human-environment relationships and processes. This category was an important part of the outcome from cultural environment interactions and provided understanding of human communication and development. G. H. Mead, in discussing the origin of symbolic process said,

There is no question in the phylogenic perspective of man's [human's] evolution that the origins of his [their] symbolic process go further in the past than his [their] earliest written form of which we have some remains. The study of ancient history and primitive societies indicates that spoken languages preceded written languages. Since oral and other symbolic processes, which emerged earlier than those of writing, left no preservable "record" or "fossil", various theories of the genesis of the symbolic process have remained highly speculative. (as cited in Kang, 1976, p. 110-111)

From systems theory, symbols constituted necessary dimensions of reality that were perceived by individuals in various cultures (Boesch, 1991). In the field of human developmental psychology, Gardner (1998) stated humans were biologically prepared to learn and use symbols. Symbols were crucial for survival and indispensable in education, occupational, and cultural institutions. In all literature, symbols were used in language, gestures and speech, and cognitive skills. "...Much of human mental functioning is an emergent property that results from symbolically mediated experiences with behavioral practices and historically accumulated ideas and understandings (meanings) of particular cultural communities" (Shweder, et. al, 1998, p. 867). The two sub-categories that were identified in the category Symbols was codes and social objects.

Codes. The first sub-category of the Symbols category was codes. Themes found for codes were (a) *verbal language*, and (b) *non-verbal language*. *Verbal language* is a symbol, and was found in the systems theory literature as a vehicle of cultural

transference and individual identity development. Cultural environment processes result in the outcome of symbols, such as verbal language to provide meaning to human life. Shweder, et. al (1998) said,

It is a major assumption of cultural psychology that one mind is transformed into many mentalities through the symbolic mediation of experience and that the human conceptual capacities that support culture also support language use, which is the primary means by which the symbolic and behavioral inheritances of a cultural tradition are passed on to the next generation. (p. 887)

According to Scheffler (1997), “symbolism is a primary characteristic of mind, displayed in every variety of thought and department of culture” (p. 3). Symbols, which include verbal language, are an outcome of human culture.

Non-verbal language was the second theme of the sub-category Symbols. A language of symbols or signs, a nonverbal system of communication, is known as semiotics, and was used in CT literature describing the interaction of person-environment. An example of this type of symbolic language is clothing (Lurie, 1991; Wass & Eicher, 1980). Lurie stated, “...within every language of clothes there are many different dialects and accents, some almost unintelligible to members of the mainstream culture” (p. 32). CT literature also recorded that people used clothing in a superstitious manner or as symbolic magic. The following quote highlights this use: “The chosen garment has become lucky by being worn on the occasion of some earlier success, or has been given to its owner by some favored person” (Lurie, p. 33). Hamilton (1987) said that, “...along with other no-biological (physiological) expressions of behavior common to our species e.g., using language, using tools, and the ability to symbol...is the fact that humans dress” (p. 1).

In CT literature, codes were used to show social rank separating the classes and perpetuating cultural ideas (Lurie, 1991)). Wass and Eicher (1980) discussed the connection of codes to social systems using dress as an example of “members of the groups differentiated by dress represent common social roles and communication of roles, involves sets of signs or symbols which must be learned within a societal context”

(p. 320). Eicher (1995) described dress saying, “Dressing the body is a coded, sensory system of non-verbal communication of body supplements and body modifications enhancing human interaction as human beings move in time and space”(p. 8). According to Horn (1975),

Individuals employed certain judgment processes in associating meanings with given clothing symbols; these included (1) the extension of clothing characteristics to other ‘logically related’ personality traits, (2) the transference of personality characteristics from one individual to another, and (3) role and status stereotyping. (p. 199)

Codes, such as clothing, are used by humans in society and different cultures to designate social rank or other meanings in a non-verbal manner.

Social objects. The second sub-category of the Symbols category was social objects. According to Csikszentmihalyi and Rochberg-Halton (1981), “The [social] objects provide an environment charged with personal meanings. They also indicate the goal of a personal self that can assimilate the diverse information of an impersonal world and imbue it with order and significance” (p. 190). The sub-category of social objects also was found within much of the data in the field of CT. Cerny (1993) said, “Certain [social] objects, especially dress, may stand out as key symbols of community values and social life” (p. 79). Dress was defined as a social object, or a sub-system in the cultural macro-level unit of analysis that had three interrelated, interacting components of technology, social structure, and ideology (Hamilton, 1987). “As [social] objects of material culture, dress is used to express symbolically cultural and philosophical orientations of the group that sanctioned it” (O’Neal, 1998, p. 28). Appearances or material artifacts, such as dress, are outcomes that come to represent shared values that were linked to the cultural belief system within a culture.

