

The Urban Environment and
Life Satisfaction Among the Elderly in Winnipeg

Paula S. Lewis

A thesis presented to the University of Manitoba
in partial fulfillment of the requirements
for a degree of

Master of Science
in
Department of Family Studies

Winnipeg, Manitoba.

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ISBN 0-315-48128-5

THE URBAN ENVIRONMENT AND LIFE SATISFACTION
AMONG THE ELDERLY IN WINNIPEG

BY

PAULA S. LEWIS

A thesis submitted to the Faculty of Graduate Studies of
the University of Manitoba in partial fulfillment of the requirements
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MASTER OF SCIENCE

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Acknowledgements

I would like to take this opportunity to express my appreciation to all those people who made the completion of this research project a reality.

I owe much appreciation to my thesis advisor, Dr. John Bond, who spent many hours collaborating with me over statistical analysis and the text of this document. I also thank my thesis committee, Professor Dana Mallin and Dr. Geoff Barge for their hard work on this project.

I extend a special thank you to The Centre on Aging, especially, Dr. Neena L. Chappell and Dr. John Horne, for making the data used in this project available. Also, I extend a thank you for The Centre's help in understanding the code book!

Barbara Westcott deserves a pat on the back and a thank you for her special effort and patience in the formatting and printing of this document.

Finally, I must thank my family. My husband, Elliott Goszer, for all the patience, encouragement and support which helped me in completing this project. My parents, Sid and Joyce Lewis, for inspiring my interest in academic work and social gerontology.

Thank you.

Abstract

The Urban Environment and Life Satisfaction Among the Elderly of Winnipeg.

Theories of the environment and the elderly are explored resulting in the development of the Interactive Ecological Theory of the Environment and the Elderly. The basic premise of this theory is that the elderly person is a focal system trying to maintain him/herself in a stratified environment. As the focal system becomes increasingly old, personal resources dwindle and it is forced to rely more heavily on the environment for fulfillment of its needs.

Secondary analysis of data is used to test this theory and model. Life satisfaction is the dependent variable. Personal resources and characteristics of the focal system, and environmental services are the independent variables.

The results indicate that health and income are the most important personal resources to the elderly. The most important environmental features are those which aid in fulfilling needs associated with health and income such as community health clinics, dentists and lawyers.

Further tests on the importance of the environment to the focal system showed that when individuals moved residential location in hopes of finding an improved neighbourhood, those who found it had higher life satisfaction than those who found no change or worse.

The findings of this research support the Interactive Ecological Theory of the Environment and the Elderly. Further, the findings indicate the importance of health and income in old age, as well as the importance of a supportive neighbourhood/community environment for the elderly.

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Chapter 1

INTRODUCTION

In 1984, the estimated number of Canadians 65 years and older was 2.6 million, approximately 10.2% of the population. It has been projected that in the year 2006 the number of Canadians 65 years and older will have reached 4.1 million, approximately 14.7% of the population (Priest, 1985). It is therefore conceivable that Canada will need 50% more housing for senior citizens in the year 2006 than at present. While it is unlikely that all seniors will want to live in special housing facilities for seniors, a large number will, projecting from the desires of the present elderly cohort. This being the case, the next twenty years will see an increase in the construction of housing developments and in other home support programs for seniors. Before governments or private developers invest large amounts of money, it makes economic and social sense to determine the implications of housing development for seniors. This investigation explores the person-environment relationship, with particular focus on elderly persons and their location within an urban environment. Understanding how the urban environment can help or hinder the elderly person will be of benefit in both the future construction of housing and the development of programs and services for elderly in the community.

This study has four objectives in relation to the elderly and their environments.

- 1) To review the relevant literature to:
 - a) support the theory to be developed
 - b) help establish what hypotheses are to be tested
 - c) compare results of this study with trends found in existing literature.
- 2) To develop a theoretical basis for this study and research in the area through extensive review of past theories.
- 3) To test the reliability or predictive power of the theory to be developed.
- 4) To develop and test hypotheses which will address the following:
 - a) life satisfaction in relation to personal characteristics and resources;
 - b) life satisfaction in relation to the usage of environmental features and services;
 - c) life satisfaction in relation to the proximity of environmental features and services;
 - d) life satisfaction in relation to the proximity of relatives and friend.

