

VIEW OUT OF A WINDOW:
VISUAL PREFERENCES OF DUALY DIAGNOSED
ADOLESCENTS RESIDING IN GROUP HOMES

By

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CHAPTER I

INTRODUCTION

Exposure to natural environments like trees, plants, and water is thought to provide psychological stress-reduction (Ulrich, 1979; Hartig, Mang & Evans, 1991). Researchers from diverse disciplines were interested in knowing different elements present in nature that benefit human-kind. Their research interests have varied from natural biomes (Balling & Falk, 1982) to residential parks (Ulrich & Addoms, 1981). The results suggested that nature can affect psychological (mental) and physiological (physical) human well-being.

Beyond knowing that natural environments elicit positive responses, it would be important to determine the specific visual elements present in these environments that evoke such responses. These visual elements could be waterscapes, natural and urban parks, open fields, deep woods and so forth. Most of the research on visual preferences has been conducted on subjects such as university students, children, adults, surgical patients, motorists, and landscape experts. Limited research has been conducted on the visual preferences of people especially adolescents who have developmental disabilities.

BACKGROUND ON DEVELOPMENTAL DISABILITIES

Traditionally, developmental disability has been defined as a physical and/or mental impairment with severe functional limitations in major areas of life activity such as self-care, independent living, learning, mobility, communication. This disability onsets a person before the age of 22 and is expected to continue indefinitely (AAMR, 1997).

There are nearly four million Americans with developmental disabilities (Administration on Developmental Disabilities, 2004). Mental Retardation is considered to be a type/subgroup of developmental disability with the only difference being that MR is not a physical impairment. It entails limitations in intellectual functioning and adaptive skills similar to the ones addressed above (AAMR, 1997).

On the other hand, mental illness is not mental retardation or developmental disability. It is a state of emotional disturbance with mental health problems and disorders such as mood disorders, anxiety disorders, psychotic disorders and so on. More about these disorders are discussed in the second chapter. Co-existence of both intellectual or developmental disabilities and mental health problems is termed as dual diagnosis (NADD, 2004).

Group homes are one of the community residential facilities options available for dually diagnosed individuals. The main aim of these group homes is to provide normal living conditions (Gunzburg H. C., Gunzburg A. L. 1992), and promote independent living. Details on all the above areas will be explained in chapter 2.

OBJECTIVES OF THE STUDY

Research has suggested that incorporating opportunities for sensory experiences in the physical environment (Gunzburg, A. L. 1968; Nirje, 1976) improve the well-being of humans. Given the number of people with developmental disabilities and limited research conducted on their visual preferences, studying their preferences is of prime concern.

The purpose of this study is to determine the visual preferences of adolescents who are dually diagnosed with developmental disabilities and mental health problems living in

group homes. The study will address the view that this population of adolescents want to see outside of their windows.

My research questions for this study are:

1. What are the visual preferences of dually diagnosed adolescents residing in a group-home, while looking out through a window from their individual rooms?
2. Would they prefer to see?
 - a) a landscape dominated by natural vegetation and if so, what kind of vegetation
 - b) a landscape dominated by man-made structures and if so, what kind of structures or
 - c) a landscape dominated by both natural vegetation and man-made structures
3. What are the characteristic features of outside views that dually diagnosed adolescents would prefer to view from their rooms?
 - A. Type of landscape might include:
 - a) Natural landscape such as flower and vegetable bearing plants, fruit bearing trees, vines or creepers
 - b) Natural landscape with the presence of a water element such as pools, fountains, lakes, rivers, seas, oceans
 - c) Man-made landscape such as residences, offices, playgrounds, roads, multi-floor buildings, stores
 - d) A combination of man-made landscape and natural landscape
 - B. Appearance of the landscape might include:
 - a) Animated (moving, energetic) vs. unanimated (serene, restful, reposeful).
Animated scenes/pictures might include flying birds, jumping squirrels, pet

animals such as dog, cat playing in the backyard. Unanimated scenes/pictures might include a quiet garden, calm water pond or a far-view of a mountain

- b) Near view vs. far view

SIGNIFICANCE OF THIS STUDY

The findings of this study may have future implications for interior designers, architects, environmental designers and planners. The results of this study are important for the following reasons:

- a) The dually diagnosed population, experiencing stress and frustration by the very nature of their disability (Nirje, 1976), need to restore their attention. Providing them with their choice of environment will engage their minds and help in the process of restoring their attention.

- b) Providing them with their choice of a visually preferred environment can influence their emotions, and in turn have an effect on their physical and mental health;

- c) Knowing the specific elements present in nature that evoke positive responses would allow interior designers, architects, planners, and environmental psychologists to understand the importance of those elements and incorporate them in their future designs

- d) Knowing the exterior visual preferences of this population, organizations developing group homes can apply these findings in the site selection process.

SCOPE AND LIMITATIONS

The scope and limitations of this study will be as follows:

- a) This sample will only include dually diagnosed adolescents of age 11-17 years.

- b) The sample will only include adolescents residing in group-homes.

DELIMITATIONS

The following factors cannot be controlled by the researcher

- a) Though efforts are made by the researcher to the staff members in the ‘staff consent forms’ on how to administer/conduct the test to the participants, it could be possible that the staff person’s ability to explain the concept may differ from staff to staff and from participant to participant.
- b) The staff person’s explanation of the questions can influence the participants to answer in a particular way.
- c) The results of this study are descriptive in nature.
- d) The reliability and validity of this study may not be the same when the study is to be replicated because of the cognizant levels of the population.

CHAPTER II

LITERATURE REVIEW

INTRODUCTION

This literature review will consist of three major categories: a) introduction, b) importance of nature, visual preferences, and views, and c) theoretical construct. The introduction part will deal about functional definitions of terms such as Developmental Disability, Mental Retardation, Mental Illness, Dual Diagnosis and Group Homes. The second part will explain the psychological and physiological effect of nature on human well-being, the importance of visual preferences and urban views. The final part of this literature review will elucidate theoretical constructs such as Attention Restoration Theory and Environmental Aesthetics.

DEFINITION OF DEVELOPMENTAL DISABILITY

A functional definition of developmental disability as incorporated in Public Law states that, “a developmental disability is attributable to a mental or physical impairment that begins before age 22 and is likely to continue indefinitely and that results in substantial functional limitation in three or more areas of major life activity” (AAMR, 1997; pp-13). These areas are communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work.

A local definition on developmental disabilities as stated by the Oklahoma Developmental Disabilities Council (ODDC) defines developmental disability as a severe, chronic disability of an individual five years of age or older that

a) is attributable to a mental or physical impairment or combination of physical and mental impairments;

b) is manifested before the person attains the age of 22;

c) is likely to continue indefinitely; and

d) results in substantial functional limitations in three or more of the following areas of major life activity:

1. self-care
2. receptive and expressive language;
3. learning;
4. mobility;
5. self-direction;
6. capacity for independent living;
7. economic self-sufficiency

People with developmental disabilities have varying intellectual levels. Intellectual functioning is measured by standardized test of intelligence that results in overall intelligent quotient (IQ) of the individuals (NADD, 2004). Table 1.1 presents the four levels of mental retardation along with IQ levels and population proportions (DSM – IV; American Psychiatric Association, 1994).

