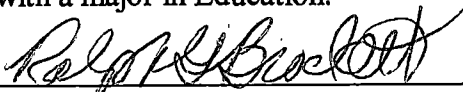
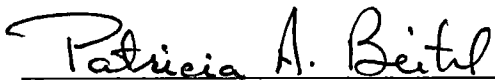


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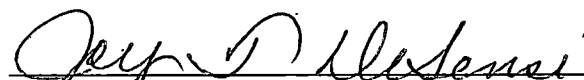
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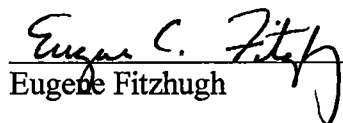

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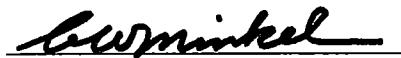

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SELF-DIRECTION AND COPING IN ADULTS WITH ASTHMA

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

David A. Nelson
August 2000

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DEDICATION

This dissertation is dedicated to all who struggle with asthma and breathing difficulties.
May we all work together to find a cure.

ACKNOWLEDGMENTS

I would like to acknowledge God for providing me with the gift of perseverance and the ability to see this project through to the end. I am grateful for my entire committee, Pat Beitel, David Bender, Ralph Brockett, Joy DeSensi, and Gene Fitzhugh for their patience, guidance and caring attitude. A round of thanks goes to my friends and fellow students for encouraging me to continue and allowing me to complain while we ran or drank coffee. Thank you Tracy Delphia for your wisdom, humor, and friendship.

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ABSTRACT

There is no cure for asthma. It can strike those afflicted at anytime without warning. Individuals often have difficulty in coping and learning about asthma. The purpose of this project was twofold. First, this project sought to determine if a relationship existed between self-directed learning readiness and coping strategies as measured by the Self-Directed Learning Readiness Scale (SDLRS) and Ways of Coping Questionnaire (WAYS), respectively. Second, this study sought to determine if differences existed in the manner in which individuals coped based upon the severity of their asthma. Eighty adults with asthma were interviewed and agreed to participate. Within a medical office, the SDLRS, WAYS and other information were gathered. A positive correlation was determined between the total score of the SDLRS and three subscales of WAYS. Significant correlations at the .05 level were "Seeking Social Support" .24, "Planful Problem Solving" .31, and "Positive Reappraisal" .23. A stepwise regression was also run and three factors emerged from the sample. "Planful Problem Solving", "Escape Avoidance", and "Accepting Responsibility" explain 19 percent of the variability in the interaction between the SDLRS and the WAYS. With regard to differences in the way individuals coped with asthma based upon severity there were three subscales that provided significant differences. Significance was determined for three subscales, "Confrontive Coping" (.029), "Self-Controlling" (.005) and "Escape Avoidance" (.000). There are differences in the ways that individuals cope with asthma. For an individual with asthma, the severity matters in what coping strategies are utilized. Three specific recommendations emerged from this study. First, narrow the gap between

formal asthma education and learning about asthma. Second, provide asthma education based upon both principles of self-direction and coping. Third, emphasis needs to be placed on the importance of social support. In addition, future research recommendations were provided.

TABLE OF CONTENTS

CHAPTER		PAGE
I.	INTRODUCTION TO THE STUDY.....	1
	Statement of the Problem.....	6
	Purpose of the Study.....	8
	Research Questions.....	9
	Theoretical Framework.....	9
	Self-Direction in Learning.....	9
	Coping.....	16
	Linking Self-Direction in Learning and Coping.....	21
	Significance of the Study.....	26
	Assumptions.....	28
	Delimitations.....	28
	Limitation.....	29
	Definition of Terms.....	29
	Outline of the Study.....	31
II.	REVIEW OF THE LITERATURE	
	Self-Directed Learning.....	33
	Background and Definitions.....	34
	Research on Self-Directed Learning.....	40
	Learning Projects Research.....	41
	Qualitative Research.....	44
	Quantitative Research.....	46
	Coping.....	55
	Background and Definitions.....	56
	Research on Stress and Coping.....	62
	Ways of Coping Questionnaire.....	63
	Reliability.....	66
	Validity.....	67
	WAYS Research.....	68
	Issues and Limitations of the WAYS.....	71
	Asthma.....	74
	Clinical Definition of Asthma.....	75
	Asthma Severity.....	77
	Psychological Factors and Asthma.....	78
	Conclusions.....	81
III.	METHOD	
	Population and Sample.....	83
	Design.....	85
	Instrumentation.....	86
	Demographic Questionnaire.....	86

CHAPTER		PAGE
III.		
	Physician Questionnaire.....	86
	Self-Directed Learning Readiness Scale.....	87
	Ways of Coping Questionnaire.....	88
	Procedure.....	92
	Analysis of Data.....	95
	Question 1.....	96
	Question 2.....	97
	Conclusion.....	98
IV.	RESULTS	
	Demographic Information.....	99
	Gender, Age, Race, and Marital Status.....	100
	Education and Family Income.....	103
	Overall Health Perceptions.....	105
	Physician's Asthma Severity Rating.....	109
	Summary of Demographic Information.....	110
	Sample Properties and Instrumentation.....	110
	SDLRS Outcome Data.....	111
	WAYS Outcome Data.....	113
	Instrument Reliability.....	114
	Research Questions.....	116
	Research Question 1.....	117
	Research Question 2.....	124
	Conclusions.....	128
	Question 1.....	128
	Question 2.....	128
V.	CONCLUSIONS AND DISCUSSION	
	Review of the Study.....	130
	Purpose of the Study.....	131
	Research Questions.....	131
	Procedure.....	131
	Summary of Question 1.....	132
	Summary of Question 2.....	133
	Conclusions.....	133
	Demographics Conclusions.....	134
	SDLRS Scores.....	134
	Results Conclusions.....	136
	Discussion.....	143
	Linking Self-Direction in Learning and Coping.....	144
	Recommendations.....	148
	Recommendations For Practice.....	149
	Research Recommendations.....	153

CHAPTER	PAGE
V.	
A Closing Reflection.....	154
REFERENCES.....	158
APPENDICES.....	172
VITA.....	185

LIST OF TABLES

TABLE	PAGE
4.1 Gender of Sample.....	100
4.2 Age of Sample.....	101
4.3 Race of Sample.....	102
4.4 Marital Status of Sample.....	103
4.5 Education of Sample.....	104
4.6 Family Income of Sample.....	105
4.7 Perception of Health of Sample.....	106
4.8 Years With Asthma of Sample.....	107
4.9 Formal Asthma Education of Sample.....	107
4.10 Coping with Asthma of Sample.....	108
4.11 Asthma Knowledge of Sample.....	109
4.12 Physician Diagnosis of Asthma.....	110
4.13 Range, Minimum, Maximum, Mean Score, and Standard Deviation for SDLRS.....	111
4.14 Range, Minimum, Maximum, Mean Score, and Standard Deviation for WAYS.....	114
4.15 Cronbach Alpha Coefficients for SDLRS, WAYS, and WAYS Scales.....	115
4.16 Comparisons of Cronbach Alphas from Present Study to Folkman and Lazarus (1988) Findings.....	116
4.17 Two-tailed correlations of the total score of the SDLRS and eight factors of the WAYS.....	118

TABLE		PAGE
4.18	Two Tailed Correlation Between Asthma Knowledge and SDLRS.....	119
4.19	Stepwise Regression of the Total Score of SDLRS and WAYS.....	121
4.20	Determination of Significance Utilizing Wilks' Lambda.....	125
4.21	Tests of Between-Subjects Effects.....	125
4.22	Significant Mean Responses for Ways of Coping Questionnaire.....	126
4.23	Multiple Comparisons Based Upon Severity.....	127

LIST OF FIGURES

FIGURE	PAGE
1.1	Personal Responsibility Orientation (PRO Model) (Brockett & Hiemstra, 1991, p. 25).....12
1.2	Lazarus and Folkman's (1984) Conception of Coping Adapted by the Primary Investigator..... 19
1.3	Major Concepts Within Self-Direction in Learning and Coping..... 22
4.1	Distribution of Scores of the SDLRS..... 112
4.2	Percentage of Variability Explained Through the Correlation of WAYS and SDLRS..... 120
5.1	Readiness Levels of SDLRS Based Upon Scores..... 135

CHAPTER I

INTRODUCTION TO THE STUDY

No cure for asthma currently exists (Leff, 1997). Asthma can strike without warning. The intermittent and unpredictable nature of asthma makes it particularly difficult for individuals to cope with this disease (Kinsman, Jones, Matus & Schum, 1976). Patients may follow recommended guidelines and treatment protocols and still end up back at their physician's office or in the emergency department (Berlow, 1997). Patients' inability to predict an asthma attack results in few coping methods, a preoccupation with breathing, and a sense that they have lost control of their lives (Alt, 1997).

Lazarus and Folkman define coping as "the constantly changing cognitive and behavioral efforts to manage specific external or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). According to this theory of coping, individuals are concerned with threat, stress, and transition. *How* individuals cope in specific situations is more important to understand than the degree or type of threat encountered in a coping situation. Just as there is no single type of stress, neither is there a singular way in which to *cope* with stress.

Many psychosocial aspects contribute to an individual's reaction to a stressful situation. Examples of these psychosocial aspects include the perception of stress, the appraisal of a situation, and the emotions and physical responses to the stressor. Stress is a normal part of life for both individuals with good health and also for those who are ill. Individuals cope with stress using a variety of methods and styles (Falvo, 1985). A major

function of patient education is to teach individuals how to cope with problems caused by poor health habits or illness (Goeppinger & Lorig, 1996). A person's health status alone, however, does not determine whether they will cope well with stress. Some healthy people cope with stress, while others do not. Similarly, some ill people cope well with stress while others do not. According to Lazarus and Folkman (1984) what is important in the coping process is not whether an individual was successful at coping, but what they actually did when faced with a situation that is threatening.

Asthma is unpredictable, both in its occurrence and the severity of attack, which makes it difficult for the patient to cope and difficult for the physician to treat. Medical providers often categorize patients as either "ill" or "not ill". Because the process of diagnosis is focused on moving a patient from a state of illness to one of wellness, the diagnostic process is limited in assisting patients with chronic diseases, like asthma (Nixon, 1988). Both asthma patients and physicians report that stress and emotional factors can have negative effects on asthma (Busse et al., 1995). While making a proper diagnosis of asthma is important, it is only the first step toward wellness. Coping is one key to long-term wellness for asthma patients. Woller (as cited by Maes, Leventhal, and deRidder, 1996) studied the coping styles of asthma patients and found that minimization and self-confidence predicted the number of days spent in the hospital. Poor management during an asthma attack was more typical of patients who used a diverting coping style. Woller's finding suggests that avoidance of the potential loss of emotional control when having an asthma attack can be as problematic as concentrating on the illness even when no symptoms are present. Coping strategies are needed at all times for those with asthma. Emphasis should focus on the process of the disease rather than only

on the outcome following an asthma episode. Coping is a dynamic process. Asthma education programs should be designed to improve coping abilities for persons with asthma by increasing personal skills and reducing the time spent thinking about their asthma when they are feeling well (Maes et al., 1996).

It is difficult for a non-asthma sufferer to truly understand this disease. One asthma patient provides a rich description of the experience of having and coping with asthma:

It has taken me a long time to learn how to cope with asthma at all effectively in spite of my medical training. One of the curious features of the disease, which others have noticed and commented upon, is a kind of false optimism between attacks. When asthma returns, it is natural enough to be somewhat depressed. Indeed, some observers believe that attacks of asthma are usually anticipated or accompanied by quite marked depression. I have not been sure that depression precedes an attack in my case, but I am sure that, once an attack is past, I am unrealistically euphoric and disposed to think that I may never have another. This extends to believing that, when asthma does start, it will not be very bad 'this time', and that I need not, therefore, take all the rather distasteful steps which are necessary to control it. This has meant that, in the past, I was reluctant to summon medical help even when the attack was obviously severe. I used to boast that I never allowed anyone to call the doctor until I was so breathless that I could no longer speak, but had to communicate in writing. I do not leave things so long today (Lane & Storr, 1979, p. 7-8).

The patient who wrote this passage, A. Storr, is also a physician. His description accurately depicts what life can be like for someone with asthma. Storr mentioned that it took a long time to learn to cope with asthma effectively; learning may be a key component in dealing with the difficulties and uncertainty of asthma.

Asthma can be a difficult disease with which to cope. Individuals clearly diagnosed with asthma may either deny the finding or claim they are not aware of being afflicted (Kaptein, Dekker, Van Der Wart & Gill, 1988). Sibbald (1989) identifies delaying treatment as a large problem for those with asthma. Approximately 19 percent of asthmatics delay treatment when they have an episode and five percent do not even call a doctor after seven days of symptoms. Sibbald believes something further needs to be done to improve the care and coping ability for those with asthma. In part, this means that patients must accept the chronic nature of the disease. The problem, as pointed out by Leventhal and Nernez (as cited in Maes et al, 1996), is that patient acceptance of the chronic nature of asthma elicits an identification with the disease which may result in depression and a sense of hopelessness.

Much is known about asthma, but research has demonstrated that it is still under-diagnosed, under treated, and patient education is lacking (Kaptein et al., 1988). The learning process could assist in the development of coping skills for those with asthma. However, development of programs for adults and formal patient education for those with asthma is not yet part of care at any age level (Wilson et al., 1993). Even though patient education for asthma sufferers may be lacking, learning itself is a pervasive activity throughout life. The concept of education as a preparation for life has been

replaced by the notion of education as preparation for lifelong learning (Guglielmino & Nowocien, 1998).

Adult lifelong learning is ubiquitous. Adults take an evening or day class through a university or extension service. Learning occurs in the work place through instruction or seminars. Even the home provides great opportunity for learning. Everyday experiences and occurrences often result in learning (Brillinger, 1990). Learning is a process that occurs within and is activated by the learner. Learners are not passive, but actively construct knowledge through their own interpretations and representations of material relevant to their needs (Dart, 1997).

Tough (1971) claimed almost all adults undertake learning projects and his research reported that nearly 70 percent of all adult learning is self-planned. Blaxter, Hughes, and Tight (1997) report that much of the responsibility for the organization of learning today has shifted to the individual. Self-direction, a learning process initiated and controlled by the learner, is therefore of special importance (Brockett & Hiemstra, 1991). Self-directed learning is appealing because individuals decide what to learn and how to learn it. Garrison (1997) noted that self-directed learning aptly describes the desire felt by most adults to continue to learn through life.

Self-directed learning can be discussed from a number of viewpoints. A comprehensive description includes discussion of variables such as the learning environment, personal characteristics of the learner, and the learning process (Long, 1990). Knowledge of the skills and attitudes related to self-direction in learning would make it possible to determine the extent to which individuals are ready to work on their

own. It would also help identify those individuals needing further assistance in the development of self-directed skills (Guglielmino, 1977).

Patient education is complex and a variety of educational techniques should be investigated with regard to helping individuals learn about asthma (Ellis & Friend, 1985). A comprehensive asthma management program will include patient education as an important component. Without patient education, management of the disease of asthma is more difficult. Self-directed learning may provide an avenue to help individuals learn about and, thus, more effectively manage their asthma.

A goal for education and management programs should be to enable patients with chronic diseases such as asthma to become part of the solution in the management of the illness. Individuals who actively seek information about their chronic illness tend to cope better than those who do not. These individuals may be better informed about their symptoms and participate in better health care practices (Felton & Revenson, 1984). Brockett (1985, 1987) found a significant relationship between self-directed learning and life satisfaction. Self-directed learning could become a component of patient education for individuals with asthma. Its inclusion may contribute to individuals' ability to take control of their asthma education, and it may mean the acquisition of different and varied coping skills.

Statement of the Problem

There is no cure for asthma and asthma attacks can occur without warning. The unpredictable nature of asthma makes it difficult for persons with this disease to cope.

Difficulty in coping with asthma can add to the stress for those afflicted. The severity of asthma also compounds the difficulty of dealing with the disease (Kinsman, Jones, Matus & Schum, 1976). Though coping has been studied among those with asthma, more needs to be done to improve patients' ability to cope with asthma.

Much is known about asthma, but information about patient education in this area is generally lacking. Learning can occur in many situations and it may be a component in coping with asthma. Self-directed learning is a method utilized by most adults where the responsibility for learning is assumed by the individual. A common denominator for both coping and self-directed learning is the emphasis on individual responsibility. It is important for individuals to take charge of their asthma. Their ability to accomplish this may be facilitated by self-directed learning and coping. There is a current gap of information regarding self-directed learning and coping.

Self-directed learners assume responsibility for their own learning. Coping, too, is an individual response to a situation. How coping with asthma and self-directed learning relate is not yet known. Measuring self-directed learning readiness has not been explored in adults with asthma. Neither has the relationship between coping and self-directed learning been examined in adults with asthma. It makes sense that self-directed learning and coping would be connected; therefore, this study is designed to determine the extent to which relationships exist in the constructs of coping and self-directed learning in adults with asthma.

Purpose of the Study

Coping with asthma is difficult and varies depending on a number of factors including the severity of the disease. Learning benefits adults and is an important facet of patient education in helping patients cope with chronic illness. It would be beneficial to know how an individual learns and how they cope with asthma. Self-directed learning is one form of learning. The purpose of this research is to determine whether relationships exist among the concepts of self-direction in learning, coping, and severity of the disease in adults with asthma. This will be accomplished in two ways. First, it will be determined if there is a significant relationship between the concepts of coping and self-directed learning readiness in adults with asthma. Second, the effect of the severity of the asthma on the ways individuals cope with the disease will be examined. If these relationships and differences exist, they could have implications for how adults manage and cope with their asthma. Additionally, this knowledge could allow medical providers to craft a more effective patient education program to benefit asthma patients. The relationships among self-direction in learning, coping, and the severity of asthma are not known. This project will provide data to establish the extent to which such relationships exist.

Research Questions

The following questions will be used to address the purpose of the study:

1. Is there a relationship between self-direction in learning and ways of coping in adults with asthma?
2. Are there differences between the ways of coping and severity of asthma?

Theoretical Framework

Two major theoretical concepts ground this project: self-direction in learning and coping. Both are embedded in the context of adults diagnosed with asthma. Self-direction in learning and coping, however, are primarily individual constructs. Though they differ theoretically, self-direction in learning and coping have similarities that potentially enable them to be linked. The purpose of this section is to discuss the conceptual links between self-direction in learning and coping.

Self-Direction In Learning

Many scholars have contributed to the understanding of self-directed learning. The work of Brockett and Hiemstra (1991) and Guglielmino (1977) is of specific importance to this dissertation. The description of self-direction in learning provided by Brockett and Hiemstra (1991) is used within the context of this project. Brockett and Hiemstra's model of self-direction in learning is called the Personal Responsibility Orientation (PRO) model. Personal responsibility is linked to external circumstances and learner preferences within Brockett and Hiemstra's model of self-direction in learning.

Personal responsibility is a key component with the Brockett and Hiemstra (1991) model. In other words, individuals are responsible for their own learning. The learner assumes personal responsibility for planning, implementing, and evaluating the learning process. Self-direction in learning has its genesis in personal responsibility within this model. Though individuals are responsible for their learning, they also possess unlimited potential to learn. Additionally, each has a personal responsibility to reach their fullest potential.

A second point made by the Brockett and Hiemstra model is that personal responsibility for learning is tied to both external and internal facets of the learning transaction. The external factors are elements of the learning process that lie outside of the learner and are associated with the characteristics of the teacher/learner interaction. These factors include the physical learning environment, assessment of needs and requirements of the learning endeavor, and what learning resources the learner will seek. The external features of the learning process within the model are defined by Brockett and Hiemstra as self-directed learning.

The internal attributes are comparable to the personal features or personality preferences of the individual. Brockett and Hiemstra refer to these factors as the “personal orientation” or learner self-direction (Brockett & Hiemstra, 1991, p. 29). Learner self-direction refers to the characteristics within the individual that facilitate taking personal responsibility for learning choices. In the model, individuals possess unlimited potential for growth in terms of learner self-direction.

Brockett and Hiemstra (1991) utilize the term “self-direction in learning” to acknowledge both the external and internal factors in the PRO model. While they do

make distinctions between internal and external factors they also believe that a connection exists between self-directed learning and learner self-direction. This relationship between the external and internal factors allow for greater comprehension of self-direction than either concept could provide alone. The PRO model is depicted in Figure 1.1.

Terminology within the model can be somewhat confusing at first. Figure 1.1 of the PRO model shows that there are three distinct concepts with similar names. Self-Directed Learning refers to the interaction between the individual and the learning environment. Self-directed learning is the external aspect of learning. Examples could range from reading in a library alone to discussion of a topic in collaboration with others. The possibilities for self-directed learning are infinite.

Learner Self-Direction places emphasis on the personality characteristics unique to each individual. These characteristics effect individuals' ability to take personal responsibility for learning situations. The concept of learner self-direction is grounded in the realm of humanistic psychology. Humanism views individuals as having unlimited potential for growth and self-actualization in all areas of life, including learning (Rogers, 1995). Learner self-direction is internalized and is not outwardly visible. Examples of learner self-direction are independence, initiative, and perseverance.

Self-Direction in Learning is a synthesizing concept designed to encompass the interface between self-directed learning and learner self-direction. It is an "umbrella concept", which is intended to recognize both concepts of self-directed learning and learner self-direction (Brockett & Hiemstra, 1991, p. 29). Brockett and Hiemstra

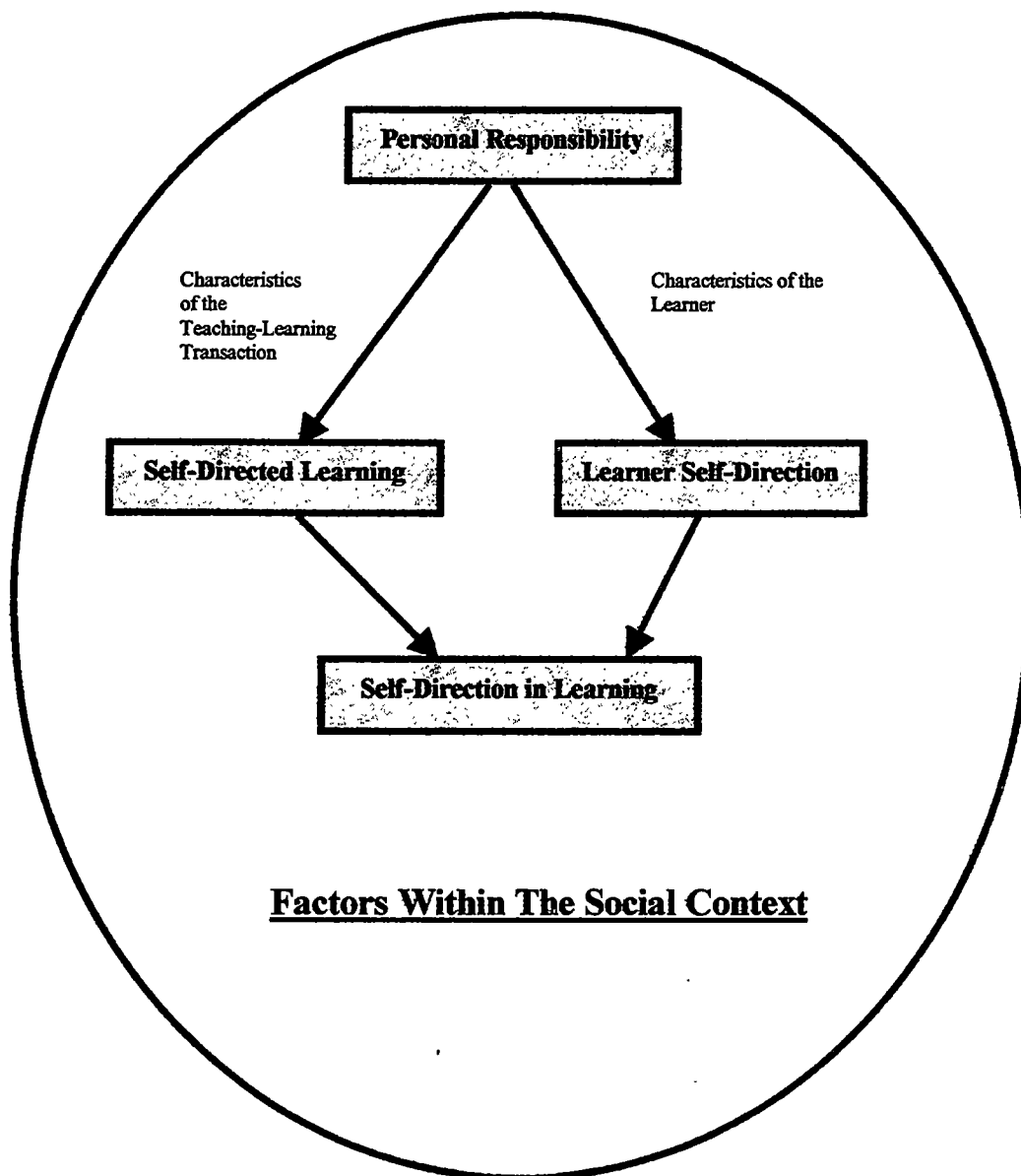


Figure 1.1 Personal Responsibility Orientation (PRO) Model
(Brockett & Hiemstra, 1991, p. 25).

understand the differences between self-directed learning and learner self-direction. They also believe that self-direction in learning provides an even stronger connection in understanding personal learning in a given context.

Self-direction in learning must be understood within a larger social context. Brockett and Hiemstra (1991) note that "learning activities cannot be divorced from the social context in which they occur" (Brockett & Hiemstra, 1991, p. 32). In other words, self-direction in learning does not take place in isolation. The PRO model of self-direction in learning is embedded within the social context. Learning can therefore be enhanced or distracted by the social environment. However, while the PRO model acknowledges the existence and importance of the social context, its application is limited within this model. Brockett and Hiemstra recognize that a criticism leveled against the concept of self-direction in learning is a continued emphasis on the individual learner. They recognize the limitations of the social context in the PRO model and acknowledge the work of author Candy (1991), for example, as having done further writing in this area. Individual learning is important but the social context is the "arena in which the activity of self-direction is played out" (Brockett & Hiemstra, 1991, p. 33).

One of the foundations upon which recent research in self-direction rests is the work of Lucy Guglielmino on self-directed learning readiness. Guglielmino (1977) sought to determine which characteristics were most important in highly self-directed learners. Through her doctoral dissertation, Guglielmino developed the Self-Directed Learning Readiness Scale (SDLRS). This scale is designed to assess individual readiness for self-directed learning. A current version of the instrument (SDLRS-A) was used within this project as an operational means to determine individual readiness for self-

direction in learning. Guglielmino's initial development of the SDLRS and subsequent research is discussed in Chapter II. Brockett and Hiemstra and Guglielmino have done extensive work in the area of self-direction in learning. Self-direction in learning is operationally defined with the SDLRS within this dissertation. Brockett and Hiemstra's PRO model was used to provide a theoretical understanding of self-direction in learning. The SDLRS as developed by Guglielmino provides a method to quantitatively measure self-directed learning readiness. This section will demonstrate how the two views of self-direction complement one another and provide a rationale for using the PRO model theoretically and the SDLRS operationally.

Conceptualizations. The conceptualization of self-direction in learning by Guglielmino and model by Brockett and Hiemstra have characteristics that are similar, though they are not the same. The models are complementary and further explain a way in which adults learn. There are three primary areas of similarity. The first area is a focus on the individual; both models place emphasis on the individual learner. In both Guglielmino's and Brockett and Hiemstra's models, individuals who are self-directed have a desire to learn. A second similarity between both models is the role of personal responsibility. Personal responsibility is the cornerstone for Brockett and Hiemstra's model and an important aspect for Guglielmino. Acceptance of personal responsibility became an element of her definition of a highly self-directed learner and an integral concept. The third similarity between the two models is that of the learning process. Guglielmino wrote that "setting of an appropriate pace" and "development of a plan " are characteristics of individuals who are highly self-directed. Brockett and Hiemstra's

model also describes the importance of planning and implementation of the learning process by the individual.