Chapter 2

THEORETICAL FRAMEWORK

To understand humans in their environment it is necessary to understand the contributions made to this relationship by both the natural and built environment, the linkages between them and the linkages with humans and their requirements for life (Nattress & Morrison, 1975). In recent years many theories and models have been developed which attempt to define the relationship between the individual and the environment. Theories such as the Ecological Approach (Nattress & Morrison, 1975) are broad theories encompassing all humans regardless of age, race, sex, and all environments. Other theories are more specific: defining only one small segment of an environment and certain types of individuals. The importance of these theories, regardless of their scope, is their utility in organizing the area of study, acting as models for research, and as a means of explaining relationships and the mechanisms underlying the relationships.

Past research in the area of housing for the elderly has not had adequate theoretical foundation, making it difficult to interpret research findings. Several theories have been proposed regarding the elderly and their environments. Among these theories are Kahana's Congruence Theory, Lawton's Adaption Theory and Eckert's and Ittman-Murray's Ecological Housing Model.

Review of Theories

Kahana's Congruence Theory states that the optimal environment is one which offers a maximal congruence between an individual's needs and the environmental press. Lack of congruence between the individual and his/her environment can be due to a change in either the individual's needs or the environment (Kahana, 1975). Negative incongruence occurs when the environment does not fulfill the individual's needs. Positive incongruence exists when an environment offers more than necessary to fulfill the individual's needs. Optimal congruence occurs when the individual's needs are met exactly by the environment, with neither an oversupply or undersupply of environmental features. Kahana (1980) postulated three alternative models of congruence: non-directional, one-direction and two-directional. The non-directional model hypothesizes that positive and negative incongruence have the same effect. The one-directional model hypothesizes that positive incongruence has the same effect as no incongruence, or as optimal congruence. Finally, the two-directional model hypothesizes positive incongruence to have a different effect on the individual than negative incongruence; furthermore, both positive and negative incongruence affect the individual differently than optimal congruence.

Kahana found little support for the Congruence Theory in a study of the relationship between person-environment fit (congruence) and morale. Depending on the environmental dimensions involved, either oversupply or undersupply may have a positive effect on morale. Thus, conclusions concerning the effect of one dimension may not be generalized to other

dimensions and none of Kahana's models are adequate to be used in all situations (Kahana, 1980).

There are limitations to Kahana's Congruence Theory. The theory is one dimensional, as it lacks the ability to account for the individual's input into the environment and the individual-environment relationship. The theory does little more than describe the relationship between the environment and the individual. The theory is also limited, as it excludes all but the immediate environment; therefore it cannot account for the impact of the social, cultural and political environments on the individual. Thus, this theory is inadequate as a theoretical base for the field of housing for the elderly.

Lawton's Adaption Theory (1975, 1977) is described by the following formula:

$B = (f) P \times E$ where: (P) represents the person element
 (E) represents the environmental press
 (B) represents the behavioral outcomes
 of interest.

The person element is described as the person's competency which is a profile of the person's capacities including health, sensation-perception, motor-behavior and cognition. Environmental press is defined as challenges or demands that activate behavior in people. The theory states that those who have a higher level of competency can adapt to a wider range of environmental press and have a greater likelihood of experiencing favorable adaptive outcomes. Those of lower levels of

competency will experience a greater range of environmental press in negative terms, exhibiting a narrower range of adaptive behavior.

The limitations of Lawton's theory are in its narrowly defined elements. Person competencies exclude resources such as income and personal transportation. The definition of environmental press excludes the social, political and cultural environments as well as any environmental feature which does not challenge or demand a behavior of an individual. Although this theory accounts for some input from the individual to the environment and the relationships between the two, the theory does not acknowledge needs of the individual and how those needs relate to the environment. The confines of this theory render it inadequate as a theoretical base for the present research.

In the Ecological Housing Model postulated by Eckert and Ittman-Murray (1984), the individual and three levels of the environment interact simultaneously. The individual components include the individual's past history and behaviors, and the competencies as described by Lawton. The environments with which the individual is simultaneously interacting are defined as:

(1) The Microsystem (which has four levels):

- (a) personal environment - significant persons to the individual;
- (b) group environment - the pressures attributed to the individual's peers;

- (c) supra personal - aggregated characteristics of the individuals in physical proximity to the individual; and
- (d) physical environment - the immediate natural and man-made environment.