Level	IQ range	Proportion of population
Mild	50-55 to ~70	~85%
Moderate	35-40 to 50-55	~10%
Severe	20-25 to 35-40	~3% - 4%
Profound	Below 20-25	~1% - 2%

Table 2.1 Levels of mental retardation

In the early 19th century, people with a mild level of mental retardation in the 50-70 IQ range were considered educable and the moderate level population was considered trainable. These terms are no longer used or in practice. By providing sufficient suitable support and adaptive skills, every individual can be trained and educated. Thus, these individuals can be classified by 1) intensity of support and 2) emphasis on strengths and limitations, rather than on IQ levels (Bongiorno, 1996).

DEFINITION OF MENTAL RETARDATION

The American Association on Mental Retardation (AAMR) characterizes mental retardation “a significantly subaverage intellectual functioning, existing concurrently with related limitations in two or more of the following applicable adaptive skill areas: communication, self-care, home living, social skills, community use, self-direction, health and safety, functional academics, leisure, and work. Mental retardation manifests before age 18” (AAMR 1997, pg 5).

Mental retardation is a state of impaired functioning which generally manifests in childhood and delimits a person in the areas of intelligence and adaptive skills. People with mental retardation (MR) also have fundamental difficulty in learning and performing basic life skills. Mental retardation is considered to be a sub-group of developmental disability. While developmental disability provides a broader range of impairment (i.e., both physical and mental) and manifests before the age of 22, mental retardation requires limitations only in intellectual functioning and adaptive skills. And these limitations can originate only before the age of 18.

Mental retardation is not a quality that an individual possesses like short temper or small ears, nor is it a quality or characteristic that an individual possesses like being

lean or tall. It is also not a medical disorder as defined in some medical classification of diseases. Instead, the disability is characterized by limitations in intellectual functioning and adaptive skills. It is therefore important that these limitations be considered before classifying a person mentally retarded. The following four assumptions are an extension of the definition and cannot be conceptually separated from the definition (AAMR 1997, pp. 5-7).

1. An individual's culture, language, communication and behaviors must be assessed before defining his/her limitations.
2. The determination of the limitations should be considered within the context of community environment such as schools, homes, neighborhoods etc.
3. Individuals may have strengths in personal capabilities independent of mental retardation. For example, an individual may have strength in particular adaptive skill area such as social skills while having difficulty in another skill area such as communication.
4. Persons with mental retardation will improve in their level of functioning over an extended period of time with appropriate support from family, community and so on.

DEFINITION OF MENTAL ILLNESS

Mental Illness is not mental retardation or developmental disability. It is characterized by mental health problems and disorders. According to DSM-IV (American Psychiatric Association, 1994) the following are the clinical disorders found in mentally ill or emotionally disturbed adolescents: mood disorders, anxiety disorders, psychotic

disorders, personality disorders, severe behavioral disorders, and attention deficit disorder with hyperactivity. Some of these disorders are described below (NADD, 2004):

1. Mood Disorders: People with this disorder are subjected to mood disturbances such as depression, irritability etc.
2. Anxiety Disorders: This disorder is characterized by excessive fear, somatic complaints, excessive nervousness that can interfere with functioning.
3. Psychotic Disorders: This disorder is indicated by the presence of following symptoms: hallucinations, disorganized behavior and impairment in reality testing.
4. Personality Disorders: This disorder bears patterns of dysfunctional behavior with symptoms of personality traits that are inflexible, maladaptive and cause significant impairment or subjective distress.

DUAL DIAGNOSIS

Dual diagnosis is a term applied to the co-existence of the symptoms of both intellectual or developmental disabilities and mental health problems (NADD, 2004).

To summarize all the above definitions, developmental disability envisions broader range with both mental and physical impairment. Mental retardation, a sub-group of developmental disability, is limited by subaverage intellectual functioning and adaptive skills. On the other hand, mental illness is characterized by mental health problems and clinical disorders. Dual diagnosis involves both developmental disabilities and mental health problems. Figure 2.1 illustrates the summary.

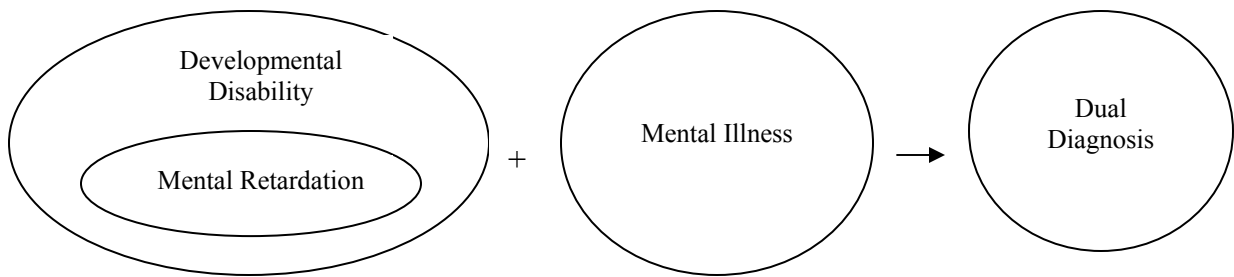


Figure 2.1 Summary of definitions

GROUP HOMES

Group homes are residential facilities where the developmentally disabled people might live before joining the mainstream society. The main purpose of group homes is to provide acceptable home conditions for the mentally retarded people of the community (Gunzburg, H.C. & Gunzburg, A. L. 1992). The other purposes of group homes are to promote independent living among the residents and teach them basic life skills such as self-care, operating a home, self-direction etc. The number of residents living in these group homes varies from four, six to eight per group home. However, in this study, group homes with only four residents will be considered. Also residing in these group homes will be caretakers/staff, varying from two to three in number. These caretakers are present in the home twenty four hours a day and seven days a week.