There are also some differences between the two models that are worth noting. For example, Guglielmino developed a set of characteristics of the highly self-directed learner from her original work. Some reflect personality characteristics such as initiative, independence and persistence, self-confidence, and curiosity. Others reflect aspects of the learning situation such as problem solving, seeing challenges rather than obstacles, and basic study skills and organization. These characteristics are not specified within the Brockett and Hiemstra PRO model. On the other hand, the Brockett and Hiemstra model suggests a unique characteristic: differentiation between instructional methods and psychological process. Though much has been written with regard to self-direction, the work has often lacked a differentiation of the multifaceted aspects of the construct. Brockett and Hiemstra's description of self-direction in learning is unique because they recognized the importance of differentiating between the learning transaction (self-directed learning) and the characteristics of the learner (learner self-direction). Though Guglielmino identified eight different characteristics in the SDLRS, she placed them together without semblance of integration. Brockett and Hiemstra viewed the instructional method and psychological process as each being important, they are discussed separately. They then integrated and linked them together to form a stronger concept of self-direction in learning.

The approaches to self-direction in learning used by both Guglielmino and Brockett and Hiemstra are important in this dissertation. Guglielmino's SDLRS was used to operationally define and measure self-directed learning readiness. Brockett and

Hiemstra's PRO model was used to conceptually define self-direction in learning.

Patients with asthma must often learn about the disease on their own. There are instances of teacher/learner interaction such as when the doctor gives the patient information.

However, patients are often on their own if they want to learn more in-depth knowledge about asthma. This means that individuals have to plan and organize their own learning.

An example of a learning project would be finding information and increasing one's knowledge of asthma. Through the acquisition of this knowledge by self-directed learning, an individual may be better able to cope with asthma.

Both Guglielmino's and Brockett and Hiemstra's models have merit.

Guglielmino developed a scale and definition of a highly self-directed learner. It will be shown later in this dissertation that her scale is a reliable and valid measure of self-directed learning. Brockett and Hiemstra developed a conceptual model of self-direction in learning that separates and takes into account both personality and learning situations and was utilized theoretically within this dissertation. Utilizing Guglielmino's scale and Brockett and Hiemstra's PRO model provides a better explanation for this project. Incorporating both will result and provide greater understanding of self-direction in learning for those with asthma.

Coping

The Lazarus and Folkman (1984) theory of coping provides a link between the interaction of the individual and their environment. Lazarus and Folkman's theory of coping is best explored by first gaining an understanding of their definition of "coping". Earlier in the dissertation, coping was defined as "the constantly changing cognitive and behavioral efforts to manage specific external or internal demands that are appraised as

taxing or exceeding the resources of the person" (Lazarus and Folkman, 1984, p. 141). They begin with the phrase, "the constantly changing..." which suggests that coping is considered a process (Lazarus & Folkman, 1984, p. 141). Change is an important aspect in the sequence of events involved with a process. Lazarus and Folkman do not view coping as trait specific; rather, a variety of ways to deal with an event exists in any situation. Taking the stance that coping is a process means that variety and subtle change influence the outcome of a situation. The word "constantly" is linked to "changing" to emphasize the transient nature of the circumstances and appraisal of a threat.

Next, "...cognitive and behavioral efforts..." emphasizes that coping is an action that requires effort and thought; it is not automatic or reflexive (Lazarus & Folkman, 1984, p. 141). Within the theory, cognitive processes emphasize coping as being purposeful. Lazarus and Folkman view coping as an evaluative process. A person judges a situation within the specific context of the event as it unfolds. The individual appraises a situation to determine meaning while the event is in progress. This is not simply a cognitive exercise within a person's mind, but one that encompasses interaction between the individual and the environment.

The phrase, "...to manage specific external or internal demands..." describes what must be done to alleviate an individual's perception of the threat (Lazarus & Folkman, 1984, p. 141). The purpose of coping is to alleviate or reduce the actual threat or perception of threat to the individual. Individuals need to distinguish between situations that are harmful and those that are benign. External demands are dynamic and relate to environmental conditions. Internal conditions are the thoughts and emotions that arise in a stressful moment of time.

Lazarus and Folkman continue, "...that are appraised as taxing or exceeding the resources of the person." This refers to the appraisal of a situation by an individual and what actions can be taken in that situation (Lazarus & Folkman, 1984, p. 141). The ongoing cognitive appraisal process allows an individual to determine whether they are in any kind of trouble now or in the perceived future. If threat is perceived, a determination is made whether anything can be done about it. Coping processes are enacted at this point, regardless of whether anything can be accomplished. In any situation, individuals have a number of resources to alleviate threat. Resources are determined and enlisted through cognitive appraisal. These resources are the main line of defense and influence coping mechanisms.

Lazarus and Folkman did not craft a diagram of their theory of coping. However, a graphic model of coping based upon the present researcher's interpretation of Lazarus and Folkman's (1984) theory of coping is presented in Figure 1.2 in order to facilitate an understanding of the theory.

According to Lazarus and Folkman, coping is an interaction between the individual and environment. Individuals determine whether a situation is threatening or not based upon their perception of the situation. If a threat is determined to exist, the person decides what can be done about it. If the situation can be managed based upon available resources, then problem- and emotion-focused coping is initiated. The available resources determine the extent to which each type of coping is utilized. Coping changes as the context of the threat develop or the meaning of threat changes to the person.

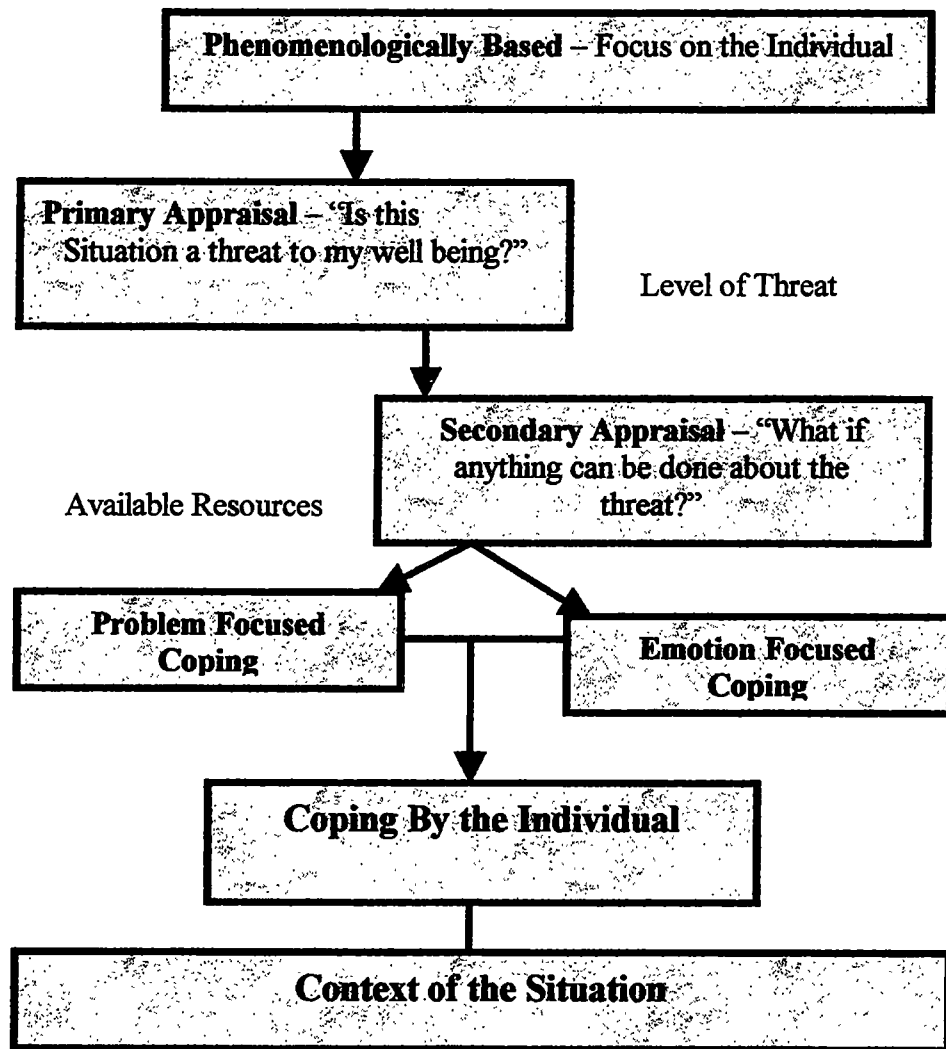


Figure 1.2 Lazarus and Folkman's (1984) Conception of Coping Adapted by the Primary Investigator.

Lazarus and Folkman's theory of coping is phenomenological. Thus, their theory is presented from the perspective of the individual and they write of the "subjective interpretation of the transaction" (Lazarus & Folkman, 1984, p. 46), in which the perspective of the individual is important for a full understanding of coping. Appraisal is seen as a personal, subjective, and circular process. To predict an individual's emotional response, the person's impression of the situation is needed. Though the objective environment may differ from the individual's interpretation, their appraisal of the situation is what is important.

Appraisal is separated into two components within the coping process: primary appraisal and secondary appraisal. Primary appraisal is an assessment to determine whether or not the particular situation is harmful to the individual. The primary appraisal takes into account the level of threat of perceived threat to the individual. Secondary appraisal then determines what, if anything can be done to relieve threat within a situation through an assessment of available resources. Both appraisal processes interact with one another and factor into the way an individual copes with stressful situations.

Once threat is appraised, coping is initiated. Lazarus and Folkman describe two forms of coping: problem-focused and emotion-focused coping. Problem-focused coping relates to an individual's control over the environment. This form of coping is situation specific and corresponds with environmental conditions. Problem-focused coping encompasses a person's actions within the environment to physically control a threatening situation. The focus, therefore, is upon the internal aspects of coping. Individual appraisal influences the coping process and how the person reacts emotionally.

In all cases, appraisal of any situation occurs prior to the initiation of coping (Lazarus & Folkman, 1984).

Coping results from an interaction between an individual and the environment. In any situation, "person and situation factors interdependently influence appraisal" (Lazarus & Folkman, 1984, p. 79). The person and their circumstances are thus intertwined. Because humans are meaning-oriented and meaning-building organisms, constant evaluation and construction of knowledge occurs. Evaluation is guided by what is relevant and important for the well-being of the person. Individuals take cues from the environment and evaluate the potential for harm or well-being. The derived meaning may change as greater information is attained. Thus, the appraisal at the conclusion of an interaction may differ from the initial appraisal. Shifts in appraisal are important to recognize for they often signal a change in context.

Linking Self-Direction In Learning and Coping

The purpose of this project is to determine the relationship between self-direction in learning and coping in adults with asthma. To live a full life, it is important for asthma sufferers to not only learn about the disease, but to also learn how to cope with the disease. This section, therefore, will explore the connection between Brockett and Hiemstra's model of self-direction in learning and Lazarus and Folkman's theory of coping. Linking Brockett and Hiemstra's model and the Lazarus and Folkman theory allows for a more holistic understanding of those with asthma. This in turn may have ramifications for a number of areas including patient education and management of asthma.

Figure 1.3 is a summary of the main components of self-direction in learning and coping. The most direct link between self-direction in learning and coping is their shared focus on the individual. Personal responsibility on the part of the individual is an underlying concept within Brockett and Hiemstra's model of self-direction in learning. Personal responsibility means individuals assume ownership for their own thought and actions (Brockett & Hiemstra, 1991). Within humanism, the individual is a central component to this theory. Humanism/existentialism also relates to the growth and potential of the individual. Individuals possess unlimited potential for their own growth. Self-direction in learning is not a feasible construct without the individual.

Lazarus and Folkman did not specifically address personal responsibility in their theory of coping. They did, however, write of factors that influence the appraisal process. Commitments and beliefs are two specific factors which affect appraisal and relate to personal responsibility. "Commitments express what is important to the person, what has meaning for him or her" (Lazarus & Folkman, 1984, p. 56). This phenomenological approach focuses on the subjective experiences of individuals. If a

<u>Self-Direction in Learning</u>	<u>Coping</u>
Personal Responsibility	Phenomenological Basis
Humanism/Existentialism	Changing Context
Self-Directed Learning	Appearance of Threat
Learner Self-Direction	Primary Appraisal
Social Context	Secondary Appraisal
	Available Resources
	Emotion Focused Coping
	Problem Focused Coping

Figure 1.3 Major concepts within Self-Direction in Learning and Coping

situation does not provide meaning to the individual, they may be less willing to take personal responsibility should threat or stress occur in that situation.

Other linkages between self-direction in learning and coping can be discovered through comparisons of the components of each. For example, a connection can be found between self-directed learning and problem-focused coping. Self-directed learning relates to the characteristics of the teaching-learning environment. Self-directed learning encompasses the scope of external components such as the physical location where learning takes place, or the resources utilized by the individual that comprise the learning experience. This is similar to problem-solving coping because the person is attempting to control their physical environment. Both self-directed learning and problem-focused coping thus relate to what lies outside the individual.

Another connection is between one component of self-direction in learning – learner self-direction – and two components of coping: the appraisal process and emotion-focused coping. Learner self-direction is internal – the personality preferences of the individual. These are the preferred ways of learning for the individual, which can vary from one person to another. This means, for example, that some individuals may prefer to learn alone while others learn best in a group situation. An individual may have variety of learning methods from which to choose and it is up to the individual to assess these choices based upon their individual preferences.

The appraisal process and emotion-focused coping also vary from one person to another. Both relate to the thoughts and emotions of the individual. The primary and secondary appraisals assess and determine what can be done about a given threat or presented situation. The personal preferences of learner self-direction, and the appraisal

process and emotion-focused coping reside within a person's individual thoughts and feelings. This demonstrates that within all aspects of coping and self-direction in learning, the focus is on the individual – what is thought, how a person acts, and the way a situation affects their emotions.

Context is also important for the model of self-direction in learning and theory of coping. Social context is one of the key factors for self-direction in learning. The social environment can either inhibit or promote learning at a variety of levels. This can occur within individual families, or it can be manifested in the attitudes and atmosphere of the community in which the individual resides. Context is also important in the theory of coping. The context of situations is dynamic and can change from one moment to the next. Evaluation and re-appraisal is on-going, based upon the individual and how they perceive the situation as it is presented and unfolds before them. Although the individual is the central focus for both self-direction in learning and coping, context is also important for the understanding of individual actions.

Finally, the creation of meaning is important to both self-direction in learning and coping. Creation of meaning is part of self-direction in learning through the development of an individual's potential. Every person must decide what is important or meaningful. For Brockett and Hiemstra this means "self-direction in learning can be seen as a means or vehicle, by which individuals can more fully realize their greatest potential as human beings" (Brockett & Hiemstra, 1991, p. 122). Self-direction in learning therefore, can help a person realize their fullest potential through and expression of what is meaningful to them.

The creation of meaning is also part of the appraisal process within the theory of coping. Here, meaning is constructed within both the primary and secondary appraisal. Lazarus and Folkman describe appraisal as a process that is “not merely a matter of cold analysis or attribution, but of sensing that one’s well-being is at stake” (Lazarus & Folkman, 1984, p. 272). Individuals decide what is meaningful to them and what they would do to maintain their status within a threatening situation. In the appraisal process, meaning is developed and clarified by the individual. Once meaning is determined, a plan of action can be initiated.

Self-direction in learning and coping can be linked because there are similarities in at least five different areas. The following links were discussed and are important to this study: 1) the individual is the focus of both constructs; 2) self-directed learning and problem focused coping are linked through external features; 3) learner self-direction, and the appraisal process and emotion-focused coping are linked through internal personality aspects; 4) both constructs recognize the importance of context; and 5) the creation of meaning by the individual is important to both. Even though the language and terms used are different in the self-direction in learning model by Brockett and Hiemstra and the theory of coping by Lazarus and Folkman, the underlying definitions provide the necessary information to link these two constructs. The similarities between them will facilitate the goal of this project to determine if there is a relationship between self-direction in learning and coping for adults with asthma.

It was previously discussed that operationally, self-direction in learning is measured through the use of Guglielmino’s Self-Directed Learning Readiness Scale (SDLRS). Coping is theoretically defined and operationally measured through the use of

the Ways of Coping Questionnaire. Both of these instruments will be discussed more fully in Chapters II and III.

Significance of the Study

The most significant aspect of this study will be the addition of information to the existing body of knowledge regarding adults with asthma. Though extensive work has been completed in the separate areas of self-direction and coping, information regarding the combination of both constructs has not been accomplished. In addition, no information exists in terms of self-direction in learning for the population of adults with asthma. This investigation will assist those interested in self-direction in learning with regard to an identified population. Concurrently, the current project will develop a greater understanding of adults with asthma.

Second, beyond adding to the existing database of knowledge, the ability to cope becomes paramount since there is not a cure for asthma. Coping plays a determining role regarding both anxiety and illness behavior outcomes for individuals (Maes & Schlosser, 1987). Though the broad perspective of coping has been studied, there are substantial gaps in the information concerning how individuals cope with potentially life threatening illnesses (Feifel, Strack & Nagy, 1993). There is confidence the current study will provide new information regarding coping with the disease of asthma.

Third, the present study can add not only to the field of adult education, but specifically to the area of patient management with regard to asthma. Good control of asthma symptoms is a realistic goal for those with asthma. This control not only comes

from medical management, but from self-management as well (Allen, Jones & Oldenburg, 1995). Educating patients with asthma not only facilitates self-management of the disease, but also may reduce the number of visits to the doctor and the number of hospitalizations (Lawrence, 1995).

Fourth, it is hoped the findings will contribute to a better understanding how the severity of an illness impacts the use of coping strategies. This could guide health care providers in facilitating patients to develop appropriate coping skills.

Fifth, the enhancement of the quality of life is an important and often overlooked aspect for all who struggle with a debilitating illness. The emphasis on coping is to empower those with asthma to better cope with the disease. Though the number of trips to the hospital or doctor may not decrease over time, better coping both during and between episodes is a worthwhile goal. This project may generate information that would have practical significance for those with asthma.

Self-direction in learning can provide the impetus for successful outcomes for both patient education and patient self-management. Often, choices by the patient are negated or taken away with respect to health care. Self-direction in learning could be utilized to empower adults that have asthma. Self-directed asthma patients would actively seek out information to enable them to make informed choices about their health care as patients.

Assumptions

The following are assumptions that underlie the conduct of this study and the interpretation of the results.

1. The persons involved in the study will participate on a purely voluntary basis and there will be no external motivators to coerce participation.
2. Those participating in the study will answer questions truthfully and to the best of their ability.
3. Lazarus and Folkman's Ways of Coping Questionnaire will measure coping and is a reliable and valid method to study coping strategies employed with chronic illness.
4. A person's readiness to be a self-directed learner is measurable. The SDLRS is a reliable and valid instrument designed to measure existing characteristics of self-direction.
5. The supervising physicians were able to provide an accurate diagnosis and determination of severity of asthma.

Delimitations

Delimitations are factors under the control of the researcher that are imposed by the researcher (Thomas & Nelson, 1990). Two delimitations for the study are as follows:

1. The investigator of this study administered all surveys.

2. An ex post facto correlational research design was utilized and the participants were surveyed on only one occasion.

Limitation

The limitation of the study is that because a cross sectional convenience sample was utilized, generalizations outside of this population cannot be made. Because of the design of the study, a random sample was not feasible.

Definition of Terms

Adult. Adults were defined operationally as individuals at least 18 years of age.

Asthma. Chronic airway obstruction that is usually but not always reversible (Dunhill, 1978; National Asthma Education Program, 1997).

Asthma attack. The precipitation of asthma. Also known as asthma flare or asthma episode.

Asthma severity. There are multiple ways to define asthma as well as the severity of asthma. In most guidelines, mild, moderate, and severe are often defined. Mild asthma generally has symptoms at least once per week but not every day and asthma episodes occur greater than 6-8 weeks. In moderate asthma, symptoms are present daily and asthma episodes occur less then every 6-8 weeks. Continuous symptoms are present in those with severe asthma and there are frequent asthma episodes despite treatment (Woolcock et al., 1989; Woolcock & Barnes, 1997).

Coping. Coping refers to the strategies that are used to deal with a threat (Lazarus, 1966). Operationally, coping was measured through the use of the Ways of Coping Questionnaire, (WAYS) as developed by Folkman & Lazarus (1988).

Emotion focused coping. Efforts by an individual to regulate the emotional distress created by the perception of threat to that individual (Cohen & Lazarus, 1979).

Learner self-direction. Personal characteristics that influence adults toward self-directed learning (Brockett & Hiemstra, 1991).

Primary appraisal. An evaluation of significance of an event to the well-being of an individual with regard to threat (Cohen & Lazarus, 1979).

Problem focused coping. Within the theory of coping, problem focused coping is the effort put forth by the individual to handle the threat and act upon the obstacles that are presented (Cohen & Lazarus, 1979).

Personal responsibility orientation (PRO) model. Model described by Brockett and Hiemstra (1991) to understand self-direction in learning. Personal responsibility is the cornerstone of the model along with learner self-direction and self-directed learning. All aspects of the model are embedded within the social context of the individual and not in isolation.

Readiness. Readiness in the context of the Self-Directed Learning Readiness Scale reflects a continuum and not a static conception. A person's "readiness" for self-direction reflects a point on the continuum and has the potential to change (Guglielmino, 1989).

Secondary appraisal. Evaluation of coping resources and options (Cohen & Lazarus, 1979).

Self-directed learning. Self-directed learning are the characteristics of the teacher-learning transaction (Brockett & Hiemstra, 1991).

Self-direction in learning. Developed by Brockett and Hiemstra (1991) to represent an umbrella concept that recognized both an external and internal process of learning.

Self-Directed Learning Readiness Scale (SDLRS). Self-direction in learning was measured through the use of the Self-Directed Learning Readiness Scale (SDLRS), as developed by Guglielmino (1977).

Additional definitions are found in Appendix A.

Outline of the Study

Chapter I introduces the problem and background of the study. There is a need for further information and research in the area of the management of asthma. Self-direction in learning and coping have not previously been studied in adults with asthma. Chapter II is a discussion of the relevant literature related to the project. Chapter III describes the methods used to carry out this undertaking. In Chapter IV, the results are presented. A demographic profile of the sample as well as the conclusions for each research question is offered. Chapter V concludes with a review of the project, discussion of the results, and recommendations for further research and future practice.

CHAPTER II

REVIEW OF THE LITERATURE

Asthma, as noted in the previous chapter, is not curable and it can occur without warning. The unpredictable and variable nature of the disease makes it difficult to cope, which increases stresses in the lives of those afflicted. More needs to be done to help those with asthma become better able to deal with the issues that surround this disease. Resources in this area are generally lacking and it takes people with asthma a long time to learn to cope with asthma effectively.

Learning is an area that holds promise with regard to coping with asthma. Self-directed learning is one particular method of learning used by adults in which the individual takes responsibility for planning, implementing, and follow-through of the learning experience. Coping has a component of responsibility similar to self-directed learning; it is the responsibility of the person with asthma to cope with a threatening situation. The individual who is threatened initiates the cognitive and behavioral efforts that are required to manage the demands placed upon the individual. The ultimate responsibility for both learning about asthma and coping with asthma, therefore, fall upon the person with the disease.

The extent of the relationship between self-directed learning and coping is not known. Self-directed learning and coping have not been studied in adults with asthma. It seems possible that there is a connection between self-directed learning and coping and this is the purpose of the present project. If such a connection exists between the constructs, it may make a difference in the lives of those afflicted. The purpose of

Chapter II is to present a review of the literature. It is not meant to be an exhaustive presentation, but one that provides relevant information on the three aspects of this project: self-directed learning, coping, and asthma.

Self-Directed Learning

Adult education is a broad construct formed from a variety of concepts and disciplines so that even defining the terms “adults” and “education” can be daunting. Therefore, developing a frame of understanding within adult education is complex (Apps, 1989). Self-directed learning, as a part of adult education, is also difficult to define. A recent Internet search for the phrase “self-directed learning” revealed over 8,000 entries. Many sites on the Internet regard self-directed learning as learning at one’s own pace, often in isolation. Definitions of self-directed learning have been overlapping, confusing, and imprecisely utilized (Oddi, 1987; Jarvis, 1992). Goss (1998) likened the development of terminology in self-directed learning to the equivalent of trying to herd cats: it cannot be done. Self-directed learning is an important concept within adult education, even though it has eluded a singular definition from both researchers and practitioners alike and has been seen by some as insubstantial within formal education (Gibbons et al., 1980).

Adults learn and develop new skills throughout life and have abounding opportunities to learn (Brookfield, 1983). Self-directed learning encompasses the entire spectrum of adult learning. It is recognized as one of the most natural methods through which to learn (Bligh, 1992). Self-directed learning is not a category of adult learning,

but rather, is a modality of learning utilized in many categories of adult learning (Apps, 1989). As an integral part of adult education, self-directed learning has been the object of increased interest within adult education. Since the 1970's, articles on self-directed learning have grown in the adult education literature (Schuttenberg & Tracy, 1987). A recent content analysis by Brockett, et al. (2000) yielded 122 articles on the topic within refereed journals of self-directed learning within a span of 19 years. The listing provided by Brockett, et al. (2000) does not include seminars, symposia, or public discussion and debate on self-directed learning. Despite immense growth and popularity, finding consensus on the definition of self-directed learning has been difficult.

Background and Definitions

Though self-directed learning occurs regularly, and is relevant to adult education, it is not a simple construct. The phrase "self-directed learning" has been coined relatively recently, but the concept has a much longer history. Dewey (1938) wrote of issues surrounding the education of children, but much of his work applied to adults learning throughout life. As a scholar who was highly influenced by Dewey, Eduard Lindeman (1926/1989) applied Dewey's work in education to adult learning. Both men added to the base of literature regarding adult education and set the stage for self-directed learning.

Recent scholars have added extensively to the database of knowledge on self-directed learning. Long (1991) suggests that the idea of self-directed learning and self-education can be found in the work of Sheats in 1957 who wrote of the "self-reliant and self-directing individual learner" as a means of attaining educational goals. Beyond Sheats, the historical antecedents to today's work in self-directed learning and adults can

be traced to Houle's (1961) work, The Inquiring Mind. Others include Johnstone and Rivera (1965), who documented the widespread participation in independent study, and Tough's (1971) effort to document learning projects. Following these efforts, Knowles (1970, 1975, and 1984) furthered the cause with his work in self-directed learning, concentrating on the differences in learning between adults and children. These scholars and others have helped fuel the self-directed learning fire that has burned brightly in the past 50 years.

Despite the development and interest in self-directed learning, difficulties, such as negative attitudes concerning the role of self-directed learning in formal education and confusing jargon, have emerged. Long (1996) writes of the difficulty to clearly communicate basic conceptions with regard to self-directed learning. Gerstner (1992) discussed the difficulty of adult educators' inability to come up with a concise and accepted definition of self-directed learning. Numerous individuals have provided definitions and conceptions of self-directed learning. A few are presented here.

Malcolm Knowles defines self-directed learning as the way individuals take initiative for learning and how well they see the educational process through to the end. The process entails diagnoses of needs, formulation of learning goals, identification of resources, implementation of appropriate strategies, and evaluation of the finished product. Learning can be accomplished on one's own or with the assistance of others (Knowles, 1975).