(2) The Ecosystem: The community or neighbourhood, including all social aspects and institutions in the community.

(3) The Macrosystem: The political processes, economic forces and all social process which operate within a society and which influence everyday life.

The limitation of this model is not in its definitions, but in the interacting relationship between the environment and the individual. The model gives no explanation or understanding of the underlying mechanisms in the simultaneous interaction. Thus no hypothesis can be drawn from this model because there are virtually no propositions or assumptions upon which a hypothesis can be based.

General Systems Theory

The following discussion is a synthesis of work by Crandall, Gross, and Knoll (1980) and Broderick and Smith (1979) on General systems theory. General systems theory, a macro level theory, is used in many areas of study. The theory divides what is being studied into environments, systems and subsystems.

An environment may be defined as the region surrounding a system. Environments are stratified so that one environment is enclosed by yet a larger environment. (Each environment should contain fewer systems than the environment below it.) The higher level environments enclose fewer

systems, but these systems are more complex in structure and perform different functions than the systems in lower level environments.

Systems all exist within environments. A system may be defined as a set of objects with their attributes, and the relationships between the objects (Broderick & Smith, 1979). Elements belonging to the system, and those belonging to the environment, are delineated by boundaries. Three types of boundaries can be identified: (a) spatial or physical boundaries; (b) functional boundaries, enclosing those elements which perform functions of the system; and, (c) analytical boundaries, determined by the investigator (Gross, Crandall, Knott, 1980).

Interaction within the boundaries of a system are of greater frequency and intensity than interactions across boundaries. If two systems share a boundary then interaction between the systems will occur across the shared boundary. A shared boundary is referred to as an interface. Interactions between systems, or between a system and the environment, are seen as inputs to, and outputs from the system. When using systems theory, the system which is being studied is called the focal system and interaction is defined according to this system. Therefore, the focal system receives input from other systems and the environment, and sends outputs to other systems and the environment. Inputs to the focal system in certain circumstances can be considered feedback from the environment or other systems. Feedback aids the focal system in its functioning. Inputs which are feedback are responses to outputs from the focal system. Inputs to the focal system can also be

unrelated to the outputs of the focal system, and may represent functioning of other systems or aspects of the environment.

Systems theory assumes a hierarchy of systems which stresses a vertical relationship. This means that one system is part of, or is, a subsystem of a larger suprasystem, which in turn, is part of an even larger suprasystem. A subsystem may be defined as a part of a system which functions separately from the rest of the system, but is necessary for the functioning of the system as a whole. The assumption of wholeness also states that the behavior of a system cannot be predicted or explained on the basis of information about its subsystems viewed separately (Gross et al., 1980).

Change is dealt with in the systems theory by the assumption of finality - that a system moves towards an end state, although it may never reach this state (Gross et al., 1980). In an open system, the final state is determined by both the initial conditions of the system and inputs from the environment, rather than a closed system in which the final state is determined solely by initial conditions of the system. Systems try to maintain themselves by adapting to disturbing input or by capitalizing on useful input. If the system always tries to return itself to its original state then the processes it uses are called morphostatic. If the system changes its structure to adapt to the environment, then the processes it uses are defined as morphogenic. Thus, if a system is morphostatic, it is less likely to take risks, adjust to change, or to explore new alternatives. If a system is morphogenic, it would readily change, and it would be creative in

exploring alternatives. A morphogenic system is more likely than a morphostatic system to achieve its goals, even though the goals themselves may have changed due to the morphogenic systems ability to generate new and adaptive ways of functioning.

Interactive Ecological Theory for the Environment and the Elderly

The theory to be developed for the purposes of this study considers the following to be true:

- (a) humans are cognitive;
- (b) human have the ability to act upon and react to their environment;
- (c) the environment can affect humans; and
- (d) humans can affect the environment.

In addition, the theory assumes the following:

- (a) an individual human can be considered a system; and
- (b) in accordance with the system theory's assumption of wholeness, the behavior of an individual cannot be predicted without knowledge of his/her subsystems.