Group homes are based on the concept of ‘individualized care’. The individualized approach for the treatment of children and adolescents diagnosed with maladjusted behavior (i.e., personality disorder) is referred to as individualized care (Burchard & Clarke, 1990). In the above statement, the author used the term ‘maladjusted behavior’ which encompasses the characteristics of personality disorder. Individualized care pertains to children/adolescents/adults diagnosed with developmental disabilities and

mental health problems. The basic principles of individualized care are as follows: a) unconditional care, b) least restrictive care, c) child and family-centered care, d) flexible care, e) flexible funding and f) interagency care. These six principles are discussed below. Later, these six principles will be discussed with respect to their application in group homes at Oklahoma State.

a) Unconditional care: The children and adolescents are served with total unconditional care on an individualized basis until they are able to fit into the mainstream community. John VanDenBerg and his colleagues in Alaska have developed a comprehensive example of individualized care that is referred to as the Alaska Youth Initiative (AYI) (Individualizing services, 1988). An excerpt from the AYI follows:

Yes, we will take care of these children, no matter what they do. If they try to kill themselves, try to kill each other, if they are sexually promiscuous, destroy things, set fires to buildings, assault one another, or generally drive people up the wall, we will take care of them nonetheless. One person will take that responsibility...we won't pass the child around anymore. We will take care of this child (Dowrick, 1989).

b) Least restrictive care: Children and adolescents stay in the group homes until they prove to be harmful to themselves or others and all potential less restrictive services have proven to be futile. The decision to place these individuals in a restrictive care program is made by the interagency members who will be discussed below. The period of stay of the individuals in the restrictive programs depends upon their adjustment to the program and not on the amount of time s/he spends in a program.

c) Child and family-centered care: Services are provided to individuals regardless of age or sex. While the individuals no longer receive services of the individualized program after they leave the group home, they can still receive services such as attending

a therapy sessions or receiving training skills program etc. The personnel hired to provide these services are adapted to the characteristics and needs of the individuals.

d) Flexible care: Timely care is provided to prevent serious elevation of problems. Extra services and procedures are added to the child's program depending upon the situation in the group home and also on the child's ability to readjust to that new program. In contrast, "flexible care is much less likely to occur when a child is in a relatively unrestricted setting" (Burchard & Clarke, 1990; pg 51). For instance, if a child gets assaulted in the group home, it is improbable that professional care or implementation of a therapy session would be offered to him/her at that very moment. Instead, depending upon the severity of the problem behavior, s/he is either placed into a more restricted program or into a more costly program. Flexible care offers services which can be increased or decreased in severity based on the needs of the child and the family.

e) Flexible funding: Money plays an important role for the provision of services like unconditional, least restrictive, child and family-centered and flexible care. The residents of these group homes are moved in and out of these programs on a frequent basis and their needs keep fluctuating. Therefore, the manager of the services program needs resources that could address these problems or situations in a timely way.

f) Interagency care: The individualized care service program is "developed, maintained, and modified by an interdisciplinary team that usually consists of the child (if appropriate), the parent, and the service providers or administrators from relevant agencies i.e., mental health, social services, educational services, health and vocational services" (Burchard & Clarke, 1990; pg 51). An interdisciplinary team like this makes

individualized care easy to implement and also encourages shared ownership. All the major decisions are taken with group consensus thus avoiding individual leadership.

These six principles can be related at the local level, in Oklahoma, in the following way. Individualized approach and unconditional care are provided by individual diagnosis, medication, care and attention to each resident of the group home. The group home is least restrictive in the sense that it is not an institution. Institutional characteristics such as centrally cooked meals, dormitory style bedrooms and rigid rules are not introduced, thus creating a home-like atmosphere. Instead, extra amenities such as therapy sessions, regular psychologist visits, and field trips are provided. The staff or the caretakers in these group homes are available at all times and spend considerable amounts of time with each resident. Flexible funding, which is required to provide individualized care, is often spent for the diagnosis of the residents. Remuneration for the service is based on the diagnosis level (mild to profound) of the individual. The interagency care providers, which manage these group homes in Oklahoma, are comprised of several agencies such as OKDHS (Oklahoma Division of Department of Human Services), DDS (Developmental Disabilities Service Division), Child Welfare, ODDC (Oklahoma Developmental Disabilities Council), private care-taking agencies such as Ki Bois, and People Inc. These private agencies are contractors working for the State.

Of the six principles summarized above, the second principle, least restrictive care, is the focus of the current study. The least restrictive characteristic of the group homes could be made more effective in the state by providing attractive views from windows, more windows in every room, and operable windows and shades. In the case of

child and family-centered care, a broader range of personal experiences could be incorporated by providing window views in each of the resident's private rooms.

THE IMPORTANCE OF NATURE, VISUAL PREFERENCES AND VIEWS

NATURE AND ITS EFFECT ON PSYCHOLOGICAL AND PHYSIOLOGICAL HUMAN WELL-BEING

The benefits that an individual can derive from plants and contact with nature have been discussed for thousands of years (Olmsted, 1870; Ulrich, 1979). It's been an age old belief that viewing nature and being in contact with nature is pleasurable and relaxing. In addition, research suggests that interaction with large scale natural environments can have health benefits (Parsons, 1994; Verderber, 1982). Several studies have been conducted to comprehend nature and its impact on human beings. In Wilson's (1972) study, 50 surgical patients with postoperative delirium in a windowless intensive care unit were compared with 50 similar patients in an intensive care unit with windows. The results showed that there were twice as many postoperative patients in the windowless unit than the unit possessing windows visible to the patients.

Though the study did not specify what kind of view was visible through the windows, it provided empirical evidence that there was an effect on human well-being, in this case postoperative delirium. A similar study (Ulrich, 1984) designed in a parallel way as the above addressed the kind of view that was offered through the window. In his study, a group of surgical patients with views of a brick wall through the window were compared with a similar group of patients who had views of nature (deciduous trees) through their windows. His study of views through a window and their effects on surgical patients concluded that natural views offered quicker and less painful surgical recoveries.

The research found that patients with views of nature had shorter postoperative hospital stays, took fewer doses of analgesic, had fewer negative evaluative comments from nurses, and had minor post surgical complications. These studies show that views of nature can have therapeutic influence on human health.

Shifting from surgical patients with higher levels of mental trauma and anxiety to stressed individuals with comparatively lower levels of strain, views of nature have been shown to impact them also. Ulrich's (1979) study compared the anxiety-reducing effects of nature views dominated by natural vegetation with those of urban scenes lacking nature elements. The findings suggest that exposure to nature scenes makes stressed individuals feel significantly better than exposure to urban scenes lacking nature. The positive effects derived from viewing the nature scenes as discussed in his study include feelings of affection, friendliness, playfulness, and elation. The results suggest that the benefits derived from nature can exceed mere aesthetic reach and can influence the general psychological well-being of humans.

As an extension of the above research, Ulrich (1981) studied the psychophysiological character of nature. "The physiological findings are an important complement to the more subjective psychological data, because the physiological measurements are valid indicators of the arousal or activation state of an individual" (Ulrich 1981, pg 525). The psychophysiological effects of three categories a) nature with water b) nature dominated by vegetation and c) urban environments without water or vegetation were examined. The subjects were asked to view the slides of each category of environment and rated their feelings on semantic scales. Also, measurements of heart rate and alpha amplitude were taken before, during and after the experiment. Both

psychological and physiological results of the study revealed that nature positively influenced human well-being.

Beyond therapeutic influences, nature can also have restorative effects. One such study that verified the restorative effects of nature was conducted by Hartig, Mang & Evans (1991). In their study, college students were randomly assigned to three conditions: natural environment experience, urban environment experience, and passive relaxation experience. The restorative quality of these environments was comparatively analyzed by evaluations made by the participants on 5 -point Likert-type scales of “being away”, “fascination”, “coherence/extent”, and “compatibility”. These four characteristics of Attention Restoration Theory will be discussed in the later part of this section. The results show that participants in the natural environment group experienced those four variables to a greater degree than did participants in either the urban walk or relaxation conditions. Also, in the posttest measures in the emotion, the natural environment group had higher ratings of overall happiness, positive affect scores, and lower ratings of sadness, anger and aggression.