Knowles sought ways to assist individual learners to become more self-directed. He places emphasis on individual adult learners and believes self-directed learning is a better way to learn than methods directed by others. There is a vast conceptual and

psychological difference between self- and other-directed methods of learning. Self-directed learning is "more in tune with our natural process of psychological development" (Knowles, 1975, p.14). Though education of adults has been a concern, little investigation or writing has been done until recently (Knowles, 1986). It is important to Knowles to avoid basing assumptions on adult learning from what is known of children's ways of learning.

Philip Candy (1991) provides another lens through which to view self-direction. Candy suggests the emphasis is for individuals to reach their own understanding of the phrase "self-direction" and challenges those within the adult education field to do the same. Candy makes the distinction between self-direction as a goal and self-direction as a process. Self-direction as a goal describes an instructional method. Self-direction as a process indicates characteristics of the learner. The importance of recognizing self-direction as a process lies in the notion that self-direction is not an all or none concept. It is not whether self-direction exists, but the extent to which it exists within individuals (Candy, 1991).

Ralph Brockett and Roger Hiemstra (1991) provide a third way to define self-direction. Their definition was developed over time and reflection. Hiemstra's previous definition contained elements of a learning activity that was self-initiated and often carried out alone, while Brockett focused on individual responsibility for planning and carrying out a learning endeavor (Brockett & Hiemstra, 1991). Currently, Brockett and Hiemstra utilize the phrase "self-direction in learning" to expand the concept of self-direction and to facilitate development of the construct. From this vantage, self-direction in learning is seen as an "umbrella concept" (p. 24). Instead of moving away from the

concept of self-direction, their intention is to embrace it. Throughout their model, the attempt was made to utilize the depth and richness of the image of self-direction. Self-direction in learning according to Brockett and Hiemstra has two distinct, though related, dimensions.

1. "The first of these dimensions is a process in which a learner assumes primary responsibility for planning, implementing, and evaluating the learning process.
2. The second dimension, which we refer to as *learner self-direction* (italics not added), centers on a learner's desire or preference for assuming responsibility for learning" (Brockett & Hiemstra, 1991, p. 24).

The framework of this definition contains both external and internal characteristics of the learner. Their perspective assumes learners have a purpose and a determining factor in the learning process. They also work from the notion that all adults have an inherent capability to be self-directed and can facilitate their learning potential. Capability and potential are two themes that run through much of the literature regarding self-direction. These two themes are also at the root of philosophical discussions about self-direction.

Self-directed learning is seen as both a goal and a process (Long, 1991). An example of self-directed learning as a goal would be to emphasize self-directed learning as *the* goal of learning. The term "goal" refers to the development and strengthening of an individual's ability to be self-directed. Brookfield (1984) saw the importance of the individual setting and evaluating learning goals. Long suggested as an example that a person may be interested in improving their reading ability. The goal is thus the ability to read; yet, learning to read is still a process.

The process orientation appears to have the greatest utility for self-direction (Long, 1991). Many of the scholars view self-direction from a process point of view. Tough (1971, 1979), Candy (1991), and Brockett and Hiemstra (1991) envision the process of self-direction as one in which the learner assumes responsibility for themselves and controls their own learning. The process orientation takes the position that individuals are capable of directing their own learning. Not only are individuals capable of initiating their own learning, but there are also various levels of self-directedness that can change over time.

An underlying philosophy assists in the development of assumptions about self-directed learning. Merriam and Brockett (1997) present seven justifications for developing a philosophy. The relevancy for adult education and self-directed learning is that a philosophy provides the "why" in the why we do the things that we do. Merriam and Brockett discuss several perspectives relevant to adult education including liberal-progressive, behaviorist-humanist, and critical. All, in one form or another are applicable to self-directed learning. Volumes of work have been presented on these areas and are beyond the scope of the current project. However, the humanist perspective is highly germane to the current study because it is important in Brockett and Hiemstra's PRO model and is also emphasized within Guglielmino's SDLRS. A brief discussion of the humanistic philosophy follows.

Merriam and Brockett (1997) write that humanistic adult education draws heavily from the philosophy of humanism and emerged as a challenge to behaviorism and determinism in the early part of the 20th century. Known as the "third force," humanism provides one explanation for human behavior. Peck (1997) provides insight into the

humanistic perspective when he writes "it [learning] only means that we are capable of learning, changing, and growing throughout life" (p. 97). Learning, changing, and growth are part of the process of the humanistic philosophy. The broad base of humanism relates primarily to the dignity and autonomy of human beings. This perspective focuses upon the concepts of: (a) experiences of the person, (b) nature of humans, (c) freedom and autonomy, (d) individuality and potentiality, (e) self-concept, (f) self-actualization, (g) perception, and (h) responsibility (Elias & Merriam, 1980). Famous for his perspective on humanism was Carl Rogers. His theoretical conceptions of humanism have been important to both psychology and education. A central notion to Rogers' conception of humanistic philosophy was the idea that individuals are resourceful. He held the belief, in both his teaching and therapy, that individuals are equals and was staunchly opposed to the imposition of authority. Individuals are capable of self-direction without received wisdom from outside sources (Kramer, 1995). Rogers, as a therapist and modern philosopher, believed that individuals are meant to be free to be themselves, without constraint. The fully functioning and free individual experiences many beliefs and attitudes toward life. One who is fully functioning does not deny experiences but accepts them for what they mean to the individual at that moment of existence. Rogers has been primarily affiliated with psychotherapy, but his 1983 volume Freedom to Learn has strong links to education. Other adult education scholars directly involved with humanism include Knowles (1984, 1986), and Brockett and Hiemstra (1991).

Research on Self-Directed Learning

Earlier in this chapter, self-directed learning was discussed as a concept that has been around for some time. However, self-directed learning as a measured concept has only recently been extensively studied. Houle's (1961) work provided the groundwork for much of the research in self-directed learning (Brockett and Hiemstra, 1991). Houle's The Inquiring Mind has been read by scores of adult educators and Houle was a seminal contributor to self-directed learning. Houle, during 1960, interviewed 22 adult learning participants in Milwaukee, Wisconsin. Three learning themes developed from Houle's informal interviews with the adult learners. One group was called *goal-oriented* and these persons viewed education as a means to an end. Another group of *activity-oriented* learners participated in learning out of a desire to be a part of a group or for fellowship. *Learning-oriented* was the third category and for these learners "the fundamental purpose which lies back of all this activity is, quite simply, the desire to know" (Houle, 1961, p25). Two distinctions developed from those that were learning-oriented. First, most had been long aware of a preoccupation with learning. Second, learning-oriented individuals saw themselves not as continuing learners, but having fun. It is this group of learners that Tough later pursued and whom he initially referred to as "adult self-teachers" (Brockett and Hiemstra, 1991).

Brockett and Hiemstra (1991) indicate the researchable field of self-directed learning has a bright future. The reasoning behind this optimism lies in the efforts that have been made to bridge theory, research, and practice in self-direction. This has meant not only the development of new research, but has also meant continued application and theory building. New paradigms, research, and applications make the expanding concept

of self-direction difficult to neatly characterize or describe. Brockett and Hiemstra (1982 as cited in Brockett and Hiemstra, 1991) developed and presented a classification system based upon "three streams" of inquiry for self-directed learning: descriptive learning projects, measurement of self-directed learning, and qualitative studies. This model serves as an effective means to discuss research in self-direction. For the current research, primary emphasis will be placed on the learning project research and measurement of self-directed learning. The "first stream" of inquiry is the learning project research of Allen Tough

Learning Projects Research

Allen Tough, while a graduate student at the University of Chicago, was interested in what he called "adult self-teachers" and these individuals served as the basis for his doctoral dissertation (Brockett & Hiemstra, 1991). Tough's study focused on persons that participated in self-teaching projects. His doctoral research helped Tough to think in terms of what self-teaching meant to the whole range of learning experiences. This led Tough in 1970, along with several colleagues at the Ontario Institute for Studies in Education, to interview 66 adults to study learning efforts by these adults. Particular emphasis was placed on the planning and identification of the learning projects. Tough's study and research findings in the area of learning projects and his subsequent book The Adult's Learning Projects have been hailed as the most important research in adult education (Confessore & Confessore, 1992).

Tough (1971, 1979) defined a learning project "as a series of related episodes, adding up to at least seven hours. In each episode, more than half of the person's total motivation is to gain and retain certain fairly clear knowledge and skill, or to produce

some other lasting change in himself" (Tough, 1979, p. 7). An episode was thus defined as "a period of time devoted to a cluster or sequence of similar or related activities, which are not interrupted much by other activities" (Tough, 1979, p. 7). Each episode has a distinctive beginning and ending, and Tough stressed the importance of defining a learning project as having a minimum of seven hours of learning time contained within a six-month time frame. He wanted to omit such things as buying a new washing machine or assembling a model. Learning may occur in these activities, but they would be soon forgotten shortly after completion.

After defining the terms of his project, Tough and colleagues set out to interview 66 adults from a variety of professions and stations in life. His sample was drawn from the following:

1. Blue-collar workers.
2. Men in jobs at the lower end of the white-collar scale.
3. Women in jobs at the lower end of the white-collar scale.
4. Beginning elementary school teachers.
5. Municipal politicians
6. Social science professors.
7. Upper-middle class women with pre-school children.

Data were obtained using a highly structured interview process. Interviewers were trained on both interviewing techniques and on how to identify learning projects. The interviewers were thus able to go into detail with participants about the kinds of learning that occurred. They were also able to omit learning that was described, but that did not

fit the criteria. Additionally, they were able to assist the interviewees in identifying possible learning situations.

The interview process revealed that all but one of the 66 participants had completed at least one learning project within the pervious year. Participation in learning projects according to Tough's criteria was over 98 percent. The mean for the entire sample was 8.3 learning projects with a median of 8.0. The average length of time spent on a learning project was 104 hours and the median 81. Less than one percent (.7%) was done for university credit. In other words, individuals participated in learning projects because it was their choice.

The most important aspect of Tough's work in this area, with regard to self-directed learning, was to identify *who* is responsible for the planning of learning projects (Brockett and Hiemstra, 1991). From his work, it was discovered that 68 percent of the planning for the project was done by the learners themselves. The remainder was divided into the following categories: group leader -- 12 percent, one-to-one situation -- 8 percent, non-human resource -- 3 percent of the time. For the remaining 9% a planner could not be identified. Tough's work was important to the adult education field because he was able to quantify self-directed learning and open the doors for future research in this area.

Following Tough, a number of researchers replicated his work and found similar results. Peters and Gordon (1974) (as cited by Tough, 1979, Brockett and Hiemstra, 1991) interviewed 466 adults in Knoxville, Tennessee and the surrounding rural area and found that 91 percent had completed at least one learning project in the previous year. Penland (1977) (as cited by Tough 1979) reported in a nation-wide study that 79 percent

of adults participated in learning projects. Tough (1979) indicated that some of these data represented efforts less than seven hours in length. Even eliminating these efforts produced results close to Tough's figures of 70 percent participation.

What Tough's original data and follow-up studies provide is a clearer picture of self-planned learning. Tough, near the end of The Adult's Learning Projects volume provides the image of an iceberg to equate to adult's learning efforts. In viewing an iceberg, only 20 percent of the iceberg is visible above water. This 20 percent represents learning that is planned by professionally guided learning. If 20 percent of the iceberg is visible, it means that 80 percent is not seen by the eye. The same is true for learning. Only a small percentage of learning is "seen" through courses, classes, workshops. The rest, primarily self-planned activities, goes unseen, and often unrecognized as it occurs. Tough's work provides a boost to the field of adult education and self-direction and proceeds to open up other areas to research. The next section will briefly discuss the second "stream," the area of qualitative research on self-directed learning.

Qualitative Research

Brockett and Hiemstra (1991) write that qualitative approaches to understand self-directed learning have been the most recent stream of inquiry to evolve and have much to add to the understanding of self-directed learning. They write that understanding the context and meanings that learners and educators attach to self-direction in learning can further add to the base of knowledge about self-direction in learning. Qualitative approaches to the study of self-direction exist and provide insight into the rich context that make up the lives of adult learners. This insight helps researchers develop new theories about learning and of adult learners regardless of the method studied. Bedard

(1996) wrote of the importance of self-directed learning but warned of only using instruments to measure the construct. He said that it is easy to forget that each measurement represents a real person. Qualitative research helps those interested understand the phenomenon through the eyes of the individual. Numerous studies have been completed in this area and a few will be highlighted to assist in building a case for the utilization of self-direction in learning as a viable process of learning for adults.

Beach (1974) found that self-directed college students without a group leader were able to solve problems, make decisions, and affect personal growth. An important feature of her research was the finding that the self-directed method was viable and she believed that learning did not decrease but may result in a higher quality education for adults. Gibbons and colleagues (1980) studied the lives of twenty "famous" individuals who were self-educated to gain insight into the ways they lived and learned. From this reading, they then developed a list of the 20 most prominent characteristics of the learners and from this list developed conclusions about the differences between self-directed learning and formal school. They came up with five assumptions regarding the self-schooled and then developed a set of principles that could pertain to those that are self-schooled. Other qualitative studies include Spear and Mocker (1984) who identified the organizing circumstances to pre-plan activities, Smith (1990) [as quoted in Brockett and Hiemstra, 1991] on librarians and self-directed learners, and Hrimech and Bouchard (1998) who described the quality of work within the work setting. The focus of the current study lends itself to the quantitative study of self-directed learning. The focus will thus be on the measurement of self-directed learning, which provides the "third stream" of inquiry in the self-directed learning research.

Quantitative Research

The remaining section on self-directed learning will be spent discussing quantitative aspects of self-direction. Focus will be placed upon the importance of this type of research. In addition, measurements of self-directedness will be discussed including the SDLRS. Relevant studies toward the development of the instrument will also be discussed including those related to health care concerns. Finally, limitations will be analyzed and presented. This will thus serve as a backdrop for continuation of this discussion as it relates to the present study.

Tough's adult's learning projects research provided quantitative support for recognizing that adults planned and participated in learning projects. His work in this area provided the foundation for other areas of investigation. Brockett and Hiemstra (1991) wrote that Tough's work and concept of the iceberg were only the tip of the iceberg itself. In other words, self-direction was to be greater than only describing the nature and frequency of self-planned events. Several questions remained following Tough's work on learning projects and the replication studies that built on his research. Studies moved on to focus on questions about self-directed learning and personological variables such as self-concept and creativity, and how they may influence self-directed learning. It was also not known how self-directed learning could affect the teaching-learning process (Brockett and Hiemstra, 1991). These questions and others occurred since the completion of Tough's work and began to find answers following the development of Lucy Guglielmino's Self-Directed Learning Readiness Scale along with other instruments to quantitatively measure self-directed learning.

Shortly after the completion of Tough's work, one of the first ways to further the study of self-directed learning was through the development of Guglielmino's Self-Directed Learning Readiness Scale (SDLRS), developed during her doctoral studies. A few years later, the Oddi Continuing Learning Inventory (OCLI) was developed (Brockett and Hiemstra, 1991). Together, these two instruments were used in the bulk of the efforts put toward quantitative measurement of self-directed learning. Since the SDLRS was the instrument used in the present study, emphasis will be placed on a discussion of this instrument, its utilization, and concerns about its use.

Guglielmino (1977) developed the SDLRS for her doctoral dissertation. The purpose of the work she attempted was "to obtain consensus from a panel of experts on the most important personality characteristics of highly self-directed learners, and to develop an instrument for assessing an individual's readiness for self-direction in learning" (Guglielmino, 1977, pp. 3-4). At the time of the development of her instrument, she felt there was a paucity of quantitative research in this area. The development of such an instrument would be useful to determine individual strengths and weaknesses with regard to self-direction in learning.

Guglielmino assembled a panel of 14 experts in the area of self-directed learning. The panel used a modified Delphi technique with a three round survey to obtain the consensus she sought. According to Dalkey and Helmer (as cited in Guglielmino, 1977), the Delphi technique was developed in the 1950's to obtain consensus from a group of experts in areas where exact knowledge is unavailable. The panels of experts-- which included individuals such as Cyril Houle, Malcolm Knowles, and Allen Tough--were each asked to name and rate characteristics that were important to self-directed learning

including abilities, attitudes, and characteristics. Guglielmino surveyed her experts by mail and obtained her data with three rounds. Round one presented the panel with open-ended questions concerned with the problem. Round two included a summary of previous responses and directed the experts to make additional changes or additions. Round three included further revisions and a summary of the distributions of responses from the second survey. The characteristics that had a median rating of "desirable" or better from the surveys were utilized in the original format of the SDLRS. After the three rounds, the experts were then asked to rank items again. The final communication included the list of responses, an adjusted summary and reasons for opinions not in the majority. At the conclusion, respondents could again make revisions.

During the initial pilot study, a 41-item instrument was administered to 307 persons. The categories used at that time were high school juniors and seniors (N=95), college undergraduates enrolled in daytime classes, and persons enrolled in noncredit enrichment classes held in the evenings (N=212 for all day time and evening classes). Item and factor analysis was utilized to determine the items and provide an estimate for the parameters of the test. Seventeen items were added after the initial field test bringing the scale to its current level of 58 items (Guglielmino, 1989). A reliability coefficient of .87 was estimated for the instrument. Factor analysis revealed eight factors that were present in the sample with regard to self-directed learning which included (1) love of learning, (2) self-concept as an effective, independent learner, (3) tolerance of risk, ambiguity, and complexity in learning, (4) view of learning as a lifelong, beneficial process, (5) initiative in learning, (6) creativity, (7) self-understanding, and (8)

acceptance of responsibility for one's own learning. From the analysis of the data, Guglielmino believed the SDLRS was a reliable instrument.

Guglielmino utilized her data to develop the following definition of highly self-directed learners.

A highly self-directed learner, based on the survey results, is one who exhibits initiative, independence, and persistence in learning; one who accepts responsibility for his or her own learning and view problems as challenges, not obstacles; one who is capable of self-discipline and has a high degree of curiosity; one who has a strong desire to learn or change and is self-confident; one who is able to use basic study skills; organize his or her time and set an appropriate pace for learning, and to develop a plan for completing work; one who enjoys learning and has a tendency to be goal oriented.

From the definition and development of the SDLRS, Guglielmino initiated a new era of research in self-directed learning. The work is still being refined, but her contributions have furthered the area of self-directed learning and adult-education.

SDLRS studies. The creation of the SDLRS touched off a long succession of quantitative research into the area of self-directed learning readiness. One of the early studies to utilize the SDLRS was by Torrance and Mourad (1978) and it provided early support and validity for the use of the instrument. Forty-one graduate students were given the SDLRS and other measurement instruments. Significant positive correlations were found between the SDLRS and three measures of originality; development of analogies; creative personality and achievement; and right brained thinking. A significant negative correlation was determined between the SDLRS and left brained cognitions.

Torrance and Mourad determined the existence of a link between self-directed readiness and creativity. Mourad (1979) examined the validity of the SDLRS with creativity measures to gifted elementary, junior, and senior high school students and college faculty. Mourad found that among the gifted students, significant relationships were found between teacher ratings and seven of eight factors on the SDLRS, along with differences between grade levels and for males and females. Sabbaghian (1980) used the SDLRS and a scale to measure self-concept with adult undergraduates. She found significant positive relationships between the SDLRS and self-concept, self-image, and years of formal education on several of the eight scales of the SDLRS. These early studies and others provided a basis for future research studies in the area of self-directed learning.

Studies using the SDLRS developed over time, linking self-directedness to psychosocial factors. Brockett's dissertation (1983) linked the SDLRS to perceived life satisfaction in older adults. He found a weak but significant positive relationship between the two variables. Further support for the link between life satisfaction and the SDLRS was accomplished through the work of East (1987) (as cited in Brockett and Hiemstra, 1991) in working with elderly individuals in a Florida retirement center. Leeb (1983) found a significant relationship between the SDLRS and adults who practiced a health encouraging lifestyle. Studies conducted by Long and Agyekum (1983, 1984) provided further support for the SDLRS with regard to black and white college students and faculty ratings. Delahaye and Smith (1995) compared a version of the SDLRS to another measurement of student preferences for learning and found them to be similar in their measurement of self-directedness. They also found a reliability coefficient that was

initially lower than Guglielmino's except when controlling for those students less than 20 years of age. When those students were taken out of the sample, the reliability went up from .67 to .72. Crook (1985) discovered a weak, though significant, relationship between the SDLRS and for both peer nominations and classroom grades for first year nursing students. The SDLRS has been used extensively within the realm of education for students of all ages.

Through the years since Tough's initial work and Guglielmino's development of the SDLRS, a large volume of work has been developed. So much research has been conducted, in fact, that it has been difficult to track. In 1988, for her doctoral dissertation, McCune provided a meta-analysis of the work accomplished to that date with regard to self-direction and adult learning. She identified 103 studies and 67 were included in the data analysis. From her findings, McCune synthesized the variables associated with self-direction in learning. These included: (a) degree of self-directed learning activity; (B) positive self-concept; (c) educational attainment level; (d) self-development; (e) autonomy; (f) ability to master the environment in work, school, play, or social relations; and (g) factors related to longevity on the job. This study has been deemed important as it provides further confirmation across studies of relationships and broadens the spectrum of knowledge regarding self-direction in learning (Brockett and Hiemstra, 1991).

Health related studies. A number of studies have utilized the SDLRS in their framework to study health related issues. Leeb (1983) was discussed in the previous section with regard to the relationship between the SDLRS and health encouraging behaviors. Others have followed with studies of health care professionals and self-

directed learning. Sedore (1988) studied self-directedness of patients following a myocardial infarction (MI)(heart attack) and 70 percent of her sample engaged in self-directed learning during their rehabilitation. However, Sedore found self-directed learning readiness unrelated to self-care at the onset of illness. Scores on the SDLRS were not significantly different from healthy adults, which held true after four and eight months following the first MI. On a positive health note, Lacey (1988) utilized the SDLRS with pregnant women and established that women during pregnancy do possess high ability for self-directed learning with the peak occurring in the second trimester. In a study of wellness (Owen, 1996) utilized the SDLRS and found a significant positive relationship between self-directed learning and wellness among students at the University of Tennessee. Other recent health care studies with the SDLRS have included Frisby (1991) with regard to medical students, Tober (1996) with obesity and (Barnes, 1998) with nursing students and a positive relationship with curiosity.

Issues and limitations of the SDLRS. Despite the usage and depth of the studies that have utilized the SDLRS, a number of issues have arisen with regard to limitations, concerns, and even the use of the scale. One of the earlier researchers to point out limitations was Brockett (1983, 1985, 1985a) in his use of the SDLRS with an older adult population. Brockett found that many of the participants in his study grew frustrated with the wording of the SDLRS and chose to have it read to them instead of filling it out for themselves. Brockett also found that 12 of 58 individual items of the SDLRS did not correlate with the total scale. In addition, he found two other issues with the scale. First, a number of the items on the scale are scored in reverse and the statements contain double negatives. Second, the response choices were deemed rather long and confusing.

Brockett suggested that part of the problem may have arisen from the educational attainment of the participants and may thus be inappropriate for some populations.

Field (1989, 1990) suggested serious flaws existed with the SDLRS and its use should be discontinued. Field wrote that "the available evidence suggest that this construct is not readiness for self-directed learning but does appear to be related to love and enthusiasm for learning. This tentative interpretation does not imply any support whatsoever for continued use of the SDLRS" (Field, 1989, p. 138). The crux of his argument against the SDLRS was the following: (a) The use of the Delphi technique to gain consensus, (b) definitions of the terms "readiness" and "self-directed learner", the use of negatively phrased items, and (d) the incorporation of items post validation.

Responses to Field's issues were forthcoming by scholars knowledgeable in the area of self-direction (Guglielmino, 1989; Long, 1989; and McCune, 1989). Each critiqued Field's work and provided justification to disregard his claims. Guglielmino, as the author of the SDLRS indicated that while she welcomed critical analysis of the SLDRS, such an analysis should be well-grounded and not haphazard. This critique of Field's work was echoed in the writings of both Long and McCune.

Bonham (1991) raised a point with regard to the total score on the SDLRS. Her concerns came after reading the dialogue between Field and others. Specifically, she raised issue with regard to the SDLRS and low scores. Bonham wondered if low scores were really an indication of low readiness for self-direction. Her rationale was based upon high scores on the SDLRS. If high scores indicate an affinity for self-directed readiness, do low scores indicate the opposite? Two possibilities existed. First, individuals with low SDLRS scores would prefer being other directed. That is, this type

of learner would rather have someone plan and schedule learning activities. The second possibility is that low scores could indicate the avoidance of all learning, either self-directed or other directed. Though not a condemnation of the SDLRS, Bonham's writing does bring up a range of questions that arise when attempting to capture the essence of a construct such as self-directed learning readiness.

Conclusions. Though the SDLRS has been shown to be a useful instrument, it has also been shown to have problematic areas. It is important to note that problems will arise in the use of any quantitative measure of construct. However, for the use of this project on studying self-direction in adults with asthma, it is the belief of the researcher that measuring self-directed learning readiness is appropriate. Guglielmino developed a means to measure self-directed readiness following the work of Tough. The SDLRS has been used to measure self-directed readiness with a wide variety of individuals and in numerous settings, including those associated with health care and wellness. The SDLRS has been shown to be a reliable and valid instrument despite shortcomings. Research studies utilizing the SDLRS have shown that multiple variables associated with self-direction exist. Many of these variables exist in adults with asthma but self-directed readiness has not been studied in this group to date. The current study will use the SDLRS to determine the extent of the relationship between self-directed readiness and coping in adults with asthma. Finally, the present study provides overlap among many disciplines (adult education, health, and psychology) to broaden the base of knowledge. This may eventually lead to future research and a better life for those with breathing difficulties. At this time, it is beneficial to broaden the current base of knowledge by highlighting information on the area of coping.

Coping

Forty million people in the US are affected by distressing chronic disabilities in which asthma is ranked ninth (Henderson & Bryan, 1997). The cause of eight of ten deaths is due to chronic illness (Burish & Bradley, 1983). On the surface, those with asthma appear normal; by outward appearances there does not seem to be anything wrong with them. However, during an attack, those with asthma think they are going to die (Reichman, 1977). Individuals who have asthma have to cope with both physical and emotional aspects of the disease. Coping could be a key component in managing asthma. Zeidner & Endler (1996) wrote that "coping processes may moderate the effects of stress on both psychological and physical well-being (Zeidner & Endler, 1996, p. xv).

Individuals cope on a regular, if not daily, basis and coping has become a part of western culture. Coping is cited in both popular and professional literature and is also a part of everyday language. Coping is varied, and as it exists, can have similar constructs and associations (Heppner, Cook, Wright & Johnson, 1995). How coping is defined depends on the group or individual. To the layperson, coping is synonymous with stress reduction or stress management. Coping means something different to researchers. To researchers, coping is often thought of in terms of adaptation, environmental features, or use of resources (Carpenter, 1992). Pearlin and Schooler (1978) developed perspectives of coping that are applicable to both researchers and those in difficult situations: (a) Coping can be thought of as activities used to avoid being harmed by the strains of life, (b) At the heart of coping is the view that individuals are active and responsive to stress,

and (c) The greater the scope of coping, the greater the protection coping affords the individual. To sum, coping is an active process that requires practice for improvement.

Since coping is part of everyday language, meaning can become lost or misconstrued. It is important therefore, to define and contextualize a meaning of the word "cope." The research view is of interest to this dissertation. In terms of application, successful coping equates to the resolution of a difficult situation. Within the context of research, however, resolution is not the goal of coping. The goal of coping is to determine what an individual actually does during a stressful situation, not whether or not they were successful (Lazarus and Folkman, 1984). Despite not having a goal of successful resolution, it would be a mistake to forget about the application of coping. Weisman wrote, "Cope as if your life depended on it, because it does (Weisman, 1984, p. 139). Coping behavior is responsive to encountered stress and success depends on how individuals handle life stressors (Felton, Revenson & Hinrichsen, 1984). The purpose of this review is to better understand coping from a research standpoint.