Many aspects and examples of social objects are described in CT literature. Cultural forms are tangible aspects and symbolic outcomes of culture (Kaiser, 1990). Cerny (1993) described the social objects as an outcome of the sociocultural environment by saying, “Furthermore, the relationship between the [social] object/action and the

meaning is arbitrary, not set by any inherent quality of the object/action, but defined within a sociocultural context” (p. 70). Weiner and Schneider (1989) explored the social object of cloth and its symbolism and connections with wealth, gender, and power of different societies. Tools of cultures, or social objects, could not only be used to provide cultural meaning to individuals but also to be used in new ways or to break cultural conventions (Kaiser, 1990).

The sub-category Symbols provided both verbal and non-verbal communication important to individual development in a culture. Symbols were outcomes of human systems. Through this verbal and non-verbal communication, community values and the shared knowledge of a society are conveyed with the use of codes and social objects.

Interdisciplinary

Interdisciplinary, a category of the *Outcomes* domain, was the idea of the interconnection among relationship, process, and organization in the systems of the world. This category included humans. Interdisciplinary was created from the systems theory perspective and the cultural and human ecology theories found in CT. Two sub-categories that were identified included (a) Transdisciplinary, which was the need for viewing phenomena/problems across disciplines; and (b) Multidisciplinary, which was the need for several disciplines to cooperate and integrate research efforts.

Transdisciplinary. The category of Interdisciplinary had the two sub-categories of Transdisciplinary and Multidisciplinary. The first to be discussed is Transdisciplinary. According to Laszlo (1995), a problem was seen by the promoters of general system theory with the specialization in Western science that had a tendency to create relative isolation. A specialist in science could “...compute the effect by looking at things as separate facts connected by some causal or correlative relationship” (p. 5). This gave one level of causal understanding, but the specialist could not tell how a number of factors acted together when exposed to a number of different influences at the same time. With this type of analysis, no more than two levels could be rigorously tested at one time. In 1995, Laszlo stated that the integration between philosophy and science was still not satisfactorily bridged, and the next step would be creating *transdisciplinary unified*

theories, or theories that crossed and integrated academic disciplines. Laszlo's next step was the basis for this sub-category.

The importance of transdisciplinary outcomes were discussed by several authors from the systems theory perspective. Banathy (1991) saw that systems theory as a means where various disciplines could deal together with highly complex and large-scale problem situations. An interdisciplinary symposium, held in honor of Bertalanffy on his 70th birthday, promoted the need for an integration of information and research across the disciplines, or transdisciplinary. Representatives from many different fields, including biology (Rosen, 1972), communications (Thayer, 1972), economics (Boulding, 1972), and physiology (Zerbst, 1972) gave presentations to share and expand general system theory. Bertalanffy's response was

The value of this general framework must be proven by its application to concrete problems, its fertility by answering old questions and posing new ones. Otherwise it remains an intellectual artifice, delightful to the theorist as the fugal development of a theme is to the musician, but without influence on science and life in general. (Laszlo, 1972, p. 183)

In human development research, Gottlieb, et. al (1998) uses a developmental psychobiological systems view and suggested that research be interdisciplinary with a comparative developmental design.

In the field of CT, the sub-category of transdiscipline also was identified as a theme. Kaiser (1990) stated,

A number of academic disciplines, predominantly in the social sciences and humanities, have contributed to our understanding of clothing and human behavior. Therefore, we may regard the social psychology of clothing as a **transdiscipline**—an area of knowledge that has emerged because of theories and research findings that cross traditional disciplinary boundaries. To the extent that clothing scholars have integrated such knowledge, the social psychology of clothing is also interdisciplinary. (p. 12)

Nagasawa, et. al (1994) concurred that theory and knowledge in the CT field was cross-discipline. Using the human ecology theory found in CT, Sontag and Bubolz (1996) in a ten-year case study of farm families illustrated the value of transdisciplinary research and the valuable outcomes that type of research design yields in addressing complex human societal situations.

Multidisciplinary. The second sub-category of the category Interdisciplinary was Multidisciplinary. Multidisciplinary is an outcome found in many different disciplines. From a systems theory perspective, a basic concept of general system theory was the system. The system was also the common denominator between fields such as cybernetics, information theory, and game theory. The idea to originate systems theory was to provide a universal theory that applied to all systems in any discipline (Bertalanffy, 1975). With a general meta-language of systems theory, information could be passed from field to another (Laszlo, 1972). In looking for brain, body, and behavior connections, Lockman and Thelen (1993) discussed the integrating theories and findings cross disciplines, using the multidisciplinary approach to form the field of developmental biodynamics.

In the field of CT, Horn's (1968) book "The Second Skin" was sub-titled *An Interdisciplinary Study of Clothing* and illustrated the multidisciplinary nature of the subject of dress and appearance. She stated that the text was

...based upon the philosophy that clothing decisions in real life are influenced by a multitude of factors, and rarely made on the basis of a segmented set of criteria. Clothing needs are not only complex, but they are often in conflict. It is the intent of this book to place the study of clothing within the comprehensive context of its cultural, social, psychological, physical, economic, and aesthetic relationships.
(p. iii)

Horn stated that the study of clothing was rooted in a number of disciplines—anthropology, history, psychology, sociology, art, physics, physiology, and anatomy. Horn prepared her text because of her analysis of the CT literature and a need she perceived in the field of CT.