Tennessen & Cimprich’s (1995) study about views to nature also supports the notion of nature possessing restorative effects. Their study was based on the theoretical view that “under increased demands of attention, individuals’ capacity to direct attention may become fatigued” (Tennessen & Cimprich 1995, pg 77). Participants were residents of the university dormitories with four different window views. The views were categorized into four groups: all-natural, mostly natural, mostly built and all-built. The participants were tested for levels of performance on measures of direct attention using a battery of objective and subjective measures. The results show that dormitory residents

with more natural views had a stronger capacity to direct attention than those with less natural or built views. The possible inference from this study would be that natural views allow for restoration of directed attention which supports the notion the nature holds restorative effects.

Research has supported the notion that nature can be therapeutic, restorative and can positively influence the psychological and physiological well-being of humans, it is possible and probable that the same effects and results could be experienced by the dually diagnosed population. The subjects need not be cognitively advanced in order to prefer and experience the above effects of nature. As stated by researchers, “preference is the outcome of a rapid, automatic, global assessment of an environment and that it requires little or no cognitive processing” (see for e.g., Ittleson, 1973; Zajonc, 1980; Ulrich, 1983).

VISUAL PREFERENCES

Environmental perception is multisensory and of all the senses such as hearing, smell, touch, and taste, vision is the vital sense in terms of yielding information about environments (Ulrich, 1981). A visual contact with natural environments thus plays a key role in determining the visual preferences of people. Many studies have been conducted about the visual preferences of various groups of people (college students, children, adults, motorists, landscape experts) for natural landscapes. These studies about individual group responses clearly explicit the importance of visual preferences. “One clear trend in the literature on natural landscapes is the development of preference models based on the responses of recreationists and diverse public groups, as opposed to

approaches that rely on judgments by individual experts or small group of professionals” (Ulrich 1986, pg 31).

Human preference of natural settings is an important factor to be aware of, as it influences decision making. Ulrich (1977) discussed four variables that influence environmental preference: complexity, focality, ground texture and depth. An environment is preferred if a) it contains moderate to high independently perceivable elements, which is termed as complexity; b) the independent elements are patterned and are able to establish a focal point; c) the ground texture is homogeneous and even; and d) depth of an element needs to be moderate to high and can be defined clearly (Ulrich 1977).

Owens’ (1988) study about teens and their outdoor visual preferences revealed that the majority of the teens valued a) outdoor places combined with nature (70%), b) their ability to get away from other people (66%), or outdoor places where they could be with their friends (30%). and c) to look out and not been seen (64%). The findings also include the characteristics of outdoor places valued by the teens. Natural and undeveloped landscapes, gathering places, places to be alone, freedom, activity, to look out and not be seen, unsupervised yet safe places, accessible places, and places they can call their own are a list of factors that influence teens outdoor preferences.

Apart from knowing the preferences of children and teens, it would be helpful if we can understand the reasons for their preferences for better designing of spaces. Van Andel (1990) in his study concentrated on places that children like, dislike and fear and the reasons behind those preferences. The results of that study concluded that most of the children preferred either playgrounds or green areas. The reason for their liking is these

spaces provided good scope for performing certain activities such as cycling or soccer and included environmental features such as trees, open and free spaces. Streets were considered the most boring spaces as they hindered the children's play. Streets were also considered dangerous places due to the amount of traffic and risk of accidents.

Research shows a positive relationship exists between familiarity/experience and environmental preference (for e.g., see Hammitt, 1979; Kaplan, 1984). Balling and Falk (1982) studied the landscape preferences of mid-Atlantic region subjects on 5 different biomes – tropical forest, dessert, savanna, temperate deciduous forest, and coniferous forest. The results were consistent with the above statement as savanna and open forests scenes were preferred by most of them while the thick forest and desert were clearly disliked.

Although it has been stated that preference and familiarity are positively correlated, it would be interesting to know how human preferences operate in unfamiliar environments/settings. In Simmons (1994) study of urban children's preferences for the natural environment, children were asked to differentiate between environments such as urban nature, open fields, school site settings, parks, paths, rivers and deep woods. The schools site settings and urban nature which are a part of the built environment were highly preferred over deep woods, part of wild nature. The study also showed that children like and are fascinated by nature such as trees, animals, open space and the presence of water.

Water, part of natural landscape, has always been preferred for its serenity, vigor and allure. Water bodies ranging from small scale (such as pools, ponds, lakes) to large scale (such as rivers, seas and oceans) would be interesting to be researched. Though an

exhaustive list of water bodies is difficult to study, researchers have considered studying them on various dimensions. Herzog's (1985) study of preference for waterscapes had four water dimensions: a) mountain waterscapes, b) swampy areas, c) rivers, lakes and ponds and d) large bodies of water. These dimensions were considered on the basis of six variables namely: spaciousness, texture, coherence, complexity, mystery and identifiability. Among the different waterscapes, mountain waterscapes were most preferred while swampy areas were least preferred. Spaciousness, coherence, and mystery were positive predictors of this preference.

URBAN VIEWS

Urban views are viewed different from natural views because of the latter's particular "perceptual and perceived attributes" Wohlwill (1983, pg 13) such as curvilinear contours and sharp gradations of shape and color. Many studies have undisputedly agreed on the notion that urban views are less preferred for viewing as compared to natural views (see for e. g., Ulrich, 1981, Hartig et al., 1991). However, it would be interesting to study the same notion on the dually diagnosed population, considering the fact that this population's group homes are mostly situated outside of city limits. It could be possible that, since this population is deprived of urban views (such as skyscrapers, multi floor offices, school sites, playgrounds etc) they may or may not show an inclination towards such views.

Herzog's (1976) study of preference for familiar urban places shows that familiarity and preference can be related both positively and negatively depending on the type of urban building. The types of urban buildings used in his study varied from governmental, educational, religious and hospitals to retail stores, theaters, factories and

restaurants. The participants were familiar with most of the buildings shown in the slides. Contemporary, cultural and campus buildings were preferred more than the other buildings. An interesting finding in this study was that the contemporary buildings showed a negative relationship between familiarity and preference, while older buildings, in this case entertainment and commercial, showed a positive relationship between the two variables. Hence, the variables interact differently in different situations. Therefore, the dually diagnosed population may or may not show an inclination towards urban views.

Although most of the group homes are located outside city limits, it will be important to compare the preferences of urban versus rural residents. It is possible that both groups may have similar or dissimilar preferences based on their personal experiences. In Geller's (1982) study, both the urban and small town residents' preferred urban scenes that had a moderate level of complexity (wide variety of angles and shapes) but at the same time chose scenes which were personal to them.