Background and Definitions

Background. An important book in the area of coping was Richard Lazarus' (1966) volume Psychological Stress and the Coping Process. His views at the time led to a cognitive revolution with regard to coping literature (Zeidner & Endler, 1996). Prior to the 1966 edition, there had been little interest in coping by the psychological community. Since then, there has been increased interest in coping and the first edited psychological volume dedicated to coping was published in 1974 (Lazarus, 1998). Through additional work by Lazarus, and then with Susan Folkman, they developed and published Stress, Appraisal, and Coping (1984). From this work arose their theory of coping, which has

become one of the best-known and widely utilized models of coping (Carpenter, 1992; Maes et al., 1996). The Lazarus and Folkman theory of coping was introduced in Chapter I. The current section will expand upon the theory.

Richard Lazarus (1998) wrote in his autobiography that his research and findings have been replicated numerous times. Lazarus, from the perspective of a career spanning more than 50 years in psychology, developed a list of the five most important findings of his career. He felt that his most important finding was that within a stressful encounter, individuals use all, or most of, eight coping strategies. This notion was the result of the 1980 work on coping he co-researched with Folkman. Folkman and Lazarus (1980) critiqued the attention that has been given to coping with day-to-day events despite knowledge of the mediating effect of coping on stress. Despite the interest in coping, little was known about the role coping plays in those with stress. Folkman and Lazarus wrote that besides the work of Pearlin and Schooler (1978), measures to assess coping "have been inadequate or inappropriate for this latter task" (Folkman and Lazarus, 1980, p. 219). Prior to 1980, coping had focused on three conceptualizations: (a) Coping conceptualized as ego process. Most early theories of coping pertained to psychoanalytic theory (Lazarus, 1998); (b) Coping conceptualized as the possession of traits. The approach to coping dictates that coping does not change over time or across situations (Folkman and Lazarus, 1980); (c) Coping conceptualized in terms of special demands such as natural disasters, wars, or bereavement. The third form of coping which addresses special demands, groups coping into functional categories.

According to Folkman and Lazarus (1980), viewing coping as an ego process results in organizing coping on a hierarchical scale from more primitive to more

sophisticated coping mechanisms. The purpose of coping, according to this view, is to reduce tension. Coping is thus placed into the realm of dealing with outcomes. Folkman and Lazarus indicate that treating coping in this manner, focuses attention on the reduction of inner tension and does not serve to solve the problem. They believe any comprehensive definition of coping needs to include the regulation of emotion *and* the ability to solve problems.

Coping has also been viewed as the possession of traits. This point of view dictates that coping traits are stable and the way an individual deals with threat remains the same (Lazarus, 1998). Viewing coping as a series of traits implies that individuals are consistent across situations (Folkman and Lazarus, 1980). Despite a prevalent attitude that coping can be theorized as a consistent trait, this has never been addressed systematically and has been assumed in research. Coping according to Folkman and Lazarus is a shifting process that changes over the course of a threatening situation (Folkman and Lazarus, 1980).

The third prevalent view of coping is seen as a way to describe how individuals cope in specific situations. Coping is thus grouped into functional categories. For example, coping strategies can be utilized to restore relationships, seek information, or help one to feel better. Folkman and Lazarus wrote that most of the studies completed from this point of view are unusual situations such as war, or natural disaster. Since these situations occur in life, they are important to study. However, coping as such would not be generalizable, and only applicable to specific instances.

Folkman and Lazarus (1980) wrote that Pearlin and Schooler's (1978) study has merit. Pearlin and Schooler focused on ordinary stresses and wrote from the stance that

individuals are interested in avoiding being harmed by life constraints. Pearlin and Schooler conducted unstructured interviews with over 100 individuals to identify themes that emerged regarding coping with life-strain. Eleven factors emerged from the data: three in marriage, three in the parental area, one in household economics, and four in occupation. Folkman and Lazarus agreed with the structure of the study but believed there were two limitations. First, Pearlin and Schooler asked how the respondents *usually* coped with *general* sources of stress. They believed that this type of inquiry would lead to abstract qualities rather than specifics of what the individual did to cope. The second pertains to persistent life strains, which in effect cannot be solved. If the strains in life were not solvable, that would leave out a great many situations where the person was able to overcome and solve the presented problem (Folkman and Lazarus, 1980).

In their 1980 research, Folkman and Lazarus utilized the 68 item Ways of Coping Checklist that had been in development since 1976, with a sample of 100 female and male respondents who participated in a 12-month study of stress, coping and emotions. What they discovered fueled future research using the Ways of Coping Questionnaire that developed from the Ways of Coping Checklist. From the initial sample, it was seen that 98 percent of the respondents used both problem focused and emotion focused coping when dealing with situations. This information was one key to future research utilizing the dual functions of coping. It also gave strong support to Folkman and Lazarus' belief that conceptualizing coping as either a defensive process *or* problem-solving process was inadequate.

Definitions. As previously presented, Lazarus and Folkman (1984) defined coping as “the constantly changing cognitive and behavioral efforts to manage specific external or internal demands that are appraised as taxing or exceeding the resources of the person (Lazarus and Folkman, 1984, p. 141). Coping is a transactional or two-way process where the individual appraises stimuli as harmful and attempts to reduce or eliminate the anticipated threat for which effort is required (Lazarus, 1966; Folkman, Lazarus, Gruen & DeLongis, 1986). In the structure of this theory of coping, a perception of threat is made by the individual, which in turn activates the person. Activation by the individual is broken into problem-focused and emotion-focused coping. Problem-focused coping is directed at managing or physically altering the situation. Emotion-focused coping is directed at the emotional components of the problem (Heppner et al., 1995). Despite the activation of coping, the person may not be able to change the conditions of the threat.

In some situations, regardless of what an individual does, the threat is not alleviated. Emotion-focused coping is primarily used in situations when it has been decided that nothing can be done to lessen the threat. This is the main difference between emotion-focused and problem-focused coping. With problem-focused coping, the individual ascertains the situation may be amenable to change. In both forms of coping, the person appraises what is at stake for them within the particular context. Lazarus and Folkman (1984) note that emotion-focused coping benefits an individual through maintenance of hope and optimism.

A primary feature of Lazarus and Folkman’s (1984) theory of coping is that coping is viewed as a process. An individual evaluates and acts within a given situation.

The landscape of the situation changes, and thus the emphasis on the coping process is played out within each context. Coping is not automatic but is a purposeful exertion of effort and management within any given situation. From the definition and conception of coping, there are three important features to consider:

1. The process of coping is concerned with what the individual actually does; what they might have done or should have done are different;
2. What the individual does and how they react needs to be examined within a specific context. The narrower the context of a situation, the easier it becomes to link a particular method of coping to the demands of the context;
3. Coping addresses the demands of a situation as a process of change. It is the conception of a shifting process that makes it difficult to see how coping can be thought of as a static measure or personality disposition.

The dynamics of coping are not random. In order to make sense of situations as they occur, continuous appraisal and reappraisal are required. The reappraisal of situations suggests that efforts to cope are variable rather than stable (Folkman et al., 1986). Any change of a situation results in another evaluation or re-evaluation by the person. In addition, the resources of the individual play a role in the scope of coping.

According to Folkman (1992), an evaluation of coping that is both relevant and valid requires an understanding of the orientation in order to be fulfilled. Aspects of the present theory of coping need to be viewed together. Coping is a complex process and though the current theory incorporates problem solving and emotions, it is by no means perfect and without methodological issues (Lazarus, 1990). The Lazarus and Folkman

theory of coping provides an orientation and means of measurement within the context of the present study.

Research on Stress and Coping

The concept of stress is not new. A great deal of research has emerged in the latter part of the 20th century on the psychological issues of stress (Holroyd & Lazarus, 1982). Earlier in this century, understanding coping and adaptive behaviors were based upon extreme conditions that included combat, concentration camps and traumatic injury. Conceptualizing issues of coping on extreme conditions allowed researchers of that time to formulate general principles about stress.

Stress is often viewed and defined as either stimulus or response (Lazarus and Folkman, 1984). The stimulus-response view encompassed the earlier notion of the consideration of the environment during combat. The stimulus view also encompasses such things as illness, noxious conditions, or natural disasters. Response issues on the other hand pertain more to the biology of the person rather than the situation and refer to the state of stress or how an individual reacts to stress. Both of these approaches have limited usage because a stimulus is defined as stressful only with regard to the response that is facilitated (Lazarus and Folkman, 1984). Utilized by Lazarus and Folkman is the notion that stress is not either the person *or* the environment, but the *relationship* between the person and the environment. The remainder of this section will focus on research that utilizes the interaction and appraisal of the individual and the environment.

Ways of Coping Questionnaire

As discussed earlier in this section, stress has been a part of the vernacular of psychology for a long time. Coping, though it is a more recent construct, has also been discussed from a variety of vantages. Lazarus has been a pioneer in the area of coping research and much came after his 1966 volume Psychological Stress and the Coping Process. Pearlin and Schooler's study (1978) provided an improvement with regard to the study of daily stressors through the measurement of coping and the use of an adjective checklist. The presentation of the 1980 Ways of Coping Checklist and then the 1984 and 1988 current version of the Ways of Coping Questionnaire provided an improvement from previous coping measures (Stone, Kennedy-Moore, Newman, Greenberg & Neal, 1992).

The development of the Ways of Coping Questionnaire occurred during 1976-77 as a group effort with the Stress and Coping Project at the University of California, Berkley. The first version of the instrument contained 68 items and was used to portray a variety of behaviors and cognitions that a person would use when faced with a stressful situation (Tennen & Herzberger, 1984). Items contained in the checklist were gained from the areas of defensive and problem solving domains (Folkman and Lazarus, 1988). Folkman and Lazarus (1980) determined the vast majority of individuals used both problem-focused and emotion-focused coping, but other findings came from this study including the recognition that context mattered in terms of coping. Work contexts tended to favor problem-focused coping and emotion-focused coping were more often found in health related issues. In other words, instances where something could be done equated to problem-focused coping and when nothing could be done, emotion-focused coping

was used. Data gained from the 1980 study served as a basis for determining the two types of coping that occurred. Folkman and Lazarus realized the limitations of classifying coping as either "problem-focused" or "emotion-focused." Primarily, classification of coping as either problem-focused or emotion-focused did not reflect or differentiate the types of coping that were occurring.

Coyne, Aldwin, and Lazarus (1981) factor analyzed the original data from community residents aged 45 to 64 on how they coped with daily living. The factor analysis of the responses from the 100 residents yielded seven factors with a mean coefficient alpha of .84 and the final scales included: "Problem-Focused Coping" (15 items, alpha=.89), "Wishful Thinking" (19 items, alpha=.91), "Help-Seeking/Avoidance" (12 items, alpha=.83), "Growth" (7 items, alpha=.90), "Minimizes Threat" (8 items, alpha=.90), "Emotional Support" (3 items, alpha=.79), and "Blames Self" (3 items, alpha=.77). Folkman and Lazarus (1988) indicated that additional revisions and factoring yielded clearer coping scales and thus the earlier version was retired.

Available responses to the items on the Ways of Coping Checklist are "yes" or "no" with regard to whether or not the individual used the coping strategy. The revised version was shortened to the current length of 66 items and deemed a "questionnaire" rather than a checklist. Folkman and Lazarus (1988) declared "the Questionnaire is conceived as an evolving strategy for measurement rather than, strictly speaking, a test" (Folkman and Lazarus, 1988, p. 5). Items from the old scale that were redundant or unclear were deleted or changed and other responses added (e.g. prayer). The yes or no format was changed to a four-point Likert scale to indicate the amount individuals used each strategy. Items were factor analyzed using two sets of data. The WAYS was first

reported and factor analyzed using college students coping with an examination (Folkman and Lazarus, 1985). The second set came from married couples and how they coped with events of daily life (Folkman, Lazarus, Dunkel-Schetter, DeLongis, and Gruen, 1986). The current eight factors of the WAYS emerged from this set of data.

The current version of the eight coping factors from the WAYS was developed from a sample of 75 middle-class couples (total N=150) living in California with at least one child living at home. The age of the women was set between of 34-45 and no criteria were set for the men though they ended up between the ages of 26 -54. Couples were interviewed once a month for six months. Each interview consisted of describing the most stressful occurrence in the previous month and then filling out the Ways of Coping Questionnaire. Interviews 2 through 6 were used for data collection

All five interviews were pooled and factor loadings accomplished. Item analysis on the entire 750 (150 participants x 5 interviews) observations was completed. The second analysis utilized the five individual interviews. Next, a third analysis utilized 150 additional encounters randomly selected from the 750 total encounters. All equally represented the five stressful encounters over the period.

Similar patterns emerged from the analysis and 37 items loaded consistently high and two items loaded consistently. Nine were eliminated due to marginal loadings and seven did not load consistently and were not included. A final factor analysis performed on the 750 observations yielded 50 items of the scale (66 items total) and 8 factors of the WAYS. The eight factors accounted for 46.2% of the variance. "Confrontive Coping" (6 items, $\alpha=.70$) describes aggressive efforts to alter the situation and suggests some degree of hostility and risk taking. "Distancing" (6 items, $\alpha=.61$) describes cognitive

efforts to detach oneself and to minimize the significance of the situation. "Self-Controlling" (7 items, $\alpha=.70$) describes efforts to regulate one's feelings and actions. "Accepting Responsibility" (4 items, $\alpha=.66$) acknowledges one's own role in the problem with a concomitant theme of trying to put things right. "Escape-Avoidance" (8 items, $\alpha=.72$) describes wishful thinking and behavioral efforts to escape or avoid the problem. "Planful Problem Solving" (6 items, $\alpha=.68$) describes deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem. "Positive Reappraisal" (7 items, $\alpha=.79$) describes efforts to create positive meaning by focusing on personal growth. It also has a religious dimension. Finally, "Seeking Social Support" (6 items, $\alpha=.76$) describes efforts to seek informational support, tangible support, and emotional support.

Reliability

Folkman and Lazarus (1988) indicate the WAYS measures coping processes that by their definition are variable. Therefore, context and the individual's perception are important considerations and thus test-retest does not provide adequate estimates of reliability. Cronbach alphas for the WAYS ranged from .61 to .79 and Folkman and Lazarus write that these factors are generally higher than alphas reported for most other measures of coping.

Studies have been undertaken to determine the stability of the factor structure as another measure of reliability. Vitaliano, Russo, Carr, Maiuro, and Becker (1985) performed a factor analysis of the original Ways of Coping Checklist (with a Likert response format) using three groups: outpatients with mental health problems ($n=83$), spouses with senile dementia ($n=62$), and students in their first or second year of medical

school in 1980 (n=235) and 1982 (n=190). Factor analysis yielded six factors similar to the Ways of Coping Checklist that included the factors: Problem Focused, Avoidance, Wishful Thinking, Seeks Social Support, Blames Self, and Minimizes Threat. Aldwin and Revenson (1987) also performed a factor analysis of the Ways of Coping Questionnaire with 291 adults. Their results yielded eight factors that converged with the WAYS. Eight factors emerged from their analysis. Three of these - Exercised Caution, Instrumental Action, and Negotiation - are problem-focused. Four factors are emotion-focused: Escapism, Minimization, Self Blame, and Seeking Meaning. The final factor, Support Mobilization, is related to social support. All had Cronbach alphas that ranged from .65 to .80, which the researchers deemed as acceptable. Other factor analysis according to Aldwin and Revenson have reported between six and nine similar factors and they tribute the similarity to the robust nature of the WAYS scale.

Validity

Folkman and Lazarus (1988) suggest the WAYS has face validity since the strategies described to cope with threat are the same ones used in the stressful situations. They further believe that construct validity was satisfied since their theoretical predictions were consistent with the results that have been obtained. Folkman and Lazarus highlight two points in this regard: coping consists of problem-focused and emotion-focused coping, and coping is a process that changes. This data were obtained through Folkman and Lazarus' (1980) field study and maintained in subsequent studies (Folkman and Lazarus, 1985; Folkman et al., 1986). Folkman et al. (1986) also utilized variability and stability across situations as a measure of validity. In the study, they performed an autocorrelation across five samples. The first score is correlated with the

second score and so forth for the five trials. Three of the scales with the lowest autocorrelations: Confrontive Coping ($r=.21$), Seeking Social Support ($r=.17$), and Planful Problem Solving ($r=.23$) mostly contained problem-focused coping strategies. Consistent with their transactional theory of coping, coping is variable depending on the context of the situation. Each of the stressful scenarios across the five instances was different, which then indicates that how the individuals coped depended on the situation. On the other hand, Positive Reappraisal had the highest autocorrelation ($r=.47$), which Folkman and Lazarus believe is most influenced by personality variables. The validity of the Ways of Coping Questionnaire has been consistent with the expressed theoretical orientation (Folkman and Lazarus, 1988).

WAYS Research

The Lazarus and Folkman theory of coping and Ways of Coping Questionnaire have been used to explain and measure the coping process respectively. Many studies have been accomplished using both as a frame of reference, including studies of individuals afflicted with chronic illness. Early research by Folkman and Lazarus (1980) demonstrated the majority of individuals when faced with a stressful situation use both problem-focused *and* emotion-focused coping. This finding also held up in later research by Folkman and Lazarus with 94% of the participants using both forms of coping. (1985). The 1980 study also determined the use of coping depended upon the situation. Those situations related to health utilized emotion-focused coping, while work issues used problem-focused coping.

Coyne, Aldwin, and Lazarus (1981) used the Ways of Coping Checklist in comparing depressed and non-depressed individuals. They found individuals with

depression faced the same kinds of problems as nondepressed persons, but that they differed in how they coped with the problems of life. Depressed individuals were more likely to seek social support at work and from the family and participated in more wishful thinking than nondepressed individuals. These were similar findings to a later study completed by Folkman and Lazarus (1986) in looking at the coping of adult men and women with high and low depressive symptoms. High depressive individuals were characterized with a vulnerability to threat and hostility. This vulnerability carried over to a variety of domains including self-esteem, finances, physical health and well-being of loved ones.

McCrae (1982) looked at age differences with regard to coping. In a community sample of men and women, he found no differences in the ways individuals coped based upon age. Older and younger persons coped in a similar fashion. These findings were similar to those of Folkman and Lazarus (1980) who found that coping was not a matter of age but a matter of context of the stress.

In another health related research project, Felton, Revenson, and Hinrichsen (1984) utilized the Ways of Coping measure with a group of 170 chronically ill adults with one of four illnesses: hypertension, diabetes mellitus, cancer, or rheumatoid arthritis. They found that adjustment was minimally explained by the disease diagnosis. Cognitive strategies including the seeking of information were more associated with a positive affect, while emotion-focused coping such as avoidance, blame, and emotional ventilation were associated with negative affect. The researchers urged caution in the interpretation of the results as they believed the findings were modest.

Aldwin and Revenson (1987) utilized the Lazarus and Folkman conceptualization of coping in relation to mental health. Their findings supported the differences found in previous studies. Those in poorer mental health tended to use less adaptive coping strategies such as escapism. Aldwin and Revenson also wrote that their interpretations argued against a simplistic version for the explanation of coping and mental health.

The previous studies show the wide variety of use and substance of the Ways of Coping Questionnaire. The WAYS continues to be utilized as a measure of coping some years after its development. The WAYS has been used to measure coping in cancer patients (Somerfield & Curbow, 1992), saddening events (Atkinson and Violato, 1993), women who find lumps in their breasts (Stanton and Snider, 1993), chronic traumatic stress (Charlton & Thompson, 1996), and schizophrenics coping with hallucinations (Farhall and Gehrke, 1997). Gage (1992) even found application of the Lazarus and Folkman theory for occupational therapists to help health professionals facilitate those faced with rehabilitation.

The Ways of Coping Questionnaire has been used extensively in a variety of research studies, many of which apply to individuals coping with illnesses. The previous research has demonstrated the usefulness in utilizing the WAYS to measure coping. The WAYS has also been shown to differentiate between problem-focused and emotion-focused coping. Many persons, when faced with threat utilize multiple methods to cope and age of the person is not a variable with regard to coping. All these factors lead to support for use in the current study of coping of adults with asthma. However, though there has been prolific use of the WAYS, it is not without limitations. Those limitations will be discussed in the next section.

Issues and Limitations of the WAYS

The WAYS has been used extensively in research studies in a variety of areas. Despite extensive use, the instrument is not without limitations including the complexity of the phenomenon as noted by Folkman (1992). Coping is a difficult concept to grasp and capture, and there are limitations to any measurement instrument. This section will describe some of the limitations of the Ways of Coping Questionnaire.

In an early review of the WAYS, Tennen and Herzberger (1984) though they supported the use of the instrument, found some difficulties. There were two main areas of concern. They were first concerned with the reliability of the derived factors. The second issue was the use of subjective recall by the participants. Their concern over reliability and the derived factors related to the selection of subjects. The chosen population may have difficulty in generalizing to other populations, especially one with regard to pain or a chronic illness. The second concern regarded asking individuals to recall how they coped with a threatening situation some time after the occurrence. Tennen and Herzberger thought respondents would underreport coping strategies that would affect the outcome of the results.

Cohen (1991) echoed similar concerns with the use of participant recall for data collection. Though it would seem reasonable to believe the person is truthful, a question of accuracy is raised however. Individuals may either forget what they did or think of positive aspects while blocking out the negative. There was also concern by Cohen with the recollection of the event after it occurred as opposed to asking the individuals how they generally react to stressful situations.

Conger (1992) had several concerns with the WAYS. She had concerns over the selection of the derived sample and felt it was restricted. She also felt the reliability was low, though agreed with Folkman and Lazarus that they were at the low end of the acceptable scale. Conger also raised concerns about the weak estimates of the internal consistency, in part due to the small number of items in each scale. She concurred that a great deal of research has utilized the scale, but as a research instrument, the WAYS should be used with a great deal of caution. A second review by Hess (1992) followed Conger and she wrote that the instrument has potential for examining how persons cope with stress. She too had concerns about some of the vagueness within the testing manual and not enough information was provided though there were references. Despite the limitations of the WAYS, it can be used to stimulate discussion and help inventory persons' responses to stressful life experiences. Schwarzer and Schwarzer (1996) echoed the concerns of Conger and Hess over low intercorrelations, internal consistencies and lack of test-retest reliability of the WAYS.

Aldwin (1994) critiqued the WAYS with regard to unconscious coping processes. Lazarus and Folkman view coping as a dynamic and active process invoked by the person. Though the Lazarus and Folkman theory does not see coping as being automatic, Aldwin wondered if there are coping mechanisms that lie below the conscious level of awareness. If this were the case, then scales that rely upon verbal and conscious descriptions are either invalid or incomplete.

Heppner et al. (1995) wrote that the items contained in the WAYS are ambiguous and may have multiple meanings. Maes, et al. (1996) suggest that the Lazarus and Folkman theory is more suited as a frame of reference to describe coping. Maes and

colleagues felt the theory does not incorporate both common and specific features of chronic illnesses and thus there would be difficulty in evaluating coping. If the theory was viewed as a frame of reference not related to specific chronic illnesses, then specific empirical evidence is lacking (Maes & Schlosser, 1987). Monat and Lazarus (1991) concur that though empirical evidence is increasing, it is difficult to reach definitive conclusions regarding the role of stress and illness with coping.

Lazarus (1990) has responded to concerns over the use of applying coping theory to illness. Despite emphasis on the theory, he acknowledges there are limitations. Health status is often affected by many factors, such as genetics, which one has no control over. Current conceptual and methodological guidelines for the evaluation of health status are lacking as currently measured. Finally, health status can be very unstable in terms of measurement. Lazarus continues to emphasize the importance of translating theory into practice. Clinicians and researchers need to work together to assist persons in distress. All those involved need to turn away from red herrings and accusations of the inadequacy of one measurement or theory (Lazarus, 1994). Instead, it is more important to emphasize the long-term view of coping and to observe both individual and multiple causes and adaptations available to those coping with threatening situations.

Conclusion. Coping has been a widely used construct within a variety of areas. Capturing the essence of coping is challenging. Despite the challenges, the Lazarus and Folkman theory and measurement of coping has provided insight. Though the WAYS has been used extensively to describe coping, it also has limitations. Despite these limitations, the WAYS is appropriate to view coping of adults with asthma for four reasons. First, previous data has shown that individuals use both problem-focused and

emotion-focused coping. Persons with asthma face issues in solving problems and emotions with their asthma. Second, coping changes over time with the increase or decrease in threat or change of meaning by the individual. Asthma by its definition is variable and thus individuals with asthma are constantly faced with changing conditions and perceptions of their asthma. Third, Lazarus and Folkman believe that coping needs to focus on specific threatening situations and asthma certainly fits this categorically. Finally, Lazarus (1998) writes that "relational meanings" between the environment and coping strategies need to be explored to further understand coping. Asthma and coping both contain several components which all need to be explored. To reach a greater understanding of the role of coping with asthma, many factors and the relationships between them need to be examined.

Asthma

Asthma affects approximately 15 million people in the US. Those with asthma have more than 100 million days of restricted activity and 470,000 hospitalizations each year (National Asthma Education Program Expert Panel, 1997). The prevalence of asthma may vary greatly depending on the definition used (Gergen, Mullally & Evans, 1988). Asthma is currently characterized as a chronic inflammatory disease of the lungs (Fraenkal & Holgate, 1996; Davies et al., 1997; Hollingsworth, 1997). Even when affected individuals take proper precautions, episodes will reoccur since no current treatment for this disease is curative (Barnes, 1997). The increased prevalence of "wheezy illness" over the last decade can be extrapolated to indicate a rise in prevalence

of asthma over the last century (Burney, 1997). There is a large financial and personal cost involved with the increased prevalence of asthma. The purpose of this review is to provide a brief review of asthma, in order to give the reader a context for the study population.

Clinical Definition of Asthma

There have been many attempts and failures to define asthma (Kaptein et al., 1988). Though the components of asthma are known, varying definitions have been used (Gergen et al., 1988). Asthma is currently viewed as chronic inflammation disease of the lungs involving multiple cellular elements. In those with asthma, inflammation causes recurrent episodes of wheezing , breathlessness, chest tightness, and coughing. Asthma episodes are associated with widespread but variable obstruction that is often reversible (Dunhill, 1978; National Asthma Education Program Expert Panel, 1997). Woolcock (1997) provides a similar yet easier to understand definition of asthma in writing of airways that are prone to narrow too much and too easily as compared to those without asthma.

Though there are a number of easily understood and complex definitions of asthma, there is difficulty with the term “asthma” for three reasons. First, despite multiple definitions, none tell how asthma occurs. Second, only 50 percent of asthma can be explainable through a specific cause (Haas and Haas, 1987). Third, knowledge of the components and definitions; asthma is often misdiagnosed by medical providers due to the lack of time spent with patients (Klingelhofer, 1994). Since adequate explanation of the involved mechanisms has been lacking, much focus has been placed on describing characteristics and symptoms of asthma (Haas & Haas, 1987). The symptoms of asthma

provide the basis upon which medical providers make a diagnosis of asthma (Pearce, Beasley, Burgess & Crane, 1998). Though beneficial, the current definitions of asthma still do not provide a complete picture of the disease.

Volumes have been written on the topic of asthma and it is beyond the scope of the current project to discuss the physiology of the disease. Thorough, complete, and varying complexities of explanations of asthma have been discussed by numerous authors (Dewey, 1977; Reichman, 1977; Lane & Storr, 1979; Young, Shulman & Shulman, 1985; Haas & Haas, 1987; and Weinberger 1990). A brief description of asthma is feasible. Asthma occurs within the lungs and in most cases within the bronchi. During an asthma episode, there is a narrowing of the passages from which air moves in and out of the lungs. When air passages are free from asthma, air sacs are spaced apart and operate normally. When an asthma episode occurs, there is a narrowing or blockage of the air passages. When the bronchi narrow, breath barely makes it in and out of the passages. The narrowing of the passageways and subsequent breaths cause the classic symptom of wheezing when the individual exhales (Lane & Storr, 1979).