Defining an interdisciplinary perspective and recognizing a need for the multidisciplinary approach in research was discovered in exploring studies outside and inside the field of CT. The idea of the relationship, processes, and the organization of the human-environment unit is interdisciplinary, combining the knowledge from and across many fields and academic disciplines.

Discussion of Outcomes

The domain *Outcomes* was identified in the data on systems theory. The systems theory literature contributed to the category of Humanistic. Bertalanffy, Boulding, and Laszlo, early founders of general system theory, formulated this theory to address humanity in a more realistic manner. In response to the view of humans as machines, the founders sought to rejoin science and art in order to achieve a balance of objective and subjective thinking. Humans had an important position in the universe and they were affected by their interactions with the environment. The relationship and interaction of systems could have Humanistic *Outcomes*. Interpretations, values, and quality of life issues are uniquely human and add unique elements for consideration in scientific endeavors. The category Symbols was identified in dynamic systems theory and human development studies on language development and culture. Both viewed symbols as languages of communication—of culturally formed values, knowledge, and norms.

The category Interdisciplinary was found in systems theory. Systems theory emphasized the interdisciplinary nature of phenomena and a need for an interdisciplinary approach in research and education. An interdisciplinary approach could aid in understanding the reality of the complex, multileveled, dynamic systems that interact and form the world. Using knowledge and research that crosses many disciplines was necessary to have a holistic view of reality.

The domain of *Outcomes* was shared by human ecology with systems theory. The category Humanistic and the outcomes of interpretations, values, and quality of life were identified and found to be important in research design and consideration in studying human-environment interactions. The literature from human ecology did not discuss the category Symbols. The human ecology theory perspective stressed the category

Interdisciplinary—the interdisciplinary nature of the world’s systems and the need for cross-discipline studies..

The domain of *Outcomes* was identified in the theories used in CT. The category of Humanistic was found. The theories of symbolic interaction and cultural theory recognizes the outcomes of human-environment interaction as an influence on value formation and a contribution to human quality of life. Also, the category Symbols was identified in CT literature. According to symbolic interaction and cultural theories, symbols are the result of social and cultural interactions through codes and social objects such as clothing. The category of Interdisciplinary of the *Outcomes* domain was found in CT. The field of CT is interdisciplinary in nature with subject matter that covers a wide range, from textile science to the social psychology of human dress and appearance. The need for a multidisciplinary and transdisciplinary approach is promoted in the field.

Summary of Findings and Discussion

This study resulted in domains based on data from the theories that were explored. The domains were *Relationship*, *Process*, *Organization*, and *Outcomes*. Each of these domains had several categories, sub-categories and themes. *Relationship* was defined from the data as the relations between the parts of a system or two systems and a human and the environment. *Process* pertained to the interactions that resulted from the relationship between system and the human environment unit. *Organization* was defined from data that described the form of the universe, or the reality of the human-environment unit. *Outcomes* pertained to the results of the relationship of systems and the human-environment, the processes that existed, and the organization of the levels and structure of the phenomena.

In summary, the systems theory found outside the field of CT provided information on the general characteristics of the relationship and the processes of interaction between both the parts of systems and two or more systems that composed the universe. Along with the nature of systems, systems theory perspectives such as dynamic systems theory found in developmental psychology addressed human development. The organization of the levels and structure of the universe and systems were discussed by

systems theory. The outcomes recognized were particularly human values and quality of life, symbols, and an interdisciplinary nature of phenomena.

Systems theory related to the human ecology theory of Human Resources by serving as its basis. Human ecology theory in Human Resources more specifically focused on a family-environment relationship and interaction. The organization of levels and the person-environment unit structure were described in the data obtained from this theory. Human values and quality of life outcomes were important to the goals of this approach. An interdisciplinary approach was considered essential to study the interconnecting systems involved in human situations. In the field of CT, cognitive theory and symbolic interaction gave specific views of the relationship and process of human interaction with their individual, social, and cultural environments but did not approach these with a systemic perspective. Cultural theory focused on the influence of the larger society on the individual through the formation of languages of symbols and social meaning based on the values and beliefs of a specific culture.

The findings of this study suggested that the theories of cognitive theory, symbolic interaction, and cultural theory that were used in CT could fit into a systems theory perspective, if a strict positivist paradigm was not held. Together the findings blended a systems theory view of the universe and of how humans grew and developed with the CT theories that examined more specifically the individual cognitive process, person to person interaction, and the cultural influences and outcomes on individuals and groups of individuals. Systems theory broadened the view, or perspective of CT by adding an emphasis on understanding a holistic, systemic view of the world and the relationships and processes of the systems that composes it. Whereas, in CT, cognitive theory was used for a specific look at the individual cognitive system, and cultural theory and symbolic interaction brought a focus to the human aspect and relationship with the social and cultural environments.