THEORETICAL CONSTRUCT

ATTENTION RESTORATION THEORY

Attention Restoration Theory (ART) is one of the theories that support the psychophysiological effects of natural environment. According to ART, directed attention fatigue is a result of prolonged mental effort and it needs to be restored if one has to work efficiently or even to think or act properly. This directed attention fatigue can be recovered or restored in the following four ways: a) being away, b) fascination, c) extent, and d) compatibility (Kaplan, 1995).

One of the ways to escape from directed attention fatigue is to maintain psychological distance from the physical and mental work (being away). This way of 'getting away' from daily routine or any other activity restores the positive energy. Viewing nature such as mountains, forests, meadows, greenery, fountains and lakes are some of the ways of being away from fatigue and getting restored. This process is more about psychological get away than a physical get away. An effortless way (fascination) to restore the attention is key in this process. Fascination which is referred also as effortless attention can be achieved in natural settings as above. In order to hold one's attention the environment/setting needs to be ordered, organized and coherent (extent). The environment can become restorative only when it has the ability to engross the viewer's mind. The nature can engage the viewer's mind only when there is a match between the viewer's inclinations and the environmental demands and supports (compatibility). In other words, the restorative environment should provide the viewer with what he is looking for, and the viewer should find the view interesting and engrossing in order to restore his/her attention fatigue.

Attention Restoration Theory supports my study in the following ways: a) The dually diagnosed population, experiencing stress by the very nature of their disability (Nirje, 1976), definitely need a place to 'get away' and restore their attention, b) providing them with their choice of environment (fascination) will engage their minds and help in the process of restoration. My study's main objective is to find out this population's visual choice/preference to facilitate in providing a natural restorative environment. Preferences for different types of nature involve aesthetics, and environmental aesthetics is the domain that deals about it.

ENVIRONMENTAL AESTHETICS

Environmental aesthetics extends beyond the narrow confines of the art world and beyond the appreciation of works of art to the aesthetic appreciation of human-influenced, human-constructed and natural environments (Carlson, 2002). Several studies concerned with the human response to outdoor scenes have focused on aesthetic preferences (Whitehouse, 1999). As this study is about the visual environmental preferences, it would be relevant to apply this theoretical construct. Also, “one of the more basic assessments of human responses to environments is that for visual preferences, or more broadly, environmental aesthetics” (Parsons, Ulrich & Tassinary, 1994; p. 350).

All human beings would like to view something that is visually and aesthetically pleasing for them, which is also known as speculative aesthetics. “Speculative aesthetics relies heavily on introspective analysis by an individual of his/her beliefs about what is beautiful and/or pleasurable” (Lang, 1987). Although this population does not necessarily engage in “introspective analysis”, they certainly do have reactions. As visual preferences and aesthetics go hand in hand, this theoretical construct is relevant to my study.

CHAPTER III

METHODOLOGY

The sample consists of adolescents, both males and females of 11-17 years of age, dually diagnosed with developmental disabilities and emotional disturbances residing in group homes. This study is conducted in Oklahoma, and Tennessee States. The sample size is 37 including 31 males and 6 females. The instrument used for this study is a questionnaire illustrated with pictures to help the participants easily understand the context being discussed. According to Parsons *et al.* (1994) one of the methods to gauge perceived environmental quality is referred to as psychological method. This method “attempts to assess environmental quality by associating various psychological qualities or characteristics with landscapes. This procedure usually involves the use of environmental surrogates (e.g., color slides) shown to group of observers” (Parsons et al. 1994; p. 355).

SAMPLING PROCEDURE

A purposive sample is used for my research. Purposive sampling emphasizes a criterion-based selection of information-rich cases from which a researcher can discover, understand, and gain more insight on issues crucial for study (Merriam, 1998). Oklahoma Developmental Disabilities Council (ODDC) members were asked to provide the names of the organizations that operate group homes in USA. These organizations will be contacted and informed about the research and its importance. The authorities of these

group homes were requested to permit dually diagnosed residents of 11-17 years of age to participate in the study. After the organizations have agreed to let the residents of their group homes participate in the study, a package containing consent forms, assent forms, questionnaires, staff consent forms, detailed instructions for staff (script), small envelopes, and self-addressed large envelope were mailed to the group home providers. The script for staff contains information on how to administer the test. The consent forms will be granted either by the authorities or the parents of the participants depending on State to State. For example, in Oklahoma, the Oklahoma of Department of Human Services will grant the consent as the residents of all group homes are under their supervision. In Tennessee state, consent for participation is granted by parents/guardians for participants under 16 years of age. Participants above 16 years have the right to assent or dissent on their own.

The instrument was administered by the staff of each group home, as it is not possible for the researcher to access the participants directly. The staff does not need any specialized expertise to administer the questionnaire, however, they were requested to read all the questions and choices before the beginning of the test, so they can help the participant understand the questions in a better way. They ask the questions and help participants if they have any difficulty understanding the questions. Once the participant answers the question, the staff circles/checks the option on the questionnaire.

The test can be conducted during anytime of the day and will take 30-45 minutes to answer. Participation by the adolescents is absolutely voluntary and they can withdraw from the study whenever they want will be informed in the assent forms. Also, the test will be conducted when the participants are all physically and mentally fit as

determined by their staff. It was also preferred that the staff be familiar with the participants and understand them well so that the participants feel comfortable, which in turn will yield better results.

INSTRUMENT

The instrument used for this study will be a paper-pencil based questionnaire with 56 questions. Most of the questions will be closed-ended, while a few will be open-ended. The questionnaire will also have pictures for some of the questions to help the participants understand the context when required. A 5-point Likert scale will be used to quantify the options.

The questionnaire will have five parts. The first part are “general questions” such as “would you like to look outside”, and “which is their favorite room from which to look outside” etc. The second part consists of questions about “landscape dominated by green vegetation and water.” Based on the literature review on nature, the questionnaire will have questions regarding different types of vegetation such as flower and vegetable-bearing plants, fruit-bearing trees, shrubs, and creepers. The other division in this part is about water features. Herzog (1985) studied four dimensions of water a) mountain waterscapes, b) swampy areas, c) rivers, lakes, and ponds, and d) large water bodies. In my study, the subjects’ preferences regarding water bodies ranging from large to small scale such as ocean, sea, river, pond, lakes, pools, will be asked. Also, preferences regarding calm water versus flowing water will also be posed.

The third section is about “landscape dominated by man-made structures”. As discussed in the literature review, the types of buildings used by Herzog (1976) were governmental, educational, religious, and hospitals, retail stores, theaters, factories and

restaurants. In my study, man-made buildings such as offices, schools, playgrounds, stores (departmental, local, bookstores etc.) roads, and other neighboring residences will be a part of the questionnaire. Religious buildings will not be shown because of the emotional and sentimental values that can be attached by the subjects.