The narrowing of the air passages during an asthma episode is known as a bronchospasm. Much emphasis is placed upon bronchospasm within asthma. This can be deceiving since other factors such as mucous production and swelling are also important. What is important with regard to bronchospasm is the amount of obstruction that occurs (Reichman, 1977). The greater the obstruction, the less air that is moving and the more serious the situation becomes.

From this description, asthma is a difficulty in breathing due to a narrowing of airway passages. The narrowing can be caused by a variety of factors and in many

instances, the cause is not known. For those with asthma, due to the narrowing of passages, difficulty arises not in breathing in, but in the exhalation or breathing out (Dewey, 1977). Asthma is a condition that can occur regularly or sporadically. An individual can appear normal when not having an episode and in great distress during an attack.

Asthma Severity

The grading of the severity of asthma gives health care providers a guide to assist in making decisions about the amount, kinds, and frequency of administration of medications. Accurate judgment of the severity also helps to predict if there is a rising trend of asthma locally and globally (Burney, 1997a). Without asthma severity grading, symptoms would be ignored and could result in worsening asthma or even death (Moser, 1993). Woolcock et al. (1989) described a grading system for asthma severity. The classification is three-tiered and based upon past history, medication usage, and peak flow readings during and post episode. The tiers of severity are the ones used in the present study and the same used in the medical setting where data were collected; Mild, Moderate, or Severe.

Woolcock and Barnes (1997) further developed the earlier classification system. It was noted that most everyone experiences chest tightness and or wheezing at some point in life. Chest tightness and wheezing does not automatically equate to a diagnosis of asthma. A crucial factor for the symptomology of asthma is the presence of abnormal airway responsiveness between episodes. The presence of abnormal airways indicates the type and treatment to provide between episodes. Development of this classification system provides further breakdown of categories of asthma and is applicable to those

who might have breathing difficulties. Woolcock and Barnes also addressed asthma that had not been present for 12 months or more. They would classify such cases as being in “remission” which provides optimism for persons who are symptom free. Symptoms for the asthmatic can occur at any time, but such categories provide hope for future improvement.

Miles, Garden, Tunnicliffe, Clayton, and Ayres (1997) explored the differences severity made for those with asthma. They wanted to determine if coping strategies of those with severe asthma were inappropriate while having an episode. Their findings indicated that the severity of asthma made a difference in terms of how individuals dealt with the disease. On a general health questionnaire, those with more severe asthma scored higher than those with less severe asthma. A higher score on this scale indicated a greater presence of psychological difficulty. Those with more severe forms of asthma within this study also tended to have a diminished quality of life as compared to less severe forms of asthma. Those with more severe forms of asthma also tended to receive less family support. Finally, in this study, those with severe asthma tended to have a good understanding of their medications, which was also true for less severe. However, severe asthmatics indicated they would delay seeking medical attention in both chronic and acute situations. This study clearly indicates that patients’ ability to cope and coping strategies vary with the severity of the asthma. This suggests that it is important to improve the coping capabilities of those with asthma.

Psychological Factors and Asthma

Within the scope of the current project, a determination will be made if there is a relationship between self-direction in learning and coping in adults with asthma.

Brockett and Hiemstra and Lazarus and Folkman in their respective model and theory discuss internal aspects of the individual. For Brockett and Hiemstra, this referred to personality preferences that assisted in taking personal responsibility for being self-directed. Lazarus and Folkman equate internal processes and emotion-focused coping in both the determination and alleviation of threat. Therefore, any discussion of these factors for Brockett and Hiemstra, and Lazarus and Folkman, in the context of asthma needs to include psychological factors with regard to asthma.

It is important to state what role psychological factors do not play with regard to asthma. Despite a number of presented theories stating that psychological issues cause asthma, this has been found to be unsubstantiated (Haas & Haas, 1987; Klingelhofer, 1994). In other words, asthma is not "all in a person's head." The psychoanalytic view has long held the notion that asthma has been caused by aspects of repression and suppression of feelings. "Psychoanalytic devotees explained asthma as a 'suppressed cry for the mother' resulting from abnormalities in the maternal-child relationship" (Weinberger, 1990, p. 3). Despite the advances in the realm of psychology through the work of Freud and others within psychoanalytic theory, these beliefs have created more myths than facts and even a negative bias by health care workers against those with asthma (Kaptein et al., 1988). This view has been difficult to overcome in terms of asthma education and management for both patients and health care providers.

Emotional stress, though not a cause of asthma, still affects the person with the disease. Psychological strain is not only felt by the patient, but by family members and supportive individuals. Good communication between the individual with asthma and the integrated health care team (which includes family of the patient) assist the patient in

maintaining control and good quality of life despite the uncertainties that can accompany those persons with asthma (Gaioni, Fisher & Strunk, 1996).

Family members play an important role in the successful management of asthma (Taylor et al., 1991). The family orientation may either benefit or be detrimental to the family member with asthma (Weinberger, 1990). Part of the problem for those with the disease is providing descriptors of what having asthma is like for them (Lehrer, Hochron, Isenberg, Rausch and Carr, 1993). Another confounding factor is that there is little information regarding psychosocial factors and the self-care of the person with asthma and these factors may play an important role in asthma morbidity (Sibbald, Collier & D'Souza, 1986; Sibbald, 1989). More recent evidence by Noeker and Petermann (1998) suggests that it is important for asthma patients to have family support, participate in activities including sport, enhance asthma self-efficacy, and acquire skills and behaviors conducive to manage asthma. From this information, it is important to remind both patients and families that asthma is a real disease that should not be ignored. Positive outcomes in the management of asthma depend on the integration and cooperation of the patient, health care providers, and family members to form a cohesive unit.

Asthma Conclusions. Asthma is difficult to define, treat, and manage. Though knowledge of asthma is increasing, so too is the prevalence and there is not a cure. Asthma is currently characterized as chronic inflammation of the lungs and varies in severity for each individual. Psychological factors affect asthma, but are not the cause despite a widely held notion that this was so. Family members and support systems can assist or be a detriment to the person with asthma. Despite the current inability to cure this disease, the future is hopeful. New developments in the treatment and management

of asthma are on the horizon. Asking the right questions according to Berlow (1997) will prevent providers, patients, and researchers from missing a possible solution in the future. The current project is part of the questioning process.

Conclusions

More work is needed to help persons with asthma cope better. Asthma is potentially a lifelong illness and current resources to deal with the disease are limited. Learning has potential with regard to coping with asthma and self-directed learning is a method for gaining information. Self-directed learning as a method of learning involves taking personal responsibility for the planning, implementation, and follow through of the learning experience. The extent of the relationship between self-directed learning and coping is not known since the constructs have not been studied together. Understanding the connection between them may be beneficial in terms of management of asthma and make a difference in the lives of those afflicted.

Tough's adult's learning projects research provided quantitative data to recognize that adults planned and participated in learning projects. His work in this area laid the foundation for other areas of investigation. Guglielmino developed the means to measure quantitatively an individual's readiness to take on self-directed activities. Research that followed demonstrated the usefulness of the SDLRS despite issues that have developed. The SDLRS has been utilized effectively in a variety of settings including those pertaining to health care. The SDLRS is appropriate for the current project.

Persons with asthma have to deal with both physical and emotional aspects of the disease. The Lazarus and Folkman theory and measurement of coping could be a component in successful management of asthma. Lazarus and Folkman's research demonstrated that when faced with threat, individuals call up multiple coping strategies and focus coping on both problem-solving and emotion-focused coping. The WAYS provided a means to measure the coping process when a person is faced with threat. Research using the scale demonstrated the complexity of the coping process and the important role it plays in the well-being of individuals. The WAYS has been utilized extensively to measure coping and is appropriate for the current project despite issues over the use of the instrument.

Health and wellness are important concerns for those with asthma. The present study provides overlap in the areas of adult education, health, and counseling/psychology. Production of a quality research project is currently a short-term goal, which may lead to additional questions and future undertakings. More importantly however, knowledge of the extent of the relationship between self-direction in learning and coping may provide real-life relief to those who have trouble breathing. Those with asthma, and especially individuals with more severe forms of asthma may benefit most. Chapter II has presented information on the three components of the project along with tools to measure the areas of self-direction in learning and coping. It provides the basis and justification along with Chapter I to proceed further with the investigation. In the next chapter, the methods will be provided.

CHAPTER III

METHOD

The purpose of this study is to determine if a relationship exists between self-directed learning readiness and ways of coping among adults diagnosed with asthma and provided a severity grade. In this chapter, the research method for the study will be discussed. Included in this chapter are a description of participants, the research design and instrumentation, the data collection procedure, and the statistical procedures used to analyze the data.

Population and Sample

The participants for this study are adults diagnosed with asthma who are patients of a medical group in east Tennessee. All participants have been diagnosed with asthma. The patients receive treatment for asthma at their physician's outpatient clinic and data collection occurred at this facility. Two supervising physicians were utilized during this project. Each is a medical physician and an expert in the area of asthma.

All the participants were patients of the two supervising physicians. Data collection took place in the medical office where both physicians saw patients. The medical setting is located within a large metropolitan city in the state of Tennessee. This particular physician group specializes in the treatment of allergies, asthma, and dermatology. Physicians, mid-level providers, and nurses are employed to care for patients. The patient population of this setting is wide-ranging, from the very young to

the very old. Part of the popularity of this particular medical practice is due to a weekly-televised medical information show hosted by one of the main physicians. This particular physician has practiced medicine for over twenty years and he took over from his father, who started the practice. Many of the physician's patients have had him as their physician since he began practicing medicine. As the data in Chapter IV will indicated, the sample was homogenous in terms of high SES, amount of education completed and race/ethnicity. It is important to note that the derived sample was one of convenience, which does not indicate randomness.

For this study, an adult was operationally defined as a person who has reached eighteen years of age. The initial determination for inclusion in the study was made by one of the supervising physicians. Both physicians understood that in order for a participant to be included in the study, the following criteria were required:

1. Participants were at least eighteen (18) years of age;
2. Medical diagnosis of asthma as determined by the supervising physician;
3. Diagnosis of asthma for at least one year; and
4. Asthma severity grade of mild, moderate, or severe as determined by the physician based upon the Woolcock et al. (1989) asthma severity scale.

Upon initial approval by the supervising physician, additional information was collected. Information was obtained through the use of a demographic information sheet (Appendix B), which each participant completed. Within the demographic information questionnaire were questions pertaining to the age, marital status, income, and level of education of the participant. A profile of total sample was developed from this information.

Eighty adults diagnosed with asthma agreed to participate in this convenience sample. Using the computer software Sample Power (1997) a sample size of 80 was determined to have a power rating of .79 using a one sample test correlation with a minimum correlation of .30 ($\alpha = .05$) and a standard error of measurement of .11. In other words, this study will have power of 79% to detect a correlation of .30 within the sample. This rating is very close to the recommended power rating of .80 proposed by Cohen and Cohen (1975). Participants included both sexes, and all ethnic backgrounds were eligible to participate. Participation was voluntary. Individuals were assigned an identifying number and, actual names were not used in this project.

Design

An ex post facto correlational research design was utilized with participants being surveyed on only one occasion. This research design was used to determine whether a significant correlation exists between readiness for self-directed learning and the ways in which an individual copes with asthma. Since part of the study is correlational in its design, causation can not be assumed or stated. The researcher did not attempt to influence or treat any of the participants who were diagnosed and being treated for asthma by a medical physician.

Instrumentation

Adults diagnosed with asthma in a specific medical practice provided the data for this project. Four survey instruments were employed to collect data: demographic information sheet, physician questionnaire, the Self-Directed Learning Readiness Scale (SDLRS), and the Ways of Coping Questionnaire (WAYS). Data were collected through three sources from the participants and one from the physician. The participants provided demographic information, SDLRS, and WAYS responses. The physician provided the information about each patient's degree of asthma severity. A description of each source follows.

Demographic Questionnaire

Demographic information was obtained (Appendix B) from each participant. This information was collected in order to provide a descriptive profile of the participants. Age, marital status, income, and highest level of education relate to the identification of adult roles as constructed for the scope of the study. Ethnicity, gender, and participant's perception of health were also obtained. Participants were also asked how long they have had asthma, whether they have received formal asthma education, and their perception of how well they cope with asthma.

Physician Questionnaire

The physician questionnaire was used to record the severity of asthma (Appendix C). A patient identifying number was utilized to insure confidentiality. The referring physician provided a rating of asthma severity for each participant. Severity was assessed on a Likert-type scale from one to three, with one (1) equating to Mild asthma,

two (2) Moderate asthma, and three (3) Severe asthma as cited by Woolcock et al. (1989) and used by the medical practice. Definitions for the levels of severity were discussed in Chapter I.

Self-Directed Learning Readiness Scale

The Self-Directed Learning Readiness Scale was developed by Guglielmino (1977) and designed to measure readiness for self-directed learning. Development of the scale occurred through a three round Delphi survey of experts in this area. For the current project, the version of SDLRS contains 58 statements that relate to self-directed learning readiness. As self-report instrument, the SDLRS utilizes a Likert scale and to avoid potential bias, the title is not mentioned to the respondents. The questionnaire is described as an instrument designed to gather information on learning preferences and attitudes. Administration of this scale does not require specialized training. This instrument has been used extensively in research settings and has been found to be both a reliable and a valid measure of an individual's perception of their readiness to be a self-directed learner. The scale was chosen as a measurement of self-directed learning readiness as it has been highly utilized and well-regarded by some researchers within adult education. See Chapter II for a more complete analysis of the attributes and limitations of the SDLRS.

Item and factor analysis was utilized from Guglielmino's original sample to determine the items and provide an estimate for the parameters of the test. A reliability coefficient of .87 was estimated for the instrument. Factor analysis of the SDLRS revealed eight factors for self-directed learning were present in that sample, which included (1) love of learning, (2) self-concept as an effective learner, (3) tolerance of risk,

ambiguity, and complexity in learning, (4) view of learning as a lifelong, beneficial process, (5) initiative in learning, (6) creativity, (7) self-understanding, and (8) acceptance of responsibility for one's own learning. From her analysis of the data, it was determined that the SDLRS was a reliable instrument (Guglielmino, 1977). For the current study, on the 58-item SDLRS-A with the 80 participants, the Cronbach alpha reliability analysis revealed a coefficient of .72. This reliability coefficient was lower than Guglielmino's original sample and will be discussed further along with outcome data for the SDLRS within Chapter IV.

Currently (February, 2000), Guglielmino no longer advocates the use of the eight individual factors in self-directed. She indicates the overall score is the most interpretable measure and the one she advocates using in research. Guglielmino provides two reasons for discontinuing the use of the eight factor subscores. First, though the overall SDLRS score is reliable, subscores have reduced reliability because of the small number of items that load on some of the factors. Second, factor analysis varies from sample to sample, and factor analysis for one sample would not necessarily be applicable to another. Therefore, the optimal way factor analysis can be performed is on the sample from which subscores would be derived. In addition, Guglielmino also indicates that most samples would be too small to qualify for this procedure (Personal communication with R.G. Brockett, February 4, 2000).

Ways of Coping Questionnaire

Folkman and Lazarus (1988) developed the Ways of Coping Questionnaire to assess how individuals cope with threat during a stressful encounter. The underlying basis for the scale is that individuals and their environment affect one another. During a

stressful incident, two cognitive processes are initiated. The individual determines if the situation might be harmful in the initial appraisal. In the second appraisal the person determines if they can do anything to reduce the potential harm. For the purposes of measurement using WAYS, the participant provides responses to statements on how they coped with the stressful encounter. Participants respond to WAYS statements based upon a four-part Likert scale.

Prior to responding to the statements the participants were asked to think about the last time they had an asthma episode or felt one was going to occur. They were asked to think of their most recent episode, whenever that may have occurred. Administration of the scale does not require specialized training. The WAYS has been used extensively in research settings and shown to be a reliable and valid measure of how individuals cope with stressful incidents. This instrument was chosen for this study due to its extensive use in other studies. A more detailed analysis of the WAYS is provided in Chapter II.

The WAYS was utilized within this project to determine what individuals actually did when they were last faced with an asthma episode. Following the administration of the instrument, the WAYS is scored on a Likert scale from 0 to 4. Zero represents "Does Not Apply or Not Used" and four represents "Used a Great Deal" in terms of the statements surrounding the stressful incident. Scoring instructions are contained in Appendix G and each individual statement is assigned a score of 0, 1, 2, or 3 based upon the respondents answer to each question. The score for each individual coping strategy is added together to achieve the score for each of the eight coping strategies. For example, Confrontive Coping has six items in the WAYS associated with that strategy. Based

upon the 0-3 scoring scale, a respondent's score may range from 0-18 depending on what responses they provided to each question.

Administration of the WAYS takes approximately ten minutes. The WAYS is self-administered, though an interview can be useful to assist in the reconstruction of the stressful event. It is important to focus on a specific stressor rather than a generalized condition of the respondent's life. Better interpretation of the results can be achieved with a greater specificity of the stressor. There is not a set length of time for the occurrence of the stressful event. More details of an event may be remembered from a shorter period.

The 66 item Ways of Coping Questionnaire measures coping processes that are variable by Lazarus and Folkman's (1984) definition of coping. Test-retest measures are thus not the best measure of reliability. Reliability has been examined through the use of internal consistency of the coping measurement. The original scale showed Cronbach alphas for the Questionnaire that ranged from .61 to .79 for each of the eight factors. For the current study, the Cronbach alphas were estimated to range from .53 to .80 for the individual eight factors of the WAYS for the 80 participants of this study. Individual Cronbach alpha coefficients for each of the coping scales are provided in Chapter IV.

As discussed within Chapter II, there are eight factors that represent coping scales in the WAYS. Confrontive Coping describes aggressive efforts to alter the situation and suggests some degree of hostility and risk-taking. Distancing describes cognitive efforts to detach oneself and to minimize the significance of the situation. Seeking Social Support describes efforts to seek informational support, tangible support, and emotional support. Accepting Responsibility acknowledges one's own role in the problem with a

concomitant theme of trying to put things right. Escape-Avoidance describes wishful thinking and behavioral efforts to escape or avoid the problem. Items on this scale contrast with those on the Distancing scale, which suggest detachment. Planful Problem Solving describes deliberate problem-focused efforts to alter the situation, coupled with an analytic approach to solving the problem. Positive Reappraisal describes efforts to create positive meaning by focusing on personal growth. It also has a religious dimension.

Factor structure can be another issue with regard to reliability. Various studies have been completed with mixed results. Some research found a similar factor structure to the current eight coping scales. Aldwin and Revenson (1987) performed a factor analysis using the revised edition of the Ways of Coping Questionnaire and came up with a set of eight factors similar to the Lazarus and Folkman model. Vitaliano, Russo, Carr, Maiuro and Becker (1985), came up with a set of factors that differed from the original Folkman and Lazarus scale. However, these factors were compared to an older version, the Ways of Coping Checklist. Folkman and Lazarus recognized the limitations of the scale and measure of coping noting that, "It is unclear whether variance in the factor structure is a function of persons, situations, methods of administration, or whether it is due to psychometric properties, such as lack of reliability of the measurements themselves" (Folkman & Lazarus, 1988, p. 16.). The Ways of Coping Questionnaire has been utilized as a method to measure coping with threat and is an appropriate measurement instrument in this dissertation.

Procedure

A letter was sent to the main physician of an allergy and asthma group (Appendix D), which described the proposed study. Upon meeting with this physician, it was agreed that he and his staff would assist in procuring participants. Subsequently, he and another physician of this group agreed to assist in the process (Appendix E). A professional relationship was developed between the researcher and the supervising physicians. Both physicians are board certified and are qualified to diagnose and treat individuals with asthma. Both have had extensive expertise in the area of treatment of adults with asthma. The two physicians agreed to volunteer their services and did not expect to be monetarily compensated for assistance with this project. The researcher collected data by working with the physicians during regular office hours at the clinic. Both physicians treat persons with breathing disorders and, thus, see patients on a regular basis. Follow-up for people with asthma depends on the severity, occurrence of last asthma episode, and how well the asthma is being controlled.

Following the physician's examination of each patient, a determination was made to recommend the patient for inclusion in the study. If the physician ascertained that the patient met the criteria for inclusion, he told the investigator the asthma severity diagnosis for the patient/participant. The investigator acknowledged the severity to the physician and then marked the severity on the Physicians Questionnaire (Appendix C). The physician then made the introduction between the patient and the investigator. The researcher then entered the room and introduced himself to the potential participant. A verbal description of the project was provided and the individual was asked to participate.

Prior to participation, each person was provided with a consent form (Appendix F), which described the project. Contained in the form was a description of the research, the nature of participation, and assurance of confidentiality for the participants involved in the project. No monetary incentives were offered in exchange for participation in this study. Patients, at their request, would receive a summary of research findings. The informed consent indicated that the participants could refuse to participate and could drop out at any point in the study without penalty or loss of medical privileges. When participants signed the consent form each person received a copy. Original consent forms were kept and placed in a secure file, where they will be stored for a period of three years.

If a person agreed to participate, a formal copy of the informed consent was provided and the person was asked to read the front, initial the bottom, then read the back and sign the form (Appendix F). Once the consent form was completed, the researcher filled out the three instruments with the participant. The investigator read the statements of the Demographic Information sheet (Appendix B), the Self-Directed Learning Readiness Scale-A form, and the Ways of Coping Scale. After reading a statement to the participant, the investigator waited for the participant to respond before going to the next statement. When the person gave a verbal response, the investigator circled the corresponding response on the correct sheet. Statements were repeated as necessary. The investigator was responsible for the collection of all data and read each statement to all the participants. Each interview session, including the completion of forms, took approximately 20 minutes. However, as much time as needed was allowed.

Without the intention of changing the context, the investigator changed the available responses on the SDLRS. On Guglielmino's five-part Likert scale the following responses were available: 1. "Almost never true of me; I hardly ever feel this way." 2. "Not often true of me; I feel this way less than half the time." 3. "Sometimes true of me; I feel this way about half the time." 4. "Usually true of me; I feel this way more than half the time." 5. "Almost always true of me; there are very few times when I don't feel this way." The researcher wrote down the following guide and showed it to the participants to help them choose their responses to the SDLRS. It was at this point that the change occurred. 1. Never true of me, 2. Not often true of me, 3. Sometimes true of me, 4. Usually true of me, and 5. Always true of me. It was not until after the data were collected that the investigator realized he had unintentionally changed the response choices. In an earlier study, Brockett (1983) read SDLRS statements and allowed participants to fill out their own SDLRS forms and did not find significant differences in the SDLRS scores as a result of the two methods. The changing of the responses was discussed with the researcher's major professor and it was deemed important to disclose within the present dissertation, as it does in fact serve as a modification of the SDLRS (Personal communication with R.G. Brockett December, 1999).

At the conclusion of the data collection, each volunteer was thanked and the investigator answered any questions about the nature of the research. The participants were provided the option of having the results of the SDLRS-A and the WAYS sent to them when available. If they wanted the results sent to them, the investigator recorded names, addresses, and identifier number in a confidential notebook. Confidentiality was maintained and only the researcher knows the participant's names and identities. It was

made clear to the individuals that though they were participating in a research study and the results would be published, individual identities would remain confidential. This was accomplished by assigning each person an identifying number from 1 to 80. At no time will individual identities be made known. The participants acknowledged they understood their role and parameters of the study when they signed the informed consent that contained this information.

Analysis of Data

Data analysis began with the collection of the data. Guglielmino and Associates, the author and owner of the scale did scoring of the SLDRS. Confidentiality of the participants was maintained through the use of the identifier numbers assigned to each participant. Upon completion of the transposition of the eighty participants from the individual answer sheets to an SPSS spreadsheet, the diskette was sent to Guglielmino and Associates for analysis. Back-up copies of the data set were saved to the hard drive of the investigator's computer as well as a floppy diskette.

The authors of the WAYS, Folkman and Lazarus, allow researchers to score the scale and Appendix G contains these scoring procedures. Once data were collected from all eighty participants, they too were transposed onto the same spreadsheet as the SDLRS by using SPSS (8.0). These data continued to be saved on the hard drive of the investigator's computer and a back-up copy was made to a floppy diskette. The computation of scoring was computed within the SPSS program under the parameters set out within the instruction manual.

There are two methods of scoring the WAYS: raw and relative. The decision of what data to use depends on the information required. Raw scores reflect coping efforts for each of the eight types of coping. Relative scores describe the proportion of coping efforts for each method of coping. In both, the individuals answer the same questions based upon a 4-point Likert scale pertaining to each strategy that was used. A 0 indicates "Does Not Apply and/or Not Used," 1 indicates "Used Somewhat," 2 indicates "Used Quite a Bit," and 3 indicates "Used a Great Deal." The raw scores have been utilized primarily in the majority of research by the authors of the WAYS. Raw scores provide a summary of the extent for each type of coping. Raw scores are not factor scores and responses are not differentially weighted according to factor loadings. For the purposes of this dissertation project, only raw scores were utilized. Upon completion of data collection and scoring, a determination was made if relationships and differences existed between the variables to answer the research questions set out within Chapter I. These questions lie at the heart of the current project and provide a sense of direction to the research.

Question 1

Research Question 1 states: **Is there a relationship between self-direction in learning and ways of coping in adults with asthma?** The information to answer this question was obtained using the total score for the SDLRS-A and the eight individual scales of the WAYS. The strength of the relationship was determined through pairwise correlation and stepwise regression of the total score of the SDLRS-A with the eight scales of the WAYS. Each of the 80 participants received a total score on the SDLRS. These individuals were also scored on the eight categories of the WAYS coping scale.

The total score of the SDLRS was compared to the eight categories of the WAYS. The strength of the relationship was also determined using SPSS (8.0) through a stepwise regression of the variables. In the stepwise regression, the dependent variable is the total SDLRS score and the independent variables were the eight factors of the WAYS. Within the correlation coefficient, a correlation between two variables is not readily interpreted as a direct and causal relationship (Ferguson & Takane, 1989). Correlations are presented in Chapter IV.

Question 2

Research Question 2 states: **Are there differences between the ways of coping and severity of asthma?** In Question 2, the researcher was interested in determining if differences existed between the categories of the WAYS coping scale and the severity of the asthma. This determination was accomplished through the use of multiple analysis of variance. The purpose of multiple analysis of variance is to determine how much variation of the dependent variable can be explained through the variability of two or more independent variables (Voelkl & Gerber, 1999).

Within this study, the eight categories of the WAYS represent the dependent variables. The independent variable is the severity of the asthma known as mild, moderate, and severe. The independent variable is assigned by the physicians and is based upon standardized testing of the patients. For the purposes of this study, severities were coded 1, 2, and 3 to represent mild, moderate, and severe respectively. Through the use of SPSS (8.0), an analysis was run to determine if differences existed between the values. If significance was determined, then Tukey post hoc tests were administered where appropriate to the resultant eight univariate ANOVAs. In other words, it was

determined whether differences were between the mild, moderate, and severe asthma based upon each of the eight categories of the WAYS coping scale.

Conclusion

Chapter III gave a description of the participants. Also included was a description of the instruments utilized to collect data from the participants. The procedures that were followed were given. Finally, the strategies employed for the analysis of the data were described. In the next chapter, the results are provided accompanied by a discussion of the data collected for this study.

CHAPTER IV

RESULTS

Eighty adults, all of whom were patients at one specific medical practice in East Tennessee, participated in this study. All subjects surveyed have been diagnosed with asthma. Inclusion criteria for this were:

1. The participants were at least eighteen (18) years of age;
2. Medical diagnosis of asthma as determined by the supervising physician;
3. Diagnosis of asthma for at least one year;
4. Asthma severity grade of Mild, Moderate or Severe as determined by the physician based upon Woolcock et al. (1989) asthma severity scale.