In this theory, the elderly individual and his/her attributes is the focal system to which primary attention will be given (Figure 1, page 15). The elderly individual and accompanying attributes (1a and 1b in Figure 1) take the central inner circle with the environments radiating from the centre. The elderly individual, with his/her attributes as a system, has been divided into two subsystems (1a and 1b in Figure 2). The physiological, social, and psychological needs of the individual act as one subsystem and the personal resources and

characteristics of the individual act as the second subsystem (Table 1, page). The segmented curved line between the subsystems in Figure 1 represents the high intensity of interaction along the interface, and the interdependence of the two subsystems. The focal system is delineated from the environment by two types of boundaries. A spatial boundary encompasses the tangible resources and characteristics of the elderly individual, such as his/her body and belongings. A functional boundary encompasses intangible attributes and resources of the elderly individual, such as a mental capacities. The functional boundary encloses the components of the elderly individual that are necessary for the functioning of the system.

The environment in which the focal system exists is divided into three levels. The boundaries for the division of the environment are based on three criteria: (a) physical closeness; (b) frequency of interaction with each environment; and (c) the degree of control the elderly individual has over the environment (adapted from Eckert & Ittman, 1984; Gross et al., 1980) see Table 2, page 17 and Figure 1, page 15. The nearest environment to the elderly individual is the Personal Living Environment. This environment includes the immediate natural and built physical environment, social network, and the aggregated characteristics of neighbours. The Neighbourhood/Community environment includes safety in the neighbourhood, aesthetic beauty of the neighbourhood, and amenities and services available in the neighbourhood. Also included in this environment are rural, urban or suburban location of neighbourhood or community climate. The farthest

environment is the Socio-Political Environment which includes social processes such as government (taxation, war, pensions, welfare), economic climate, and societal attitudes and pressures.

In Figure 1 the arrows along the boundaries of the focal system, the subsystems and the environments represent the numerous interactions which occur across these boundaries. As the elderly individual is the focal system, arrows pointing away from the centre circle represent outputs from the focal system. Those arrows pointing toward the centre circle represent inputs to the focal system: simultaneously, these arrows represent outputs of the environments. For example, an elderly woman receives her pension cheque (output from Socio-Political Environment, input to focal system, specifically the resources subsystem). This elderly woman then spends half her pension cheque on rent (output from focal system--resources subsystem, input to subsystem of needs because paying rent provides shelter, input to Personal Living Environment). Inputs and outputs occur between environments. For example, the municipal government may decide to renew an older inner city neighbourhood. Often interactions between environments act as inputs to the focal system through repercussions rather than a direct input. Using the example just given, the renewal project could increase property values, which would increase rents in the neighbourhood. The increase in rent may force an elderly individual to move because his or her resources are not sufficient to pay the increased rent. In this example, the input of the Socio-Political Environment to the Neighbourhood/Community Environment has had a very detrimental indirect

input to the focal system. The renewal project could have direct inputs to the focal system, such as increased aesthetic beauty and increased safety, which would be very positive for the focal system.

The basic function of the focal system is to move toward an end state of self maintenance. As the focal system is an open system, both its initial condition and the environment will determine the final state, that is, the level of self-maintenance the focal system will result. The focal system can be either morphostatic or morphogenic or both, depending on the situation and the characteristics of the particular focal system. The two subsystems of the focal system are interdependent in that subsystem 1a, the person's needs and desires, are met by subsystem 1b, the person's characteristics and resources. Subsystem 1a is dependent on subsystem 1b for the fulfillment of the system's needs and desires; subsystem 1b is dependent on subsystem 1a to measure the need of the focal system, and to assure that the focal system will first be supplied with life sustaining elements, followed by other elements.

Environmental attributes act as inputs to the focal system which may help or hinder the functioning of the focal systems. Certain environmental attributes, if accessed and needed for the focal system's functioning, actually become part of subsystem 1b and are considered a personal resource based on the functional boundary of the system. For example, if an elderly individual can easily access a neighbourhood grocery store, and relies on it as the only place to purchase food, then the store has become an integral part of the subsystem 1b and is

necessary to supply subsystem 1a with food, one of subsystem 1a's needs. The functional boundary delineates environmental attributes from resources. If the accessed environmental attribute is needed for the functioning of the system, then it is part of the system. Environmental attributes which are not accessible cannot be part of the system, even if they are necessary. The focal system must be able to access and use the environmental attribute.