The fourth part of the questionnaire is about “landscape dominated by both vegetation and man-made structures.” Pictures showing a combination of both vegetation and buildings will be shown and questions will be asked about their visual preference. The fifth section consists of questions about “landscape dominated by animated and unanimated scenes.” Animated scenes are those which contain some movement or action and will include flying birds, jumping squirrels, or pet animals such as dogs or cats playing in the backyard. Unanimated scenes are those which are at a restful state and are characterized by being quiet, serene and repose. Pictures of this category will include a quiet garden, calm water pond or a far-view of a mountain. Relevant pictures will be placed below the questions when required.

INDEPENDENT AND DEPENDENT VARIABLES

There are three independent variables in this study;

- a) a landscape dominated by natural vegetation
- b) a landscape dominated by man-made structures and
- c) a landscape dominated by both natural vegetation and man-made structures

Each independent variable has a list of elements in them, for e.g., natural vegetation will have flower and vegetable bearing plants, fruit bearing trees, vines or creepers, pools, fountains, lakes, rivers, seas, and oceans. Man-made structures will have residences,

offices, playgrounds, roads, multi-floor buildings, stores etc. The dependent variable is “visual preference” of dually diagnosed adolescents.

PROFILES OF THE SAMPLE GROUP HOMES

The sample for this study was collected from the States of Oklahoma and Tennessee. Two group homes from Oklahoma and Three group homes from Tennessee have participated in this study. Profiles of these group homes are listed below.

Oklahoma Group Homes: People Inc., and KiBois are the two group homes from Oklahoma. These two group homes are State funded and managed by Oklahoma Department of Human Services. There were twelve participants (all males) from these group homes. These group homes have 4 children living in groups under the supervision of staff.

Tennessee Group Homes: Youth Villages situated in Memphis, Tennessee has three residential campuses namely, Memphis Boys Town, Dogwood Village, and Deer Valley from where the sample was collected. 19 boys and 6 girls participated from this State. These campuses have 10-12 children with similar age and similar health problem living in cottages and supervising staff round the clock.

CHAPTER IV

RESULTS

The results of the questionnaire from the participants of two group homes are reported in this part of the chapter. The results will be discussed in regard to the research questions identified in chapter I. This chapter will have two sections: (1) descriptive results of closed-ended questions, (2) recollective data of open-ended questions. The former one will be derived from the closed-ended questions and the latter one from open-ended questions.

DESCRIPTIVE RESULTS OF CLOSED-ENDED QUESTIONS

Data in this section was derived from closed-ended questions. Data will be presented in five sections: (1) general, (2) vegetation,(3) buildings, (4) combination of vegetation and buildings, and (5) animated and unanimated scenes. Vegetation data will have three sub sections: (a) general vegetation, (b) type of vegetation, and)c) water bodies.

General: Participants were asked general questions on preferences regarding importance of looking outside and the rooms they would like to look outdoors from. 45.9% of the participants (n=37) felt it is very important to look outside, 21.6% of them felt important, 24.3% of them were neutral, 5.4% them felt not really important and 2.7% as shown in Table 4.1

Importance of looking outside	Frequency	Percentage
Very important	17	45.9%
Important	8	21.6%
Neutral	9	24.3%
Not really important	2	5.4%
Unimportant	1	2.7%
Total	37	100%

Table 4.1 Importance of looking outside (n=37)

Preferences regarding rooms such as living room, bedroom, kitchen, bathroom and patio to view outdoors are shown in Table 4.2. 54.1% of the participants (n=37) preferred patio to view outdoors from, 51.4% of them preferred living room, 37.8% preferred bedroom, 29.7% preferred kitchen and 21.6% bathroom. Also, 40.5% of the participants (n=37) preferred not viewing outdoors from bathroom.

	Percentage of preference				
	Living room	Bedroom	Kitchen	Bathroom	Patio
Very much	51.4%	37.8%	29.7%	21.6%	54.1%
Somewhat	27.0%	35.1%	16.2%	5.4%	13.5%
Doesn't matter	18.9%	5.4%	16.2%	13.5%	13.5%
Very little	-	13.5%	18.9%	18.9%	5.4%
Not at all	2.7%	8.1%	18.9%	40.5%	13.5%
Total	100%	100%	100%	100%	100%

Table 4.2 Room preferences (n=37)

Participants were asked about their feelings on viewing outdoors they like. Nearly half of them (48.6%) felt very happy on viewing outdoors they like as shown in Figure 4.1

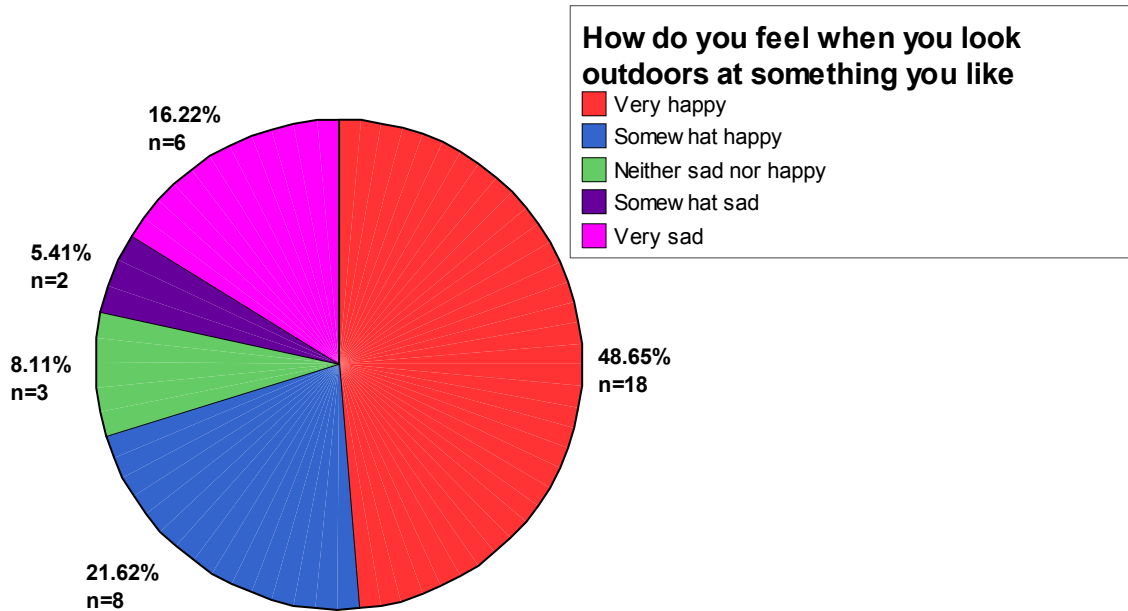


Figure 4.1 Feelings on viewing outdoors

Participants were asked how they would feel looking at something they like when they are upset to see if there is any change in the way they feel. 35.1% of them (n=37) felt very happy, 16.2% felt neither upset nor happy, and 21.6% felt very upset as shown in Figure 4.2