A variety of information will be presented in Chapter IV. Demographic information on the sample of participants is followed by outcome data and instrument properties. This leads into the presentation of data to answer Research Questions 1 and 2. A review of the data will be given at the conclusion of Chapter IV.

Demographic Information

An information sheet (Appendix B) was used to obtain demographic information from each participant. The information was used to prepare a descriptive profile of the participants. Data regarding gender, age, race, marital status, education, and family income were gathered in order to provide a snapshot of the sample. The participants were asked about their perception of their own health, the number of years they have been diagnosed with asthma, their experience with asthma education, how they cope with

asthma, and to describe their general asthma knowledge. Finally, the supervising physicians were asked to provide a rating of the severity of asthma for each participant. This information was used in order to provide a demographic profile of the study participants. Due to rounding, not all percentages add up to 100 percent.

Gender, Age, Race, and Marital Status

Gender. Of the 80 participants, there were a greater number of females surveyed than males. Fifty-eight females and 22 males comprised this sample. This equates to approximately 73 percent females and 27 percent males. These numbers appear to be similar to the population from which this sample was generated; within this medical practice more females than males sought this type of health care. Gender data are shown in Table 4.1.

Age. Individuals were asked their age during the interview. Four categories were used to describe the age demographics of the participants: "18 to 25 Years of Age", "26 to 39 Years of Age", "40 to 55 Years of Age", and over "55 Years of Age". The largest group were those older than 55, who represented 35 percent or 28 individuals whose age was greater than 55. The percentages decreased with each younger age group. The 40 to 55 year olds had the next greatest numbers with 31 percent in this category. Next

Tables 4.1 Gender of Sample

Gender		
	Frequency	Percent
Female	58	72.5
Male	22	27.5
Total	80	100.0

came the 26 to 39 year olds, who made up 28 percent of the total group. The smallest group in terms of age was the 18 to 25 year old adults. The youngest age group comprised just over six percent (6.3%) of the total sample surveyed. It is not surprising that there was a larger percentage of older patients surveyed for this project. Though the investigator worked with two physicians, the greatest number of participants came from one physician who had an extensive practice of older adults with asthma. The age data are found in Table 4.2.

Race/ethnicity. Five choices were available for race/ethnicity and included "Asian American", "Black/African American", "Mexican American or Hispanic American", "White/Caucasian", and "Other" with space allowed for a particular designation. All participants provided a response with regard to race and the vast majority was classified as White/Caucasian. Seventy-six of 80 individuals (95%) gave White/Caucasian as their race. There were three African Americans (3.8%) surveyed and one Asian American, which calculates to just over one percent (1.3%) of the total sample. These results appear to fit the population from which this sample was derived. The majority of the patients of this particular practice appeared to be White/Caucasian. Data on race are found in Table 4.3.

Table 4.2 Age of Sample

	Age	
	Frequency	Percent
18 to 25	5	6.3
25 to 40	22	27.5
40 to 55	25	31.3
Over 55	28	35.0
Total	80	100.1

Table 4.3 Race of Sample

Race		
	Frequency	Percent
Asian American	1	1.3
African American	3	3.8
White	76	95.0
Total	80	100.1

Marital status. There were six categories from which to choose with regard to marital status and 79 of 80 participants provided information on marital status. The following choices were provided: “Divorced”, “Living as Married”, “Married”, “Never Married”, “Separated” and “Widowed”. The majority of this sample had been married at some time in their lives. Those who are, or had been married (Divorced, Married, Living as Married, Separated, or Widowed) accounted for 95 percent of the total sample. Sixty-four of 80 persons surveyed (80%) said they were married at the time of the survey. Following the married category, the remainder of participants were divided into the remaining categories. Divorced was the second largest category with five participants (6.3%). Never Married accounted for five percent of the total sample. Widowed represented nearly four percent (3.8%) of the sample. There were two participants (2.5%) who indicated they were Separated at the time of the interview. One person (1.3%) indicated they were Living as Married when provided that option. One person chose not to provide this information when queried by the investigator. The data on marital status are contained in Table 4.4.

Table 4.4 Marital Status of Sample

Marital Status		
	Frequency	Percent
Married	64	80.0
Divorced	5	6.3
Never Married	4	5.0
Widowed	3	3.8
Separated	2	2.5
Living as Married	1	1.3
No Response	1	1.3
Total	80	100.2

Education and Family Income

Level of education. The following choices were provided with regard to education: "Less Than High School", "High School Graduate", "GED", "Attended College", "Bachelor's Degree", "Attended Graduate School", and "Advanced Degree". The majority of individuals had attended college based upon the categories that were provided (Attended College, Bachelor's Degree, Attended Graduate School, and Advanced Degree). Thirty-five percent Attended College, nine percent had Bachelor's Degrees, five percent had Attended Graduate School, and 21 percent had acquired an Advanced Degree. Many of those surveyed provided thoughtful answers to the statements and there were many inquiries following the interview about the nature of the study and what it meant to the investigator. A smaller percentage of participants achieved a High School Graduation or less. Thirty percent of the sample indicated they had either achieved a High School Graduation, GED or achieved Less Than a High

School education. Table 4.5 lists the information about the participants' level of education.

Family income. Participants were queried about the total family income rather than individual income. This was an effort by the investigator to elicit information about the socioeconomic status while at the same time providing a measure of privacy for the participants. Only seven of 80 individuals (8.8%) surveyed declined to answer this question, though this represented the largest number in terms of "No Response" in all categories in the study. It was previously shown that the sample has a relatively high level of education; this section shows those surveyed also had an above average total family income.

Six choices for family income were provided: "Under \$10,000", "\$10,000 - \$19,999", "\$20,000 - \$29,999", "\$30,000 - \$39,999", "\$40,000 - \$49,999", and "Greater Than \$50,000". The largest percentage of this group fell in the Greater Than \$50,000 per year category with 36 of 80 (45%) choosing this response. The second highest group (15%) was in the \$20,000 to \$29,999 category. Most remaining categories received

Table 4.5 Education of Sample

Level of Education		
	Frequency	Percent
Less Than High School	4	5.0
High School Graduate	17	21.3
GED	3	3.8
Attended College	28	35.0
Bachelor's Degree	7	8.8
Attended Graduate School	4	5.0
Advanced Degree	17	21.3
Total	80	100.2

similar response rates: \$30,000 - \$39,999 and Under \$10,000 were tied with 10 percent providing this response, and the \$40,000 to \$49,999 category had nearly nine percent (8.8%) of the respondents falling within this range. The smallest percentage of participants, 2.5%, chose \$10,000 to \$19,999 as the answer to the total family income. Table 4.6 provides descriptive data of this category.

Overall Health Perceptions

Several statements in the demographic questionnaire sought information concerning the participants' perception of their health. Specific information about patients' perceptions of asthma was obtained including years with asthma, asthma education, coping with asthma, and asthma knowledge.

Perception of health. Four choices were available to describe the participants' perception of their health: "Excellent", "Good", "Poor", and "Do Not Know". The majority of the responses for this statement (61.3%) were Good in terms of the perception of overall health. The next highest category was Excellent with 22 of 80 (27.5%) participants responding in this fashion. Despite the wide range of asthma severity, only

Table 4.6 Family Income of Sample

Family Income		
	Frequency	Percent
Under \$10,000	8	10.0
\$10,000 to \$19,999	2	2.5
\$20,000 to \$29,999	12	15.0
\$30,000 to \$39,999	8	10.0
\$40,000 to \$49,999	7	8.8
>Than \$50,000	36	45.0
No Response	7	8.8
Total	80	100.1

10 percent indicated Poor as the category of choice with regard to overall perception of health. Only one individual did not have a sense of overall health. Table 4.7 provides the descriptive data for this category.

Asthma health perceptions. A number of health statements inquired about the participants' perceptions of their asthma. "Asthma Years" asks participants to indicate how long they have had asthma. "Formal Asthma Education" asks if the participant had either been to asthma school or if they could recall receiving specific education related to asthma. Asthma school in the context of this medical practice is formal asthma education in a group setting. "Coping with Asthma" refers to the person's perception of how well they believe they cope with asthma. "Asthma Knowledge" was the final perception of how knowledgeable the respondent thought they were with regard to understanding asthma.

Years with asthma. The participants in this sample are generally a "mature" group of participants, and on the whole they have had asthma for some time. The data were placed into four categories as determined by the investigator. The categories included "1 to 5 Years", "5 to 10 Years", "10 to 20 Years", and "Over 20 Years". The

Table 4.7 Perception of Health of Sample

Perceived Health		
	Frequency	Percent
Excellent	22	27.5
Good	49	61.3
Poor	8	10.0
Do Not Know	1	1.3
Total	80	100.1

largest percentage of participants had asthma for over 20 Years with 28 of 80 participants (35%) claiming to have asthma for this period of time. Tied for second place in this category were 1 to 5 Years and 10 to 20 Years with nearly 28 percent each. Ten percent of the sample indicated they had been afflicted with asthma between five and 10 years. Table 4.8 provides the categorical breakdowns for this statement.

Formal asthma education. Participants could respond in one of three ways to the query on formal asthma education: "Yes", "No" or "Do Not Know". Thirty-eight percent responded positively with regard to having received formal asthma education in this medical facility. These data are found in Table 4.9.

Table 4.8 Years With Asthma of Sample

Years With Asthma		
	Frequency	Percent
1 to 5 years	22	27.5
5 to 10 years	8	10.0
10 to 20 years	22	27.5
over 20 years	28	35.0
Total	80	100.0

Table 4.9 Formal Asthma Education of Sample

Formal Asthma Education		
	Frequency	Percent
Yes	30	37.5
No	48	60.0
Do Not Know	2	2.5
Total	80	100.0

Coping with asthma. There were four choices with regard to coping with asthma. The participants could choose “Excellent”, “Good”, “Poor”, or “Do Not Know”. Overall, this group thought they coped well with asthma. The two largest groups were those claiming Good and Excellent with both having nearly 48 percent (47.5%) in each category. Only a small percentage of those surveyed (2.5%) either did not know how well they coped or thought they coped poorly with this disease. Table 4.10 provides these data.

Asthma knowledge. Most respondents thought they were knowledgeable about asthma. “Excellent”, “Good”, “Poor” and “Do Not Know” were the choices available in this category. Ninety-five percent of those responding indicated they had either Good or Excellent asthma knowledge. Fewer than three percent (2.5%) each responded that they either did not know about their asthma knowledge or thought they had poor knowledge about asthma. These data are provided in Table 4.11.

Table 4.10 Coping with Asthma of Sample.

Coping with Asthma		
	Frequency	Percent
Excellent	38	47.5
Good	38	47.5
Poor	2	2.5
Do Not Know	2	2.5
Total	80	100.0

Table 4.11 Asthma Knowledge of Sample

Asthma Knowledge		
	Frequency	Percent
Excellent	35	43.8
Good	41	51.3
Poor	2	2.5
Do Not Know	2	2.5
Total	80	100.1

Physician's Asthma Severity Rating

For each participant in this study, the supervising physician was asked to provide an asthma diagnosis based upon the categories of "Mild", "Moderate", or "Severe" asthma. The physicians placed Forty-five percent of the participants in the moderate category. The second largest group was classified by the physicians as severe. There were just over 31 percent (31.3%) of respondents placed in this category. Slightly fewer than 24 percent (23.8) of the participants were classified as having Mild asthma. According to one of the supervising physicians, there is a larger number of individuals with Mild asthma in this medical practice, but they are generally not seen by the practice unless they become ill. Those in the Moderate and Severe asthma categories tend to make more regularly scheduled visits to this clinic. These data are reflected in Table 4.12.

Table 4.12 Physician Diagnosis of Asthma

Physician's Rating of Asthma Severity		
	Frequency	Percent
Mild	19	23.8
Moderate	36	45.0
Severe	25	31.3
Total	80	100.1

Summary of Demographic Information

The demographic profile of the study participants shows that the largest numbers of participants were females over the age of 55. Additionally, the majority of individuals were White/Caucasian and are married. Of those surveyed for the study, many had attended college and the family income is greater than \$50,000 per year. Though they all have been diagnosed with asthma, the general perception is that they are in good health. Overall, this group of respondents had moderately severe asthma and had asthma for more than 20 years. Most surveyed have not had formal asthma education in the medical office. Despite not having formal asthma education, the participants believed they had excellent asthma knowledge and coped very well with this disease.

Sample Properties and Instrumentation

Two scales were used in this project to collect information: the Self-Directed Learning Readiness Scale (SDLRS) and the Ways of Coping Questionnaire (WAYS). In addition to the information collected from the asthma patients for each instrument, this section will also address the reliability of each instrument.

SDLRS Outcome Data

Range, minimum score, maximum score, mean, and standard deviation for the total score of the SDLRS are provided in Table 4.13. Eighty adults with asthma completed the 58 statement SDLRS. Within the sample, there was a range of 101 points. The lowest score on the SDLRS was 180 and the highest score was 281. The mean for the 80 participants was 245.46 with a standard deviation of 22.77.

Interpretation of the SDLRS scores was guided by the Guglielmino's (1999) interpretation that was included with the results. A total score of 58-176 indicates low readiness for self-directed learning, a total score of 177-201 below average readiness, a total score of 202-226 average readiness, a total score of 227-251 above average readiness, and a total score of 252-290 demonstrated high readiness for self-directed learning. The overall mean score for the persons in the current study was 245 and 83 percent of the participants were above average in terms of readiness to take on self-directed learning activities. The range for the current sample was 180 to 281. Figure 4.1 provides a distribution of scores from the current sample. The data contained in the figure provide two pieces of information. First, the data provide an overall view of how the scores of the SDLRS were distributed in the sample. Second, the distribution of

Table 4.13 Range, Minimum, Maximum, Mean Score, and Standard Deviation for SDLRS

Descriptive Statistics-SDLRS Total Scores						
	N	Range	Minimum	Maximum	Mean	Std. Deviation
SDLRS Total Score	80	101	180	281	245.46	22.77

<u>Readiness For Self-Directed Learning Scores (N=80)</u>				
<u>Low</u>	<u>Below</u> <u>Average</u>	<u>Average</u>	<u>Above</u> <u>Average</u>	<u>High</u>
<u>58-176</u>	<u>177-201</u>	<u>202-226</u>	<u>227-251</u>	<u>252-290</u>
0 scores	5 scores	9 scores	30 scores	36 scores

Figure 4.1 Distribution of Scores of the SDLRS from Present Sample

scores demonstrates the higher proportion of participants who scored on the upper end of the SDLRS and, conversely, how few scored at the lower end of the instrument.

An examination of the data in Figure 4.1 reveals that this sample was not normally distributed in terms of the SDLRS. Since the overall mean score of the SDLRS was 245, the sample was highly above average in terms of readiness for self-directed learning. A score of 252 according to Guglielmino's norms would have placed participants in the high category for readiness to take on self-directed activities. Eighty-three percent of the sample fell in the above average to high categories. As indicated earlier, Guglielmino (1999) provided norms with the survey results: a total score of 58-176 indicated low readiness for self-directed learning, a total score of 177-201 below average readiness, a total score of 202-226 average readiness, a total score of 227-251 above average readiness, and a total score of 252-290 demonstrated high readiness for self-directed learning. None of the participants in the present study placed into the low category on the SDLRS. Since it appeared this sample was not normally distributed according to the SDLRS, a non-parametric statistic was utilized. It was determined that

Spearman's Rho was the appropriate statistical measure to use to calculate the correlation coefficients.

WAYS Outcome Data

The eight coping strategies measured by the WAYS are: (a) Confrontive Coping, (b) Distancing, (c) Self-Controlling, (d) Seeking Social Support, (e) Accepting Responsibility, (f) Escape Avoidance, (g) Planful Problem Solving, and (h) Positive Reappraisal. These factors were described in Chapter II. Confrontive Coping averaged 3.79 with a score range of 0-13. Distancing averaged 6.49 with a range of 0-18. Self-Controlling averaged 8.44 with a range of 0-21. Seeking Social Support had a mean of 10.72 with a range of 0-18. Accepting Responsibility had a mean of 2.39 with a range of 0-12. Escape Avoidance averaged 6.64 and had a range of 0-15. Planful Problem Solving had the highest average of all the coping scales with a mean of 11.74. Planful Problem Solving was also the only factor with a minimum greater than zero. Finally Positive Reappraisal had a mean score of 10.18 with a range of 0-21. Range, minimum score, maximum score, mean, and standard deviation for the individual scales score are proved in Table 4.14. It is difficult to draw conclusions the WAYS data. The reason for this is primarily due to the unequal number of statements for each of the eight coping scales and that the raw scores were utilized. It is seen from the data that Planful Problem Solving and Seeking Social Support had higher average scores than Confrontive Coping and Distancing since each score was calculated from six statements. There were two coping scales calculated from seven items, Positive Reappraisal, and Self-Controlling. Positive Reappraisal had a higher average score than Self-Controlling for the seven items

Table 4.14 Range, Minimum, Maximum, Mean Score, and Standard Deviation for
WAYS

Descriptive Statistics-WAYS Scale Scores

	N	Range	Minimum	Maximum	Mean	Std. Deviation
Confrontive Coping	80	13	0	13	3.79	3.26
Distancing	80	18	0	18	6.49	4.19
Self-Controlling	80	21	0	21	8.44	4.77
Seeking Social Support	80	18	0	18	10.72	4.49
Accepting Responsibility	80	12	0	12	2.39	2.77
Escape Avoidance	80	15	0	15	6.64	4.00
Planful Problem Solving	80	17	1	18	11.74	4.11
Positive Reappraisal	80	21	0	21	10.18	6.15

of the scale. These scores will be discussed in further detail in relation to the research questions later within this chapter.

Instrument Reliability

Scale reliability was examined through the use of Cronbach's alpha coefficient, which provides an index of internal consistency for the total score of the SDLRS and the and scale scores for the WAYS. The alphas are found in Table 4.15. The SDLRS alpha for the current project (.72) was lower than Guglielmino's alpha (.87) for her original research. However, the current dissertation's reliability is higher than the original alpha (.67) found by Delahaye and Smith's (1985) research before they took out those individuals under 20 years of age as discussed in Chapter II. After Delahaye and Smith took out the under 20-year group, their Cronbach's alpha rose to .72, which is identical to the current study. It should be noted that the sample size for both Guglielmino's and Delahaye and Smith's research was larger than the sample in this dissertation.

Table 4.15 Cronbach Alpha Coefficients for SDLRS, WAYS, and WAYS Scales

Scale	Subscale	Items In Scale	Alpha
SDLRS	Total Score	58	.72
WAYS	Confrontive Coping	6	.53
	Distancing	6	.66
	Self-Controlling	7	.67
	Seeking Social Support	6	.73
	Accepting Responsibility	4	.60
	Escape Avoidance	8	.57
	Planful Problem Solving	6	.68
	Positive Reappraisal	7	.80

The alphas for the scale score of WAYS were low. Folkman and Lazarus (1988) addressed this issue by suggesting that coping processes are variable and thus traditional test-retest measures of reliability are not appropriate. Internal consistency estimates for coping measure generally fall at the low end of acceptable. Folkman and Lazarus (1988) discuss Billings and Moos (1984) research with regard to coping measures and made the claim that coping measures try to minimize item redundancy for each coping scale and this results in more independent clusters of coping strategies for each scale. According to Folkman and Lazarus, the alpha coefficients they quote are higher than alphas reported for most other coping measures. Table 4.16 provides a comparison of the Folkman and Lazarus alpha coefficients to the ones in the current study. The Folkman and Lazarus

Table 4.16 Comparisons of Cronbach Alphas from Present Study to Folkman and Lazarus (1988) Findings

Scale	No. Items	Present Study	Lazarus & Folkman (1988)
Confrontive Coping	6	.53	.70
Distancing	6	.66	.61
Self-Controlling	7	.67	.70
Seeking Social Support	6	.73	.76
Accepting Responsibility	4	.60	.66
Escape Avoidance	8	.57	.72
Planful Problem Solving	6	.68	.68
Positive Reappraisal	7	.81	.79

alphas are a reflection of a larger sample (N=150) and the alphas were averaged over five occasions.

Research Questions

The purpose of this dissertation is twofold. First, the project was designed to determine the type of relationship that exists between self-direction in learning and coping. The second task was to find out if differences exist in the way adults coped with their asthma. If these relationships and differences exist, it could affect how adults manage and cope with their asthma. The relationship among self-direction in learning,

coping and the severity of asthma is not known. This project provides data to establish the extent to which such relationships exist and to enable the researcher to answer the research questions identified in Chapter I.

Research Question 1: Is there a relationship between self-direction in learning and ways of coping in adults with asthma?

The information to answer this question was obtained using the total score of the SDLRS and the eight individual scales of the WAYS. Bivariate measure of association for each of the eight individual scales of WAYS was determined. A statistically significant correlation was found between three of the eight scales of the Ways of Coping Questionnaire scales and the Self-Directed Learning Readiness Scale. The factors for which statistically significant correlations at the .05 level were found include Seeking Social Support, ($r=.243$), Planful Problem Solving ($r=.308$), and Positive Reappraisal ($r=.227$). These three scales were positively correlated with the total SDLRS score. Which indicates that as each of these coping strategies increase, the total score for the SDLRS also increases. The other five scales of the WAYS did not show significant correlations. Table 4.17 provides the results for all eight factors and the correlations with the total SDLRS scores. During the analysis of the data, it was also revealed that a positive statistically significant relationship existed between Asthma Knowledge and the total score on the SDLRS. These data are presented in Table 4.18. Further discussion will be provided on the relevancy of these findings within the next chapter.

Though three scales were statistically significant, the first two reported, Seeking Social Support and Planful Problem Solving had weak correlations and only explain a

Table 4.17 Two-tailed correlations of the total score of the SDLRS and eight factors of the WAYS

Correlations			SDLRS Total Score
Spearman's rho	Confrontive Coping	Statistics	
		Correlation Coefficient	.198
		Sig. (2-tailed)	.078
		N	80
	Distancing	Correlation Coefficient	.053
		Sig. (2-tailed)	.638
		N	80
	Self-Controlling	Correlation Coefficient	.185
		Sig. (2-tailed)	.101
		N	80
	Seeking Social Support	Correlation Coefficient	.243*
		Sig. (2-tailed)	.030
		N	80
	Accepting Responsibility	Correlation Coefficient	.173
		Sig. (2-tailed)	.126
		N	80
	Escape Avoidance	Correlation Coefficient	-.105
		Sig. (2-tailed)	.352
		N	80
	Planful Problem Solving	Correlation Coefficient	.308**
		Sig. (2-tailed)	.005
		N	80
	Positive Reappraisal	Correlation Coefficient	.227*
		Sig. (2-tailed)	.043
		N	80

*. Correlation is significant at the .05 level (2-tailed).

**. Correlation is significant at the .01 level (2-tailed).

Table 4.18 Two-tailed Correlation Between Asthma Knowledge and SDLRS

Correlations			
			SDLRS Total Score
Spearman's rho	Asthma Knowledge	Correlation Coefficient	.246*
		Sig. (2-tailed)	.028
		N	80

*. Correlation is significant at the .05 level (2-tailed).

small percentage of the variability in this sample. Figure 4.2 shows the percentage of variability within the sample. The small percentage of variability indicates that though there was a statistically significant relationship between the total score of the SDLRS and the WAYS coping scales of Seeking Social Support, Planful Problem Solving, and Positive Reappraisal, only a small amount of the variability is explained by the relationships between the concepts. If the relationships were stronger, then a larger percentage of the variability between the relationships could be explained with each individual construct. In other words, since the percentage of variability between constructs is low, other factors have a role in explaining the relationship between the two variables. The other factors are not known. However, the use of a stepwise regression can help predict the relationship between multiple factors and lead to the development of a more informative model. This is what is accomplished through the use of a stepwise regression.

Since these first correlations are measured individually with the total score of the SDLRS, stepwise regression was established using all eight individual WAYS scales. The strength of the relationship was determined through pairwise correlation and

<u>WAYS Scale</u>	<u>Percentage of Variability</u>
Seeking Social Support	5.9%
Planful Problem Solving	9.5%
Positive Reappraisal	5.2%

Figure 4.2 Percentage of Variability Explained Through
the Correlation of WAYS to the SDLRS

stepwise regression of the total score of the SDLRS with the eight scales of the WAYS. It is important to note that due to the small sample size ($N=80$) the stepwise regression statistic may not be optimal. According to Kerlinger and Pedhazur (1973) a sample size of 100 is needed to effectively run a stepwise regression model. However, the investigator believes it is important to determine the strength of the relationship of the coping strategies combined together with the SDLRS. In the current data sample, there was not a single instance of the use of only one scale on the Ways of Coping

Questionnaire. Each participant used multiple strategies represented by the eight individual subscales.

Three statistically significant variables came forth from this analysis and are included in the model. Planful Problem Solving, Escape Avoidance, and Accepting Responsibility were the statistically significant and strongest variables. Table 4.19 shows the tabular formation of the total score of the SDLRS eight scales of the WAYS, and the resultant factors included in the model based upon the strength of relationship.

The strongest of the three, Planful Problem Solving, had a weak R-square value of .088, which thus accounts for less than 9 percent of the variability in the sample. However, when all three variables were combined, this resulted in an R-square value of

Table 4.19 Stepwise Regression of the Total Score of SDLRS and WAYS

Stepwise Regression ^a				
		Unstandardized Coefficients		
Model		B	Std. Error	Sig.
1 ^b	(Constant)	226.115	7.449	.000
	Planful Problem Solving	1.648	.599	.007
2 ^c	(Constant)	229.668	7.453	.000
	Planful Problem Solving	2.144	.628	.001
	Escape Avoidance	-1.411	.645	.032
3 ^d	(Constant)	230.816	7.309	.000
	Planful Problem Solving	1.924	.622	.003
	Escape Avoidance	-1.922	.675	.006
	Accepting Responsibility	2.018	.951	.037

a. Dependent Variable: SDLRS Total Score

b. Footnote: R Square = .088

c. Footnote: R Square = .142

d. Footnote: R Square = .190

.190 accounting for 19 percent of the total variability of the SDLRS. The combination of these coping scales explains a higher percentage of variability than any singular coping scale. This is important for three reasons. First, the combination of multiple coping variables facilitates a better understanding than any one coping strategy. Real life situations are more likely to emphasize multiple strategies for coping.

Second, two of the three scales in the stepwise regression differ from the individual correlations. Within the individual correlations, Seeking Social Support, Planful Problem Solving, and Positive Reappraisal had statistically significant correlations with the total score on the SDLRS. In the stepwise regression, only Planful Problem Solving carried over to the model and two new factors emerged. In the stepwise regression, Escape Avoidance and Accepting Responsibility were two different factors that emerged from the analysis. This is important to recognize because it again demonstrates the interaction that occurred between variables.

Third, it is clearer that further research is needed. As indicated previously, due to the small sample size, the regression analysis is not optimal in this situation but serves as an exercise for the researcher and provides grounds for future research. This is discussed further in Chapter V.

Further insight into the interaction between the SDLRS and the WAYS can be obtained by looking at Table 4.19 and the Beta coefficients in the stepwise regression. The Beta coefficients provide a method to compute predicted values for a new sample (SPSS Base, 1997). The combination of Planful Problem Solving, Escape Avoidance, and Accepting Responsibility explain 19 percent of the variability of the SDLRS. When the variables were placed together, the following Beta coefficients emerged: Planful

Problem Solving ($B = 1.924$), Escape Avoidance ($B = -1.922$), and Accepting Responsibility ($B = 2.018$). Planful Problem Solving and Accepting Responsibility are both positive Beta coefficients while Escape Avoidance has a negative coefficient. The positive Beta coefficients for Planful Problem Solving and Accepting Responsibility indicate that as each of these coping strategies is used more the total score of the SDLRS increases. Planful Problem Solving and Accepting Responsibility have a positive influence on the total score of SDLRS. Conversely, the negative Beta coefficient for Escape Avoidance indicates that as this score increases, the total score on the SDLRS decreases.