The focal system's ability to access an environmental attribute, and the accessibility of the environmental attribute determine the focal system's size and ability to function. A focal system, which because of its characteristics and resources such as income, can access many environmental attributes and a personal living environment and neighbourhood/community environment which offers a large variety of easily accessible attributes, will result in a large and well functioning focal system. A focal system with characteristics and resources which hinder the ability to access environmental attributes, and environments which offer few accessible attributes result in a focal system which has difficulty maintaining itself and may break down.

Figure 1.

Model of Interactive Theory for
The Environment and The Elderly

- 1 Elderly individual.
 - A. Physiological, social
and psychological needs.
 - B. Individual's resources and
characteristics.
- 2 Personal living environment.
- 3 Neighbourhood/Community environment.
- 4 Socio-Political environment.

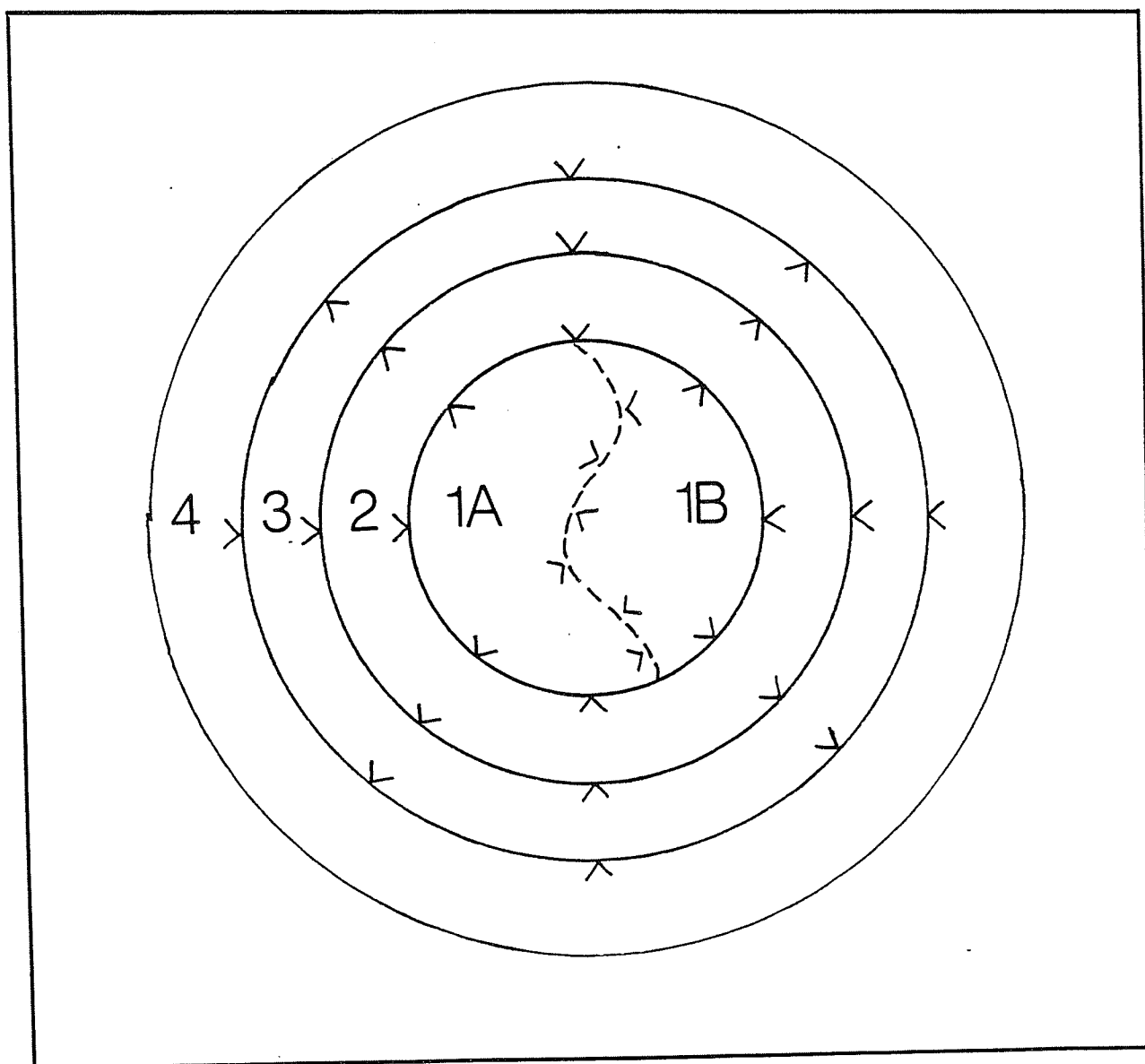


Table 1. The Focal System's Subsystems

Subsystem	Components	Examples (variables)
1a Physiological, social and psychological needs and characteristics	Physiological needs	- food, shelter, clothing
	Social needs	- social involvement, friendship, prestige
	Psychological needs	- love, beauty, security
1b Individual's resources and characteristics	Characteristics	- age, sex
	Social resources	- familial support, living spouse
	Physical resources	- mobility, health
	Economic resources	- income, transportation, homeownership
	Mental resources	- intelligence, education

Table 2. Boundaries for Environments

Environment	Physical Proximity	Frequency of Interaction	Control over Environment
Personal Living Environment	Very close	High frequency of interaction daily, constant interaction	- High degree of control, e.g. choice in where to live, control over what is bought.
Neighbourhood/Community	Close	Moderate frequency of interaction - perhaps weekly, not constant	- Moderate control, e.g., some choice in where to live, choice in services, knowledge of alternatives.
Socio-Political Environment	Concretely difficult to apply but abstractly distant	Low frequency of interaction may affect daily life but actual interaction is low.	- Little control, e.g., voting, lobbying.

Chapter 3

LITERATURE REVIEW

Dependent Variable

Research on the elderly, whether related to the environment or another facet of life, often attempts to define psychological well-being as a measure of success in aging. Psychological well-being may be termed life satisfaction (as in this study) morale, competence or happiness.