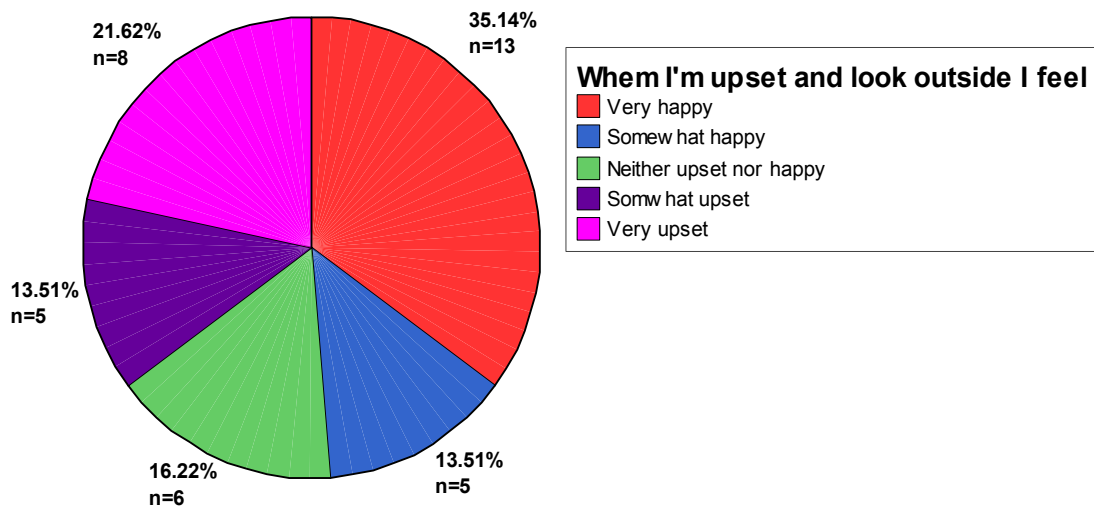


Figure 4.2 Change in feelings while viewing

Vegetation: when asked about the density (dense, medium and sparse) of vegetation they would like to view, participants (n=36) chose medium vegetation (58.3%) as the most preferred density of vegetation. 36.1% of them chose dense vegetation and 5.6% chose sparse vegetation as shown in Table 4.3

Density of vegetation	Frequency	Percentage
Medium Vegetation	21	58.3%
Dense Vegetation	13	36.1%
Sparse Vegetation	2	5.6%

Table 4.3 Density of vegetation (n=36)

Of all different vegetations (such as trees, plants, shrubs/bushes, and creepers/vines), participants (n=37) chose plants (45.9%) as most preferred vegetation. Plants were followed by trees and bushes (35.1%) each as shown in Table 4.4

Vegetation	Frequency	Percentage
Plants	17	45.9%
Trees	13	35.1%
Bushes/shrubs	13	35.1%
Creepers/vines	9	24.3%

Table 4.4 Vegetation preferences (n=37)

Type of vegetation: Of all different types in vegetation (such as flowers, fruits, vegetables and greens), participants (n=37) chose fruit vegetation (67.6%) as the most preferred type of vegetation. It was followed by flowers (59.5%), vegetables (43.2%), and greens (37.8%) as shown in Table 4.5

Type of vegetation	Frequency	Percentage
Fruits	25	67.6%
Flowers	22	59.5%
Vegetables	16	43.2%
Greens	14	37.8%

Table 4.5 Type of vegetation preferences (n=37)

Water bodies: Of all different water bodies (such as fountain, pond, pool, and creek), participants (n=37) chose pool (67.6%) as the most preferred water body.

Fountain (59.5%), and pond and creek each (45.9%) followed it as shown in Table 4.6

Water Body	Frequency	Percentage
Pool	25	67.6%
Fountain	22	59.5%
Pond	17	45.9%
Creek	17	45.9%

Table 4.6 Water body preferences (n=37)

Buildings: Of all the different buildings (such as houses, road, playgrounds, stores, offices, and schools), participants chose houses (59.5%) as most preferred building. Houses were followed by stores (48.6%), playgrounds (40.5%), schools (37.8%), road (35.1%) and offices (24.3%) as shown in Table 4.7

Building type	Frequency	Percentage
Houses	22	59.5%
Stores	18	48.6%
Playgrounds	15	40.5%
Schools	14	37.8%
Road	13	35.1%
Offices	9	24.3%

Table 4.7 Building preferences (n=37)

Combination of vegetation and buildings: In this category participants chose equal quantities of both vegetation and buildings (62.2%) in their outdoors. 13.5% chose more vegetation and fewer buildings, 10.8% chose only buildings, 8.1% chose only vegetation and 5.4% chose more buildings and less vegetation as shown in Table 4.8

Combination type	Frequency	Percentage
Equal quantities of both vegetation and buildings	23	62.2%
More vegetation and fewer buildings	5	13.5%
Only buildings	4	10.8%
Only vegetation	3	8.1%
More buildings and less vegetation	2	5.4%

Table 4.8 Combination of vegetation and buildings preferences (n=37)

Animated and unanimated scenes: of both the scenes, 75.7% participants (n=37) preferred viewing animated scenes and 67.6% preferred viewing unanimated scenes as shown in Table 4.9

	Animated scene	Unanimated scene
Very much	75.7%	67.6%
Somewhat	5.4%	16.2%
Doesn't matter	10.8%	10.8%
Very little	-	2.7%
Not at all	8.1%	2.7%
Total	100%	100%

Table 4.9 Animated and unanimated scenes (n=37)

RECOLLECTION OF FAVORITE ELEMNETS

Data in this section was derived from open-ended questions. All the results in this section answer participants' visual preferences, for example their favorite room, favorite vegetation, favorite building etc. When asked which is their favorite room to view outdoors, 48.6% of them chose bedroom; 27% chose patio; 16.2% chose living room; 5.4% chose bathroom and 2.7% chose kitchen (see figure 4.3 below).

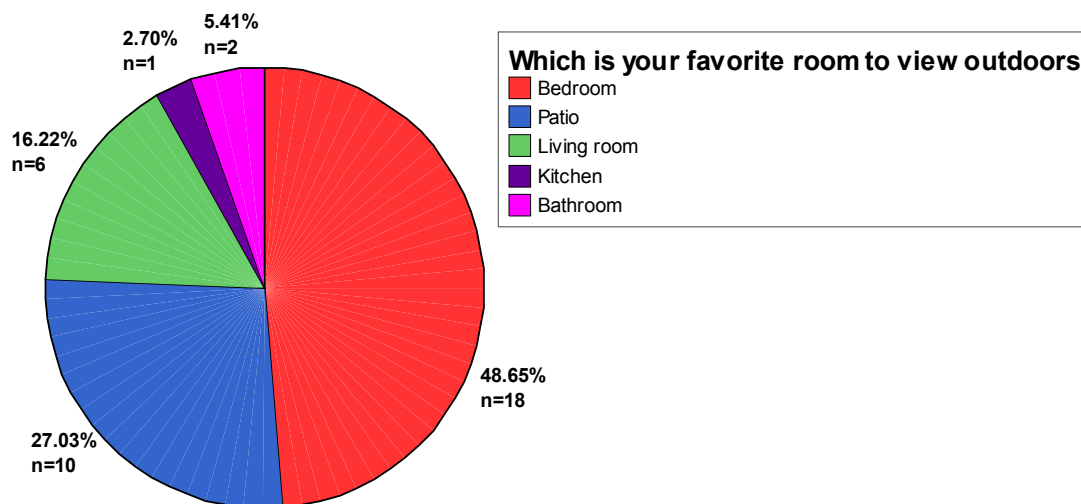


Figure 4.3 Favorite Room

In the vegetation category, there were three major types of vegetation that the participants preferred. Trees (27%) and plants (27%) were equally liked, shrubs and bushes (21.6%) followed closely (see figure 4.4 below).