Question 1 conclusions. Research Question 1 attempted to determine if a relationship existed between the SDLRS and the WAYS. This was accomplished in two parts. First, the total score of the SDLRS was correlated with the eight individual scales of the WAYS. These correlations determined that three statistically significant relationships existed. Seeking Social Support (.243), Planful Problem Solving (.308), and Positive Reappraisal (.227) all correlated at the .05 level of significance. The second method to determine if a relationship existed between the SDLRS and the WAYS utilized the stepwise regression. This method was used to determine the strength of the variables and the interaction between them. In this model, three variables of Planful Problem Solving, Escape Avoidance and Accepting Responsibility combined to explain 19 percent of the variability between the SDLRS and the WAYS. The only variable that was the same in both of these methods of analysis was Planful Problem Solving. The conclusion that can be reached from the first question is that there is some evidence and partial support for a relationship between the Self-Directed Learning Readiness Scale and the

Ways of Coping Questionnaire. What this means that while the evidence to support direct links is not possible, there is enough to indicate future study.

Research Question 2: Are there differences between the ways of coping and the severity of asthma?

Data to answer this question were obtained through the use of multiple analysis of variance (MANOVA). The MANOVA was used to determine if any of the Ways of Coping Questionnaire scale scores differed based upon the severity of the asthma. All eight scales of WAYS were designated dependent variables and SPSS calculates the analysis of variance simultaneously using all eight factors. Asthma severity was the independent variable. The first step was to run the MANOVA with all eight variables to determine Wilk's lambda. Wilks' lambda is the statistic used to measure the change of each candidate predictor variable when each is added to the equation (SPSS Base, 1997). The Wilks' lambda will indicate if at least one of the eight scales of WAYS has severity differences. In other words, Wilks' lambda will determine if there was a difference in the way Mild, Moderate, and Severe adults with asthma responded to the WAYS questionnaire. It was determined that significant differences existed through the use of Wilks' lambda at the .05 level as seen in Table 4.20.

Since Wilks' lambda indicates the presence of differences, the second step was to determine which of the eight scales of the Ways of Coping Questionnaire differ with regard to the severity. The tests of between-subjects effects are the eight individual ANOVA's that determine which of the individual scales are significantly different based upon the severity. The resultant eight ANOVAS indicate that significant differences

Table 4.20 Determination of Significance Utilizing Wilks' Lambda

Effect	F	Sig.
SEVERITY Wilks' Lambda	2.131	.010

exist for three subscales at the .05 level, Confrontive Coping ($p=.029$), Self-Controlling ($p=.005$), and Escape Avoidance ($p<.01$). Table 4.21 provides these data.

The third step was to determine how the levels of severity differed. Table 4.22 contains the data that demonstrates that differences do indeed exist for the scales of Confrontive Coping, Self-Controlling, and Escape Avoidance. It is seen in each instance that the mean scores increased as the severity increased. In other words, the greater the severity of the asthma, the higher the average scores for these three scales of the Ways of Coping Questionnaire.

Table 4.21 Tests of Between-Subjects Effects

Source	Dependent Variable	F	Sig.
SEVERITY	Confrontive Coping*	3.726	.029
	Distancing	2.454	.093
	Self-Controlling*	5.606	.005
	Seeking Social Support	1.236	.296
	Accepting Responsibility	1.157	.320
	Escape Avoidance*	8.406	.000
	Planful Problem Solving	1.384	.257
	Positive Reappraisal	.310	.734

Table Caption -- *= $p<.05$ level of significance

Table 4.22 Significant Mean Responses for Ways of Coping Questionnaire

	Severity	N	Mean	Std. Deviation
Confrontive Coping	mild	19	2.26	2.18
	moderate	36	3.83	3.31
	severe	25	4.88	3.52
Self-Controlling	mild	19	6.42	4.41
	moderate	36	7.86	4.42
	severe	25	10.80	4.73
Escape Avoidance	mild	19	4.26	3.41
	moderate	36	6.39	3.13
	severe	25	8.80	4.49

Since it has been determined that significance exists for three scales, the final step was to determine which level of severity was significantly different. Though Table 4.22 indicated an upward trend developed, it was not know if Mild was significantly different from Moderate, or Moderate was significantly different from Severe or if Mild was significantly different from Severe. Tukey's Honestly Significant Difference test (Tukey's HSD) provides multiple comparisons to determine where differences exist. These data are contained in Table 4.23.

Based upon Tukey's HSD, Mild Confrontive Coping was statistically significantly different as compared to Severe ($p=.021$) Confrontive Coping. For the category of Self-Controlling, Mild was statistically significantly different from Severe ($p=.006$) and Moderate different from Severe for Self-Controlling ($p=.038$). Escape Avoidance also had two statistically significant categories of severity that differed from

Table 4.23 Multiple Comparisons Based Upon Severity

Tukey HSD			
Dependent Variable ^a	(I) Severity	(J) Severity	Sig.
Confrontive Coping	mild	severe	.021
Self-Controlling	mild	severe	.006
	moderate	severe	.038
Escape Avoidance	mild	severe	.000
	moderate	severe	.036

a. Footnote = Based on Observed Means

one another. Mild was statistically significantly different from Severe, and Moderate statistically significantly different from Severe ($p < .001$) and ($p .036$) respectively. This provides further evidence that as the severity of the asthma increased, significant differences results for the categories of Confrontive Coping, Self-Controlling, and Escape Avoidance.

Question 2 conclusions. The purpose of Question 2 was to determine if differences exist in the ways individuals cope based upon the severity of asthma. This was determined through the use of the individual scales of the WAYS and the severity of the asthma as determined by the participating physicians. The statistic determined that differences exist for three variables of the WAYS: Confrontive Coping, Self-Controlling, and Escape Avoidance. The means of the responses from the participants showed that as the severity increased so did the use of that particular coping variable. In this sample, the Severe group was significantly different from the Mild group for all three variables. In two of the variables, Self-Controlling and Escape Avoidance, the Severe group was statistically significantly higher in the use of the coping than the Moderate group. These data provide evidence for the partial existence of differences in this sample in the ways

individuals cope with asthma. It was determined that for three of the eight coping scales of the WAYS, severity made a difference in the utilization of a particular coping strategy.

Conclusions

The purpose of this chapter was to provide an analysis of data that was collected from a group of adults with asthma. From these data, a profile of the sample emerged that described those that participated in the project. The data also provided the necessary information to answer the research questions that have been posed throughout the project. The following conclusions were reached with regard to the presented analysis.

Question 1

Is there a relationship between self-directed learning readiness and ways of coping in adults with asthma? There was a significant positive relationship between self-directed learning readiness and ways of coping for three of eight variables.

Individual positive statistically significant correlations were found at the .05 level for Seeking Social Support, Planful Problem Solving, and Positive Reappraisal. In addition, three variables emerged when a stepwise regression was run. Planful Problem Solving, Escape Avoidance, and Accepting Responsibility combined to account for a portion of the variability between the SDLRS and WAYS.

Question 2

Are there differences between the ways of coping and the severity of the asthma? There were statistically significant differences between the eight factors of WAYS and the severity of asthma. Differences in severity existed between Confrontive

Coping, Self-Controlling, and Escape Avoidance. Chapter V will discuss the results described in Chapter IV. Included in this final chapter will be an overall review of the study along with the researcher's conclusions and recommendations for future research.

CHAPTER V

CONCLUSIONS AND DISCUSSION

Review of the Study

Currently, there is not a cure for asthma. Asthma can strike without warning and asthma episodes are variable in occurrence and intensity. Due to the nature of asthma, management of the disease is important to an individual's well-being. Coping, therefore, is an important aspect of management of asthma. Coping theory is important in helping to determine what individuals actually do when faced with managing the threat of another asthma episode. A focus of this research project was to determine the coping strategies used when an individual was faced with the threat of an asthma episode. The findings showed that severity of asthma made a difference in coping. Learning how to cope with asthma is a challenge for all those afflicted with the disease. Learning is also a key component in the "development" of coping skills to manage asthma. Nearly all adults undertake learning projects and most learning is self-planned. Self-directed learning is a learning process initiated and controlled by the learner. If learning is an important component of coping, then it makes sense that self-directed learning would also be a component of coping with asthma.

The other focus of this project was to determine the extent to which a relationship exists between self-directed learning and coping. Chapter I explored a conceptual link between self-direction in learning and coping. The SDLRS and WAYS were utilized to test this framework. A determination was made in this study that a tentative positive relationship between self-directed learning and coping existed in a sample of adults with

asthma. The purpose of this section is to summarize and discuss the results that were obtained from this project.

Purpose of the Study

Coping with asthma is difficult and learning can be an important facet of the coping process. It would be beneficial to know how an individual prefers to learn about asthma and how they cope with asthma. It would also be valuable to know if the severity of an asthma episode makes a difference in the coping process. The purpose of this dissertation was to determine the relationships that exist among the concepts of self-direction, coping, and asthma severity in adults with asthma. The relationship among these constructs in the current sample is unknown and this project provided data to establish the extent to which the relationships exist.

Research Questions

The following questions were used to address the purpose of the study:

1. Is there a relationship between self-direction in learning and ways of coping in adults with asthma?
2. Are there differences between the ways of coping and severity of asthma?

Procedure

Eighty adults with asthma agreed to participate in this project. All were at least 18 years of age, had a diagnosis of asthma, coped with asthma for at least one year, and had been provided with a severity grade of their asthma. Each of the participants in the sample came from a large medical practice in east Tennessee. Two physicians agreed to supply the researcher with individuals for the project.

Four instruments were used to collect data from the individuals who agreed to participate in the study. A demographic questionnaire, a physician questionnaire, the Self-Directed Learning Readiness Scale, and the Ways of Coping Questionnaire were administered to each person. The researcher read each statement to all 80 participants. Participant confidentiality was maintained throughout the project with the assignment of identifying numbers to each person.

An ex post facto correlational research design was utilized and the participants were surveyed on only one occasion. Once data were collected, they were placed onto a spreadsheet format using SPSS (8.0). When completed, SDLRS data were sent to Guglielmino and Associates for analysis. The WAYS data were also placed in spreadsheet format and the scoring was completed according to the parameters of the provided instructions. Data were saved to the researcher's computer hard drive, as well as backup diskettes.

Summary of Question 1

Is there a relationship between self-directed learning readiness and ways of coping in adults with asthma? From the collection of data and a correlation of the results, it was determined that a statistically significant positive relationship exists between self-directed learning readiness and ways of coping for three of eight variables at the .05 level of significance. "Seeking Social Support," "Planful Problem Solving," and "Escape Avoidance" were all statistically significant. In addition, the strength of relationship was determined through the use of a stepwise regression. "Planful Problem Solving," "Escape Avoidance," and "Accepting Responsibility" emerged from the process to explain 19 percent of the variability between the SDLRS and WAYS. Since

only three of eight factors of the WAYS weakly correlated with the SDLRS, the results should be viewed with some reservation in terms of discussion of the relationship between the constructs.

Summary of Question 2

Are there differences between the ways of coping and the severity of the asthma? Following the collection of data, a MANOVA was run to determine if the severity of asthma made a difference in coping with the disease. It was determined that statistically significant differences existed for the severity of asthma on three of the eight coping factors of the WAYS. Those with severe asthma scored significantly higher than persons with mild asthma for "Confrontive Coping," "Self-Controlling," and "Escape Avoidance." In addition, severe asthmatics scored significantly higher than moderate asthmatics on the scales of "Self-Controlling" and "Escape Avoidance". These data provided evidence for the partial existence of differences between severity and ways individuals coped with asthma. In the next section, some conclusions will be drawn from the results that were obtained.

Conclusions

Two questions have been posed throughout this project that pertain to self-directed learning, coping, and asthma. Question 1 dealt with the relationship between self-directed learning readiness as measured by the SDLRS and the way individuals coped with an asthma episode as measured by the WAYS. Research Question 2 pertained to the differences that exist in coping based upon the severity of the asthma.

The purpose of this section is to provide conclusions based upon the statistics that were presented in Chapter IV. This will be accomplished in two ways. First, statistical conclusions will be presented. Second, the researcher will address themes that developed from the data in order to highlight the results from the project.

Demographic Conclusions

A wide range of data were collected that provides a snapshot of the sample. The following data represent the largest percentages from the sample.

a. Females	72%
b. White/Caucasian	95%
c. Over 55 Years of Age	35%
d. Married	80%
e. Attended College or further	70%
f. Total Family Income	Greater Than \$50,000
g. Good or Excellent Perception of Health	89%
h. Greater Than 20 Years With Asthma	35%
i. No Formal Asthma Education	60%
j. Good or Excellent Coping With Asthma	94%
k. Good or Excellent Asthma Knowledge	95%
l. Moderate Asthma Severity	45%

SDLRS Scores

According to Guglielmino's interpretation guide of scores for the SDLRS, there are varying levels of self-directed readiness. The composite score of the SDLRS is a reflection of this readiness. Figure 5.1 provides the categorical breakdowns of the

<u>SDLRS</u>	<u>Self-Directed Learning Readiness</u>	<u>Current Sample (N=80)</u>
58-176	Low	No Participants
177-201	Below Average	5 Participants
202-226	Average	9 Participants
227-251	Above Average	30 Participants
252-290	High	36 Participants

Figure 5.1 Readiness Levels of SDLRS Based Upon Scores

SDLRS scores. Guglielmino explains that those with low levels of readiness may have been consistently exposed to other directed instruction. Readiness to be a self-directed learner can be improved with practice. The average score for an adult is 214 when taking the SDLRS. Several points are important with regard to the overall score of the SDLRS. First, those with high self-directed learning readiness skills tend to perform better in situations that require a high degree of problem solving ability, a high degree of creativity, and a high degree of change. Furthermore, those with high SDLRS scores generally prefer to determine how they will learn and in what fashion. It does not indicate they will not choose traditional forms of learning or a structured learning plan. A high score only indicates the individual is ready to assume responsibility for self-directed learning. Second, those with average readiness are likely to be successful as independent learners in situations that require independence. Average readiness says they may not be entirely ready to take on and implement the whole learning process. Third, those with low scores on the SDLRS generally prefer situations in which structured learning and traditional methods are the norm. SDLRS scores are not absolute

in either the high or low sense. The context of learning may make a difference in the determination of readiness to be a self-directed learner.

The scores on the SDLRS for the current sample of adults with asthma indicate they were above average and nearing high on the self-directed learning readiness scale. The average score for this group was 245. None of the participants in this study scored in the low range and only five participants scored below average. However, 66 of 80 scored in the above average or high category on the SDLRS and 36 participants scored 252 points or greater which placed them well into the high category for readiness for self-directed learning activities. For a basis of comparison, Guglielmino (1996) examined the self-directed learning readiness characteristics of top female executives in the United States and found they possessed an average SDLRS score of 257. The current sample compared favorably to the executives in terms of scoring on the SDLRS.

Twenty-one percent of the sample had advanced degrees, and four individuals possessed doctorate degrees. While not an explanation for high scores on the SDLRS, it is interesting to note that there was a significant positive correlation ($r=.25$ at the .05 level of significance) between the SDLRS and knowledge of asthma in this sample. In the current context of this medical setting, the group of participants was knowledgeable about asthma and scored well on the SDLRS. The scores on the SDLRS for these participants appear to fit the profile of highly self-directed learners with a high degree of problem solving ability, creativity, and the ability to change.

Results Conclusions

There was a positive relationship between the SDLRS and the WAYS with Positive Reappraisal ($r=.227$), Seeking Social Support ($r=.243$), and Planful Problem

Solving ($r=.308$) all having a positive correlation with the SDLRS at the .05 level of significance. In general terms, as the score of one instrument increases, so too does the score on the other. Though the relationship was positive, each of the factors only explains a small percentage of the variability between the individual concepts. The data provides partial support of a relationship between the SDLRS and WAYS.

Incorporating the stepwise regression exercise increased the percent of variability though two of three factors were different from the individual correlations. Planful Problem Solving, Escape Avoidance, and Accepting Responsibility explain 19 percent of the variability between the combination of the WAYS coping factors and the SDLRS. These results are questionable however due to the small sample size. Further investigation is required to determine if these factors and the relationship would be maintained.

The results of the project also showed that severity mattered in the way individuals with asthma coped. On three of the eight scales of the WAYS, significant differences were found for Confrontive Coping, Self-Controlling and Escape Avoidance. In each of these scales, Severe was significantly different from Mild. Within the scales of Self-Controlling and Escape Avoidance, not only was Severe different from Mild, but Severe was also statistically different from Moderate asthma.

It is possible to glean several themes from the findings of the study. Four such themes include: meaning matters, importance of social interaction, solving problems as a part of coping and self-direction, and severity matters.

Meaning matters. A significant positive relationship was found between the SDLRS and the coping factor Positive Reappraisal. There were seven statements in the

WAYS related to this coping strategy. Each of the items associated with Positive Reappraisal refers to personal growth or change, being creative, and maintaining a positive evaluation of the circumstances despite the presence of a threat. There were few instances of individuals saying "why me?" in terms of their affliction with asthma. Instead, the individuals were active participants in the on-going treatment of their asthma. Many seemed interested in discovering for themselves what asthma meant to them in terms of the larger context of life.

Asthma attacks vary in form, but many participants, through their own active role, believed that how they dealt with each asthma attack could make a difference in their long-term health. Appraisal and re-appraisal of a threat affect what a person thinks about during the asthma attack and what, if anything, they can do about the threat. The individual meaning in this framework is the process of constantly thinking what they can do to change the threat confronting them. The potential thoughts during a Positive Reappraisal would thus go along with the belief that the individual under an asthma episode could come out better than before the episode. Improvement of the self is taken from the personal meaning derived from the threatening situation.

It was not surprising that Positive Reappraisal correlated with the SDLRS. A high score on the SDLRS indicates an ability to be creative and to change. These characteristics are not only relevant to Positive Reappraisal but to a larger extent to the derivation of meaning. Personal meaning is part of both the primary and secondary appraisal process of any given situation. Primary appraisal is relevant to the personal involvement in a situation and what is at stake. Secondary appraisal goes beyond knowing that a person is involved but implying also to what extent their actions will

alleviate the threat. Personal meaning is a part of the coping process and intertwined with readiness to be self-directed.

The importance of social interaction. The study also revealed that social interaction and support from others was important. Seeking Social Support was another factor of the WAYS that had a significant positive correlation with the SDLRS. Social support in the context of coping pertains to the regulation of actions and feelings associated with the threatening situation. There were six items pertaining to social support and in almost all instances, they dealt with speaking to someone or seeking out advice. The management of actions and emotions are present in both problem-focused and emotion-focused coping. Problem-focused coping is the resolution of threat by coming up with a solution to the threat. Emotion-focused coping is aligned with the emotions that arise through a threatening situation. Emotion-focused coping is more relied upon if nothing can be done to alleviate the threat. Though Seeking Social Support is a category unto itself, it also seems to be interwoven into other coping processes. For example, Planful Problem Solving describes the problem-focused efforts to alleviate a threat. For many, seeking advice from others is a step in the resolution of the problem. The actual solving of the problem, however, is done alone.

The correlation of the SDLRS and the WAYS with regard to Seeking Social Support is not surprising. A high degree of problem solving ability relates to a higher score on the SDLRS. The social interaction between the participants and their physicians facilitated the patients' management of their asthma. All the participants had an on-going professional relationship with the physicians. Some had been patients for many years. Patients regarded the physicians as a part of their social support network. Physicians

were important in this role because they provided concrete information to the patients about asthma. When read the statement about doing something concrete, invariably, the patients would say, "Yes, I would talk to or come see my doctor."

Additionally, the majority of the patients in the study were mature and married. Social support from the spouses appeared to be the norm rather than the exception. It was not unusual during the data collection to find the spouse present in the examination room. Seeking social support from their doctor was important, but so too was the support, advice, and sympathy from others. Even in instances where support did not come from the spouse, it was often sought from other individuals in the lives of the patients. Social support appears to run through, and could be a part of, many of the coping processes, not just Seeking Social Support. Each of the other two significant coping scales--Planful Problem Solving and Positive Reappraisal--have components of social support within them. Therefore, the importance of social interaction is an important finding about the relationship between the SDLRS and WAYS.

Solving problems as a part of coping and self-direction. The solving of problems as measured by Planful Problem Solving is the third important finding linking coping and self-direction. Planful Problem Solving was also positively correlated with the SDLRS. It was also the only coping variable that emerged in both the individual correlation and the stepwise regression. Planful Problem Solving is characterized as the deliberate actions taken to focus on the threatening situation as it is presented to the individual. This includes analysis of the situation, making plans, and development of solutions. To a large extent, the purpose of Planful Problem Solving is to solve problems experienced externally within the physical environment. However, it also has an inward

and cognitive focus in determining the solution to a problem. Problem solving is not a reaction to a situation, but is the process of deliberate and contemplated thought prior to action.

The positive correlation between the SDLRS and the WAYS makes sense. Individuals that are highly self-directed have an ability to solve problems, are creative in the solving of problems and have the ability to facilitate change. Being self-directed and exhibiting characteristics that are conducive to Planful Problem Solving would benefit adults that have asthma. Positive responses came from participants with regard to concentrating on the next step, making a plan of action, drawing on past experiences, and knowing what had to be done with regard to asthma.

The analytic approach to problem solving involves the analysis of the situation as it unfolds. This ties directly to Planful Problem Solving for those with asthma. This group of adults with asthma might be considered analytic based upon their education. The participants' experience dealing with asthma over a long period of time also affects their ability to analyze problems related to asthma. These qualities, coupled with the participants' knowledge of asthma as well as their excellent coping skills, make for a group that knows what to do when asthma strikes. Thus, one of the study's conclusions that the solving of problems integrates well with both coping and self-direction, and is an important aspect of both.

Severity matters. It is the belief of the investigator that it is important to understand that the severity of asthma impacts how much a coping strategy is utilized. In all three cases of significance, persons with Severe asthma used particular coping strategies more than persons with Mild asthma. There were three coping strategies that

had significant differences: Confrontive Coping, Self-Controlling, and Escape Avoidance. Most importantly, Severe asthma differed from Mild in all three instances and Severe differed from Moderate in two of three scales. What the findings indicate in each of these instances is that Severe asthmatics used these coping strategies more than patients with less severe asthma.

In addition to the extent that severity mattered, the regulation of emotions was also important. Within any threatening transaction, rapid changes occur in the interaction between the individual and the environment in which the threat occurs. Each of the eight coping processes identified affects the regulation of emotions differently. Confrontive Coping has a component of anger and frustration as part of the coping strategy. Generally speaking, this coping strategy is directed at the people with whom one is angry. However, in the case of asthma patients, a high score on the Confrontive Coping scale may have more to do with frustration at the limiting effects of the asthma rather than anger at a person.

Control of a situation has a role in the strategy of Self-Controlling, and again Severe asthmatics used this to a greater extent than less severe asthmatics. When trying to control a situation, an attempt is made to regulate feelings and actions with regard to a threatening situation. High scores on this factor indicate the individual is attempting to regulate their feelings and how they respond to threat. Patients with Severe asthma scored higher than either Moderate or Mild asthmatics in the study sample. For those with Severe asthma, a high score indicates the presence of threat that requires involvement and regulation of what they do and how they feel about the situation.

Wishes and miracles, avoidance, refusal and fantasy are all themes within the Escape Avoidance scale, which was the third scale where differences existed between Severe asthmatics and Mild and Moderate asthmatics. Generally speaking, the avoidance of an illness is an ineffective method of coping. If illness avoidance was an effective recovery strategy, then individuals would not have to take reasonable precautions to prevent an asthma attack. Despite the potential negative consequences of Escape Avoidance, this coping strategy helps the individual deal with the threat by effectively closing the mind to whatever could be threatening. In that sense, denial becomes a realistic option despite the inherent drawbacks. The theme that runs through each of these examples however is that patients with Severe asthma are more likely to utilize these coping strategies when faced with an asthma episode. Though other coping strategies may need to be initiated, it is important to recognize the ones that actually occur as was the case in this sample. Identification of the actual coping strategies that were used was part of the challenge of the present project. What individuals actually do to cope with a chronic illness such as asthma may indicate promising directions for future research and the development of formal education programs for asthma patients and others with chronic illnesses.

Discussion

To this point, the project has focused on the quantitative aspects of self-direction in learning, coping, and asthma. Research as such, sheds light on areas that have not been previously linked. It is a beginning place toward the development of new programs

and generation of forthcoming research. The discussion section will provide a means of discussion to link self-direction in learning to coping. Applied and future research recommendations will be provided followed by concluding remarks.

Linking Self-Direction in Learning and Coping

It is not enough to measure and quantify aspects of readiness for self-directed learning and coping as measured by the SDLRS and WAYS respectively. It is important to find a link between self-directed learning and coping. The results in a correlational study indicate the variables of the two measures are, in some fashion, related. It is important to remember, however, that statistical significance does not mean the variables are causal to each other (Mitchell & Jolley, 1992). A positive correlational relationship indicates that as one variable increases, so too does the corresponding variable. In this sample of adults with asthma, a higher score in measures of self-directed learning readiness is accompanied by a concomitant higher score in Positive Reappraisal, Seeking Social Support, and Planful Problem Solving.

Within Figure 1.1 (see page 12) Brockett and Hiemstra (1991) provided a model depicting self-direction in learning. Their model envisioned personal responsibility as the foundation for linking the personal characteristics of the learner with the external aspects of the teacher/learner transaction. Individual interactions are important with regard to the PRO model, but Brockett and Hiemstra also acknowledge the importance of the social context. The PRO model provides one of the necessary links for understanding the relationship between self-direction in learning and coping.

Lazarus and Folkman's (1984) theory of coping is the other means for understanding how self-direction in learning and coping are linked. When the SDLRS

and WAYS were combined, it was determined that Positive Reappraisal, Seeking Social Support and Planful Problem Solving correlated positively to the total score on the SDLRS. Each strategy describes what the individual actually does when faced with a threat. The context for this study was that the individual's most recent asthma episode was considered by the patient while they completed the survey. Personal responsibility is a part of both the PRO model and coping process with regard to what the individual actually did when faced with an asthma episode. The focus in both coping and the PRO model is on the individual person.

Commonality between individual aspects of both Brockett and Hiemstra's model and Lazarus and Folkman's theory are important to recognize. "Creativity", "Importance", "Rediscovery", and "Faith" are all words used by Folkman and Lazarus to describe the Positive Reappraisal coping subscale. Positive Reappraisal is, in effect, the efforts of a person to attach personal meaning and personal growth to a situation. These aspects of the coping process have a parallel in Brockett and Hiemstra's vision of Learner Self-Direction. Learner Self-Direction focuses on the personality preferences that lead a person to take personal responsibility for being self-directed. Folkman and Lazarus' description of Positive Reappraisal parallels Brockett and Hiemstra's description of Learner Self-Direction. Positive Reappraisal (as a part of coping) and Learner Self-Direction both focus on the characteristics and personality preferences of the individual and lend themselves to an individual's personal growth and derivation of personal meaning.

Seeking Social Support and Planful Problem Solving both pertain to emotions that arise within any threatening situation. Planful Problem Solving encompasses the efforts

made to monitor the threatening situation.. This could include speaking to an expert about the threat, seeking professional help such as seeing a doctor or therapist, asking for advice, and making a plan of action to follow. A direct link between these aspects of coping and self-directed learning can be discovered in the characteristics of the teaching learning transaction. These external factors are elements of the learning process that lie outside of the learner. Such factors include the physical learning environment, assessment of needs and requirements of the learning endeavor, and whether or not instruction will be sought. The elements of the coping process also lie outside of the individual. Assessment of the situation, determining a solution, and initiating the solution based upon resources available to the individual are all factors that reside outside of the person.