There are two opposing approaches to measuring psychological well-being (termed life satisfaction from here on) (Neugarten et al., 1962). The first view assumes that overt behaviour of the individual may be used to measure life satisfaction. This view assumes that the greater social participation and the less variation from patterns of middle age, the greater the elderly's life satisfaction (Neugarten, 1962). Examples of these indices of life satisfaction are: social involvement (Chapman & Beaudet, 1983; Lawton, 1976, Lawton, Brody & Turner-Massey, 1978; Poulin, 1984; Sherman, 1975; Teaf, Lawton, Nahemow & Carlson, 1978) activity level (Chapman & Beaudet, 1983; Larson, 1978; Lawton, 1976; Lawton, Brody & Turner-Massey, 1978; Lawton & Yaffe, 1980; Teaf, Lawton, Nahemow & Carlson, 1978) and frequency of leaving the building and the neighbourhood (McAuley, 1983).

The opposing view focuses on the individuals internal frame of reference (Neugarten, et al., 1962). This view assumes that the individual is the best judge of his/her past and present life satisfaction and happiness. This view allows life satisfaction of the elderly to be measured separately, not in comparison to, other stages of

life. Finally this measure of life satisfaction eliminates value judgements of the interviewer (Neugarten et al., 1963). Examples of researchers who use self reported assessments of life satisfaction are Carp (1976), Carp & Christensen (1986a), Carp & Christensen (1986b), Cutler (1975), Jirovec, Jirovec and Bosse (1986a), Jirovec, Jirovec and Bosse (1984b), Larson (1978), and Nelson and Winter (1975).

In this study a self-reported measure of life satisfaction is used. Life satisfaction is an appropriate dependent variable for this study for two reasons. The first is that this study is focusing on how environments can affect and improve life quality, thus life satisfaction in one appropriate measure. Second, life satisfaction fits into the model on which this study is based: Life satisfaction is an indication of how well the focal system is functioning within its environments. High life satisfaction would suggest that the social system's needs are being fulfilled.

Independent Variables

When researching housing for the elderly there are a vast number of variables to be considered, including those related to the individual, such as age and income, and the environment, such as climate and the buildings with the environment. The Interactive Ecological housing theory may be used as a means of organizing these variables so that the complex interaction between the variables and the individual may be understood. Refer to Table 1 and Table 2 (pages 16 & 17) to see how these variables are structured by the Interactive ecological housing theory. The following section will review past findings on each of the relevant variables.