What can be accomplished now that we have some preliminary evidence that a positive relationship exists between readiness to be self-directed and the three aspects of coping as measured by the WAYS? The researcher believes an answer lies within education of the individual with asthma. It was determined through this project that a relationship existed between self-direction in learning and coping in adults with asthma. Aspects of self-direction in learning pertain to the personal responsibility of initiation, developing, and evaluating individual episodes of learning and coping with asthma. Jarvis (1998) wrote that learning is "the process of creating and transforming experience into knowledge, skills, attitudes, values, beliefs, emotions, and the senses" (Jarvis, 1998, p. 15). For him it meant the creation of a structure that changes the things we experience to make them a part of us. A larger question in the context of this project then is "What do learning and coping mean to those with asthma?"

The answer to this question may be found in a number of places. One source for the answer comes from the work and writings of Rabindranath Tagore. Tagore was an Indian educator who set up a school at the turn of the century to "denounce the impersonality of the educational system that dwells in the cold storage compartments of lessons and ice-packed minds of the schoolmaster" (Chakravarty, 1968, p. 80). His intention was to make something more of education than just the learning of lessons and memorization of information. Tagore believed the ultimate purpose of education was to develop a sense of values, but also the method to apply them to our lives. He wanted people to understand what they were learning and to make it a part of life. This is applicable in terms of self-direction because the learner can either ignore instruction, pay casual attention, memorize information without critical reflection or create understanding with information (Long, 1998). Tagore wanted each learner to not only train the mind through facts, but to be able to liberate emotions through the education of the self (Chakravarty, 1968). Taking into account the whole person helps to shape the direction and growth of the individual. For the individual with asthma, the whole person involves not only learning about asthma, but also what asthma means to the whole life of this individual in terms of coping with the disease.

It is difficult to measure constructs such as coping and self-direction. For example, they may be considered too vast to be captured or fully explained with a few sets of questionnaires. From the beginning, the purpose of this dissertation--especially as framed by the first question-- has not been to explain ALL aspects of coping and self-direction. Rather, discussion of coping and self-direction were framed by the limited context of the SDLRS and the WAYS. The purpose of this question was to determine if

there was a relationship between the concepts as measured by these two instruments. It was found that such a relationship did exist within this specific group of adults with asthma.

The determination of the existence of a positive relationship is important as it provides another piece of the puzzle for the management of asthma. If anything can be done to improve the situations of those with asthma, then it should be attempted. Though the relationship between readiness to be a self-directed learner and coping is slight, it is worth noting the relationship between them was positive. This means that a higher score in one of the areas will result in a higher score in the other. Practically speaking, this may result in an individual either being ready to take on self-directed learning or being better equipped to deal with their asthma and (hopefully) liberate themselves from the limitations of this disease; a notion Tagore would applaud.

Recommendations

The current project discovered that relationships exist between self-directed learning readiness and coping. It was also discovered that there are differences in the ways individuals cope with asthma depending on the severity of the disease. The severity of asthma matters in how and what coping strategies are utilized. Learning is a part of all individuals' lives. It would be beneficial to teach people the "right" skills in both learning about the disease as well as coping and managing asthma. Asthma is frightening and dangerous to one afflicted with the disease. This project has shown that there are physical issues as well as emotional issues involved. What counts most in terms of

application for those with asthma is to integrate the aspects of self-direction and coping into a usable framework for both practical uses and future studies. This section will provide three applied recommendations based upon the results.

Recommendations For Practice

Recommendation Number 1: Narrow the gap between formal asthma education and learning about asthma. The participants in this study believed they knew about asthma despite a lack of acknowledgement of formal asthma education. The gap between formal education about asthma and learning about asthma needs to be narrowed. Thirty-seven percent of the patients attended asthma school, a structured educational program. According to the attending physicians, 100% of patients were taught by the physician about asthma and asthma treatment. Despite this, 60% of the participants told the researcher that they had *not* received formal asthma education. Clearly they did not regard the information received from their physician or received in the asthma school as *formal* asthma education. What this suggests is that there is some element of education desired by the patients that they did not receive in their exchanges with their physicians or from the asthma school.

Recommendation Number 2: Provide asthma education based upon *both* principles of self-direction and coping. Patients do need to be given basic information about asthma by their attending physician and it should be delivered to patients in such a way that they readily understand it. This particular medical practice, from which the participants for this study were drawn, believes in providing information that is beneficial to their patients. However, more could be done as was evident from the patient's perception that a good portion *did not* receive formal asthma education. This project

provides the impetus for a different form of asthma education; one based upon *both* self-direction in learning and coping.

One key to the success of a formal asthma education program based upon the parameters of both self-direction and coping would be to focus on the patient's initial impulse to seek out information. Following diagnosis (and even after time has passed) there is the tendency to seek out information about their condition. The patients have a tendency to take responsibility for learning about their asthma. A formal asthma education program based upon the notion that all adults are capable of learning and being self-directed to a greater or lesser extent would capitalize upon the initial impulse to learn about asthma. At the same time, such a program would also teach the individual appropriate coping skills. The physician would play an important role in this process, particularly by providing basic information. The physician's emphasis would be to provide information that would be useful to the patient's well-being and support the goal of self-preservation. Then, the patients would continue their education in another venue (along with their families) to learn appropriate coping skills. The physician is the catalyst for this process--facilitating and encouraging patients to learn about their asthma--but should not be expected to provide *all* the education for the patients. Learning about asthma is just one step in the process toward a successful outcome for those with asthma. It takes the concerted efforts of many individuals to pull this all together.

Part of this approach would encourage patients to be active in their appraisal of the situation as well as the application of knowledge to the issues as they arise. Some aspects of asthma are controllable by the patient, and some not. Part of the re-appraisal process should focus on getting the patient to know what they can handle and when to

call for help. When patients can employ more effective problem solving skills and reappraisal skills, they will not only manage their asthma better, but possibly even cut down on unnecessary trips to the physician's office. Despite the fact that this population was educated and highly ready to be self-directed, they still employed coping skills that could be detrimental to their health. The Severe group, in particular, used Escape Avoidance as one coping skill.

As mentioned previously, this group of participants is probably atypical of many asthma patients. The study patients generally have a high level of formal schooling, are highly self-directed, and receive personalized medical attention within a high-profile medical setting. This naturally raises concerns about conclusions that might be drawn from the results of the study. The expectation, however, would be that in addition to being self-directed, this group would then follow-up by demonstrating the use of effective coping skills. This was not the case. The study group instead shows how some kinds of formal asthma education (e.g. as provided by attending physicians or through didactic asthma education) emphasize particular kinds of information. Hence, this group of participants was able to articulate scientific information about asthma. Their claim that they had not received formal asthma education, coupled with their use of ineffective coping skills, suggest to this researcher that the real goal for future asthma education programs should be to capitalize on patient's self-directedness and teach them effective coping skills. Additionally, program such as this could also include information for families which will aid in the coping skills for both patients, and their immediate family members, in dealing with this chronic illness.

Recommendation Number 3: Placing emphasis on the importance of social

support for adults with asthma. This particular medical setting was supportive and encouraged the patients to come to the physicians with their health care issues. The current project demonstrated the importance of Seeking Social Support in relation to the self-directed learning readiness skills. It would seem obvious to those with asthma that having support from family and loved ones is an important part of care. In this setting, the families appeared very supportive. There were cases however, in which the spouse or family was not supportive. Those with asthma who lacked support were open about their need of support and even longed for the support of another family member. Formal education support groups could be helpful for patients who do not receive support from their families. Individuals in this type of setting should be reminded of the importance of social support and to seek it in other places if they do not find it within their immediate surroundings.

The majority of individuals in the sample utilized a variety of coping methods to deal effectively with their asthma. This was true from the Mild to the Severe asthmatics, though those with Severe asthma tended to utilize the coping skills to a larger extent than those with lesser forms of asthma. It was shown through this project that there was an interaction of coping strategies that related to the self-direction of individuals. Encouraging patients with asthma to utilize multiple coping skills learned in a formal asthma education program will enable them to better manage the disease.

Both patients and providers need to understand that the severity of the asthma matters in how patients cope. It was demonstrated that those with severe asthma differed in the extent to which they called upon certain coping strategies. The patients with more

severe forms of asthma need to be told that this is normal and they are not different because of such a feature. The utilization of coping skills benefits those with asthma and calling upon those strategies to a greater extent for those with severe asthma is part of having this disease.

Research Recommendations

Future research is important in the area of learning, self-direction, and coping. There are a number of possibilities from which to choose in terms of future directions. (a) Replicate the present study, (b) Refinement of the measurement scales, (c) Larger sample size for the present study, (d) Exploration of the role of spirituality, (e) Self-direction and coping for other chronic populations, and (f) Qualitative analysis of the current topic. All provide a wide range of opportunities for continued research.

One area of study would be to replicate the present study with a less knowledgeable and more normalized population of adults with asthma. The present group was knowledgeable about asthma and was strongly self-directed. It would be a benefit to see if the current results would hold up with future studies. A second factor for future study would be the refinement of scales to better capture the essence of both self-direction and coping. Having a narrower range of focus rather than a broad one would gain a better understanding of the processes that individuals with asthma go through. A third area of research would focus on a continuation of the current project. The small sample size does not do justice to the stepwise regression. Confirmation of the present results could be available if the sample size were larger. Since there was a significant statistical interaction, it was important to determine if the included factors would hold up with a larger sample or if different or additional factors would be included. A larger sample size

would help to answer this question and thus suggests a rationale for additional research in the area of self-directed readiness and coping.

Another area of research that needs to be explored is the role of spirituality in those with asthma. The WAYS tried to capture this essence through asking of two questions. Many of the participants answered positively when read these statements signifying the importance of spiritual aspects related to their asthma. Two statements on the WAYS do not give this area justice. Beyond the scope of asthma, this research lends itself to the study of other chronic illnesses. The current format could be applied not only to those with asthma, but to determine what results could be obtained for those with other chronic illnesses such as diabetes, chronic heart failure, and even multiple sclerosis. All these areas and others, have a need to learn more about the learning and coping processes involved. Finally, studying self-direction and coping quantitatively is important, but the essence of the individual can be lost in the process. Self-direction and coping with asthma lends itself to qualitative study. Doing so will enable researchers, providers and those with asthma and other chronic illnesses a clearer picture and ability to understand what they are faced with.

A Closing Reflection

People with asthma have a daily awareness of their disease and the need to cope with it. There is also a need for those with asthma to learn about their disease. The focus of this project was to determine the extent of the relationship between self-direction in learning and coping. Additionally, it was used as a vehicle to determine if differences existed between the severity of asthma and the way individuals coped. A partial relationship existed between the SDLRS and WAYS. Those with Severe asthma utilized

coping strategies to a greater extent than less severe asthmatics. The inspiration for this project came from the researchers own life, and his wife's battles with asthma. The preceding project provided a method to express their inspiration to fight the threat of being unable to breathe easily. The dissertation and scientific research were one way to tell that story, but there is another. One of the most powerful ways to learn about the realities of others is to read and learn from their stories. The following stories are reflections of the personal battles they often face.

September 1998. The page came in at 10:32 a.m. It was Karen's office and she wasn't working today. I called and spoke to Nancy, Karen's nurse. "Karen's on the way to the hospital in the ambulance, you need to go over right away." I hung up and ran to the car. I beat the ambulance and stood outside in the morning sunshine. I wondered to myself what had happened. Karen was off for the day and going to go for a swim. She was in good health of late.

The ambulance arrived and Karen was lying on a gurney and wearing an oxygen mask. She couldn't speak but nodded weakly and tried to smile as they wheeled her past me. I jumped beside the cart and grabbed her hand and we went inside. The E.M.T. told me that Karen had been swimming when some women came into the pool and entered without showering. The scent of their deodorant, perfume, and hair spray hung over the water. Of no threat to most people, the mixture was toxic for someone with Severe asthma like Karen. Karen swam into the drifting odors without knowing they were there. She barely made it out of the pool and was able to dress and get to her office before collapsing.

She lay in the E.R. with doctors, nurses, and attendants all around. Her peak flows were low, below 100, and her oxygen saturation in her blood was also low. The level of carbon dioxide was rising in her blood and this was serious. She was trying to breathe and she could take in enough oxygen but couldn't get rid of the CO₂. She was suffocating and her lungs were tight. She wasn't moving any air.

The oxygen mask was still on and they gave her huge dosages of intravenous steroids to try and relax the smooth muscles of the lungs. They wouldn't budge. They were giving her non-stop breathing treatments trying to get the spasm to subside. Nothing seemed to work. She was tired, the dark circles under eyes were deep and her eyes sunken. She was trying to keep up by breathing harder, but nothing seemed to work. I held her hand, helpless and paralyzed.

The attending physician asked Karen for her approval to put her on a ventilator. The ventilator would breathe for her and she could rest, perhaps. It was serious by this point. Karen, with a last bit of energy, vigorously shook her head and said, "No vent". She has a fear of not ever getting off and has yet to be put on one. If the asthma episode doesn't subside soon, there may not be any choice. Without it, she may die.

After four hours of non-stop treatments, the lungs relax. Karen is wasted and spent. She is not admitted to the hospital but is sent home with me to watch over her. We get home and she rests, but I'm wary. I watch her sleep and make sure she is breathing. Her chest rhythmically rises and falls and I listen for the sound of her breath. We have weathered another asthma "storm". All is quiet for now. Soon we will begin the journey of decreasing the medicines and all that comes with that ordeal. We will cope with that as it comes and the cycle continues into the uncertain future.

February 2000. Karen is lying next to me in bed and we are closing out another day in Maine. She has begun her job as an Emergency Room physician and enjoys the variety and depth of her work. The hours are longer than she would like, but she is passionate about medicine and helping others achieve health. She leads by example despite the health setbacks she has faced having asthma for the past eight years. We are full of health and optimistic about our future here. Moving to Maine, we had to find a new pulmonologist to treat her asthma. We found an excellent physician and a request that he made of Karen in getting to know her condition was to have her track her peak flows for a month. She is to blow into a tube in the morning and the evening and that will measure the amount and force of the air in her lungs. It is a measure of health. This procedure is done standing up--always.

Tonight, Karen is lying in bed reading and then remembers to take her peak flow. She pulls the peak-flow-meter from her nightstand and blows. I say to her, "How was it?" referring to the peak flow. I was dubious since she was lying down. She replied "500" which is an excellent score for Karen (her all time high has been 560). I laugh and shake my head and say, "I'm sure Dr. Harrow will be interested in the "New World Record" that you just set for a peak flow, lying down." We both chuckle and drift to sleep. Things are quiet in the Nelson house. No storms on the horizon.

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APPENDICES

Appendix A

Further Definitions

Airway hyper responsiveness. An abnormal airway that narrows too much and too easily to a stimuli (Woolcock, 1997).

Allergen. A substance upon being brought into the body leads to the production of specific antibodies (Woolcock, 1997).

Alveoli. Sac-like structures at the ends of bronchioles through which oxygen is absorbed from the blood.

Bronchi. The smallest branching pipes through which air passes (Lane & Storr, 1979)

Bronchial asthma. Same as asthma.

Bronchiole. The smallest airway passage which alveoli are connected to (Lane & Storr, 1979).

Bronchodilators. A series of drugs that stimulate beta agonists and inhibit the release of mediators of asthma. A number of drugs produce the effect of dilation of the bronchial passages. Generally given through the mouth in aerosol format and are provided on an as needed basis (Lane and Storr, 1979).

Bronchospasm. A term utilized with asthma to describe a prolonged shortening of the muscles associated with breathing and specifically with the muscles surrounding the bronchi (Lane & Storr, 1979).

Diaphragm. Muscle below the lungs that facilitate breathing (Lane & Storr, 1979).

Extrinsic (atopic) asthma. Any type of asthma that is brought about through a reaction to allergens or other asthma provoking agents (Woolcock, 1997).

Intrinsic asthma. Asthma that occurs in the absence of atopy. It most often shows up in adult life. Pathology and medical treatment of this form of asthma is no different than extrinsic asthma.

Trigger. A trigger is anything that initiates the production of substances within the body that result in a harmful reaction (Young et al., 1985).

Appendix B

Demographic Information

1. Participant Identifier:
2. Race/Ethnicity
 1. Asian American
 2. Black/African American
 3. Mexican American or Hispanic American
 4. White/Caucasian
 5. Other
3. Age _____
4. Gender
 1. Female
 2. Male
5. Marital Status
 1. Divorced
 2. Living as Married
 3. Married
 4. Never Married
 5. Separated
 6. Widowed
6. Perceived Health
 4. Excellent
 3. Good
 2. Poor
 1. Do Not Know
7. Income
 1. <\$10,000
 2. \$10,000 - \$19,999
 3. \$20,000 - \$29,999
 4. \$30,000 - \$39,999
 5. \$40,000 - \$49,999
 6. >\$50,000

Appendix B (Continued)

8. Highest Level of Education

1. Less than High School
2. High School Graduate
3. G.E.D.
4. Attended College
5. Bachelor's Degree
6. Attended Graduate School
7. Advanced Degree

9. To the best of your knowledge how long have you had asthma?

Number of years _____

10. Have you attended Asthma School?

2. Yes
1. No

10. How would you rate your overall success in coping with of your asthma?

4. Excellent
3. Good
2. Poor
1. Do Not Know

11. How would your rate your overall success in managing your asthma?

4. Excellent
3. Good
2. Poor
1. Do Not Know

Appendix C

Physician Questionnaire

1. Patient Identifier: _____
2. Current classification of asthma severity (circle one)
 - 1 mild
 - 2 moderate
 - 3 severe

Appendix D

Physician Recruitment Letter

David A. Nelson, M.A.
2014 Ponderosa Lane
Maryville, TN 37803
981-9977
dnelson2@utk.edu

June 23, 1999

Robert M. Overholt, M.D.
The Allergy, Asthma, & Sinus Center
801 Weisgarber Road, Suite 200
Knoxville, TN 37909

Dear Doctor Overholt,

My name is David Nelson and I am a doctoral candidate in the College of Education at the University of Tennessee, Knoxville. I am writing my dissertation and the topic is: "Self-direction and Coping in Adults with Asthma." I am writing in the hope you would provide expertise and assistance for this project. I would like to utilize a portion of your adult population that has asthma for the data collection portion of the dissertation.

My wife Karen Nelson, M.D. has been a patient of Marty Prince and has severe asthma. We have both been to the Weisgarber office on many occasions. My professional interest arises from working with a number of adults with asthma in my private counseling practice. One of my goals in life is to improve the lives of those with breathing disorders. I believe this can be accomplished, in part, through education.

The project is oriented toward the education and coping ability of adults with asthma. I want to determine if a relationship exists between the concept of self-direction in learning and coping in adults with asthma. For the collection of data, I will utilize two standardized, commercial questionnaires; The Self-directed Learning Readiness Scale (SDLRS, Guglielmino, 1977) and the Ways of Coping Questionnaire (WAYS, Folkman and Lazarus, 1988). For each participant I also need a physician to fill out the Physician Questionnaire; a short set of questions regarding the asthma severity of each participant. Finally, there is an optional participant demographic questionnaire. I am looking to survey 100 adults, one time with the total time commitment of approximately 30 minutes or less per individual.

I hope you will be interested in assisting with this project. Dr. Prince, prior to his moving the focus of his practice, had agreed to assist in the data collection. The completion of my dissertation would be the culminating experience to my graduate education. Since the areas of asthma, self-direction in learning and coping have never been researched together, I am excited about moving ahead with the study. If there is interest on your part I would provide you with a more detailed description of the project, consent forms and questionnaires

My intention is to follow up soon to determine your level of interest. If this project is feasible, I would like to meet with you to discuss further details of the study. I am committed to the collection of data, but understand the scope of your needs in running your practice. I would make my schedule fit yours without causing a disruption to your office and staff. I have listed below my requirements of the subjects as well as a recap of the data collection instruments. Thank you for your time and I look forward to speaking with you soon.

Recap of Data Collection Instruments - one of each for 100 subjects

1. Self-directed Learning Readiness Scale - 58 items
2. Ways of Coping Scale - 66 items
3. Physician Questionnaire - 8 items
4. Demographic Information - 8 items

Participant Requirement

1. At least 18 years of age.
2. Medical diagnosis of asthma.
3. Asthma severity grade as determined by the physician.
4. Diagnosis of asthma for at least one year.

Sincerely,

David A. Nelson, M.A.

Appendix E

Physician Approval Letters



THE ALLERGY, ASTHMA, & SINUS CENTER
Pediatric, Adolescent, and Adult Allergy, Asthma, and Clinical Immunology
ALL PHYSICIANS BOARD CERTIFIED

Allergy and Immunology

Robert M. Overholt, MD
FACAAI, FAAAAI

Michael A. Springer, MD
FAAP, FACAAI, FAAAAI

Ty L. Prince, MD
FACAAI, AAAAAI

R. David Ponder, MD
FAAP, FACAAI, AAAAAI

David L. Gossage, MD
FAAP, AAAAAI

Pulmonology

J. Martin Prince, MD
FCCP

Dermatology

Meredith T. Overholt, MD
FAAD

Nurse Practitioners

Karen P. Roden
RNCS, MSN, FNP

Darrell G. Dobbins
RNCS, MSN, FNP

Janet M. Bailey
RNCS, MSN, FNP

Julie S. O'Malley
RNCS, MSN, FNP

Clinical Nurse Specialist

Jacquelynn Prince
RN, MSN, CS

To Whom It May Concern:

This letter is to serve as documentation of communication relative to David Nelson conducting a research project on coping and self-direction in adults with asthma. He has presented his research project to me and it is acceptable as it was presented. My role as the supervising physician in this project will be to act as a consultant to Mr. Nelson. I understand that I or an associate working for me will assist Mr. Nelson in the initial recruitment of the subjects. I also understand that I will fill out Mr. Nelson's Physician Questionnaire with regard to the participants.

Sincerely,

J. Martin Prince, MD

Date: 8-4-99

JMP/jtm



THE ALLERGY, ASTHMA, & SINUS CENTER
Pediatric, Adolescent, and Adult Allergy, Asthma, and Clinical Immunology
ALL PHYSICIANS BOARD CERTIFIED

Allergy and Immunology

Robert M. Overholt, MD
FACAAI, FAAAAI

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Sincerely,

Robert M. Overholt, MD

Date: 8-2-99

RMO/jtm

Appendix F

Informed Consent Form - Self-Direction and Coping in Adults with Asthma

You are invited to participate in a research study. The purpose of this study is to see if a relationship exists between learning preferences and coping for adults with asthma. If such a relationship exists, it could provide information important to health care providers and patients. The greatest potential benefit is the information gained from this study may improve the lives of those with asthma.

INFORMATION

Criteria for inclusion in the study is the following:

1. You must be an adult aged eighteen (18) years or older.
2. You must have a medical diagnosis of asthma.
3. You must have had asthma for at least one year.

Approximately 80 individuals will be asked questions. Questionnaires will be utilized in the collection of information. The questionnaires are self-explanatory though the researcher will be on hand to answer questions. The total time needed is approximately 10-20 minutes. At no time in this project will your name ever be used. Those deciding not to participate will not jeopardize their health care from this medical office now or in the future.

Demographic Information

General information about you will be asked. There are eight questions including: age, gender, and marital status, perceived health, income and highest level of education. This information will be used to determine: 1) those who are adults, 2) general information about all the participants. This information is optional, but encouraged. Declining to answer questions WILL NOT exclude you from the study.

Physician Questionnaire

This questionnaire will provide limited medical information from Dr. Prince about you. The form will be completed by Dr. Prince and provide a record of the severity of your asthma. Information will also be asked of Dr. Prince in regard to how long you have had asthma and if you have participated in asthma school at this office or elsewhere.

Learning Preferences Questionnaire

This questionnaire will gather information on how you prefer to learn. Questions are general and are answered on a five-part scale from; "Almost never true of me", to "Almost always true of me".

Coping Questionnaire

This questionnaire will gather information on dealing with stress. You will be asked to answer questions in regard to how you coped with a most recent asthma episode. Questions are answered on a four-part scale from; "Does not apply, not used", to "Used a great deal".

_____ Participants initials

BENEFITS

Several benefits will come from this study.

Expected benefits to researchers include:

- 1) More knowledge about adults with asthma;
- 2) More information about coping with asthma;
- 3) New information on learning for those that have asthma;
- 4) New ways of teaching about asthma may be developed.

Expected benefits for you include:

- 1) An opportunity to find out how you cope with asthma. One questionnaire will show the different ways you cope with asthma.
- 2) You will find out the way you prefer to learn. The way you learn can relate not only to your asthma, but also for other areas of your life.

CONFIDENTIALITY

The information in the study records will be kept confidential. Data will be stored securely and will be made available only to persons conducting the study unless you specifically give permission in writing to do otherwise. No reference will be made in oral or written reports that could link you to the study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researcher, David Nelson, at 439 Claxton Addition, Knoxville, TN 37909 and (423) 974-2227. If you have any questions about your rights as a participant, contact the Compliance Section of the Office of Research at (423) 974-3466.

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decided to participate, you may withdraw from the study at anytime without penalty and without loss of benefits that you are otherwise entitled. If you withdraw from the study before data collection is completed, your data will be returned to you or destroyed.

CONSENT

I have read the above information and agree to participate in this study. I have received a copy of this form.

Participant's name (print) _____

Participant's signature _____

Date _____

Appendix G

Scoring Ways of Coping Questionnaire and Scoring Template

To score the Ways of Coping Questionnaire, add the raw score for each item on the scale to get a total score. There are four possible responses 0, 1, 2, and 3. These are also the weights that should be used to get the raw score. Note that not all 66 items are scaled.

<u># Of items</u>	<u>Scale</u>	<u>Items in the scale</u>
6	Confrontive Coping	6, 7, 17, 28, 34, 46
6	Distancing	12, 13, 15, 21, 41, 44
7	Self-Controlling	10, 14, 35, 43, 54, 62, 63
6	Seeking Social Support	8, 18, 22, 31, 42, 45
4	Accepting Responsibility	9, 25, 29, 51
8	Escape-Avoidance	11, 16, 33, 40, 47, 50, 58, 59
6	Planful Problem Solving	1, 26, 39, 48, 49, 52
7	Positive Reappraisal	20, 23, 30, 36, 38, 56, 60

VITA

Learning has always been an important part of David Nelson's life. The lessons he has learned have not always come easy, but they have been valuable nonetheless. Formal education has not come easy for David, but learning is important. Learning has consisted of school related items but learning has also come by way of the outdoors; fishing, bike riding, running, and daydreaming. David often struggled with school programs and wandered through most of his undergraduate career. He then met his soon-to-be wife; Karen and she became his shining star and guidance. Learning continued to be important, but it could be harnessed in manners he did not know existed. "Together" they explored and overcame the rigors graduate programs, medical school, residency, and now David's doctoral dissertation. David's academic background includes The University of Illinois (1985 – B.S.), The University of Northern Colorado (1995 – M.A.), and now finally The University of Tennessee. Karen continues to shine for David and help direct his course. They learn together and love one another with the blessing of God and family. Learning is still important to David and will be so for the rest of his life here on earth. To close, the writings of M. Scott Peck (1997) are most appropriate when he wrote, "I believe the reason we are here is to learn, which is to say, to evolve. By 'evolve' I mean to progress. When people learn, they are in a position to pro-gress (move forward) as opposed to re-gress (move backward). And I defy you in your imagination to construct a more ideal environment for human learning than this life." Here's to learning for all. See you down the road.