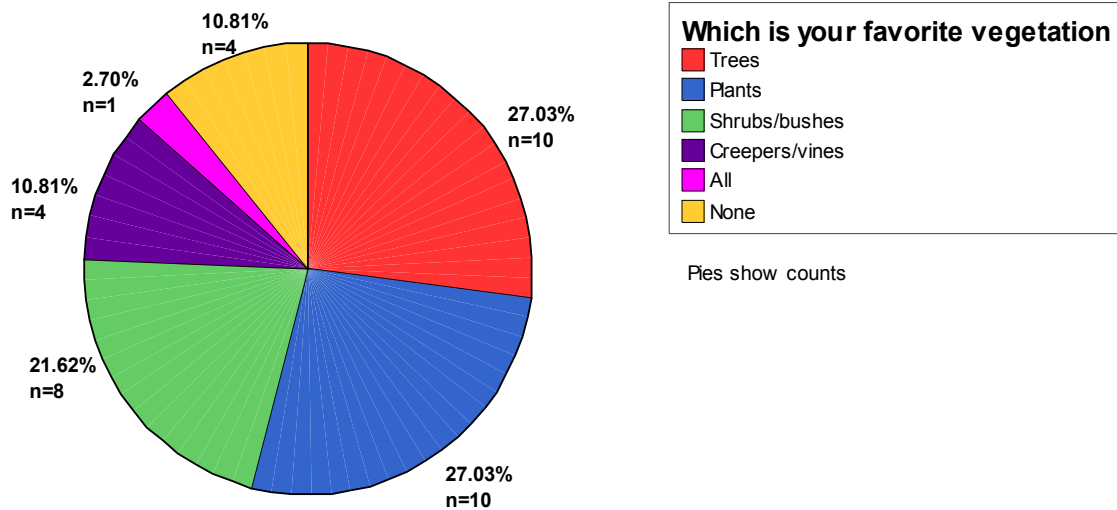


Figure 4.4 Favorite Vegetation

The type of vegetation they preferred the most was fruit bearing trees (44.4%) followed by flowering trees/plants/creepers (33.3%). Vegetable bearing plants (11.1%) and green trees/plants/creepers (8.3%) were also preferred (see figure 4.5 below).

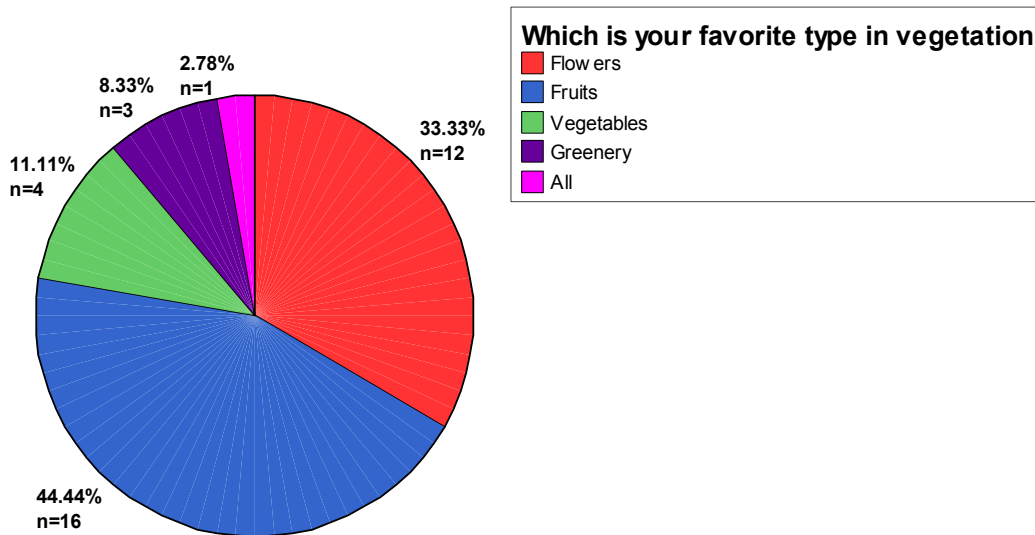


Figure 4.5 Favorite Type in Vegetation

In the water category, participants were asked to choose their favorite between calm water and flowing water. 54% of them preferred flowing water and 40.5% of them preferred calm water (see figure 4.6 below).

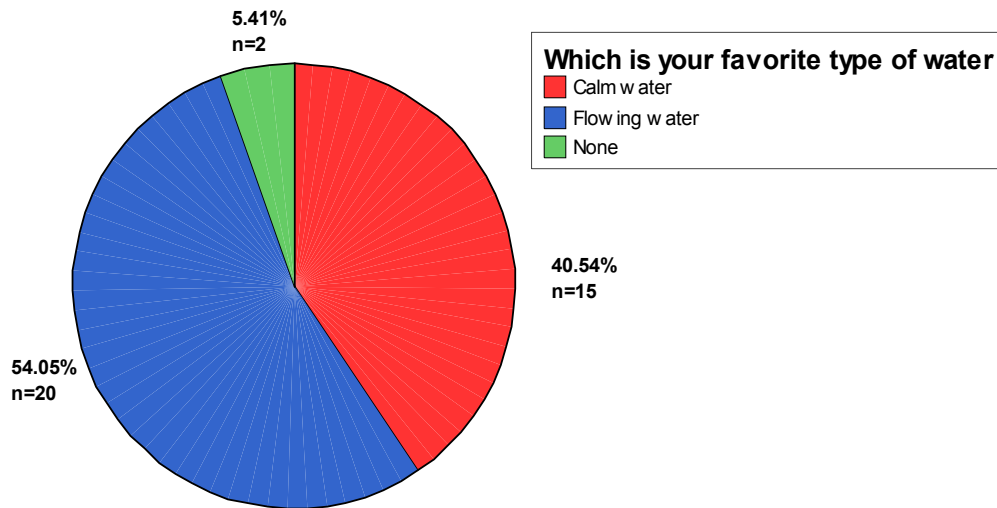


Figure 4.6 Favorite Type of Water

Among water bodies such as lake, river, sea and ocean, 48.5% of them preferred ocean as their favorite water body followed by river (22.8%), sea (17.1%), and lake (8.5%) (see figure 4.7 below)

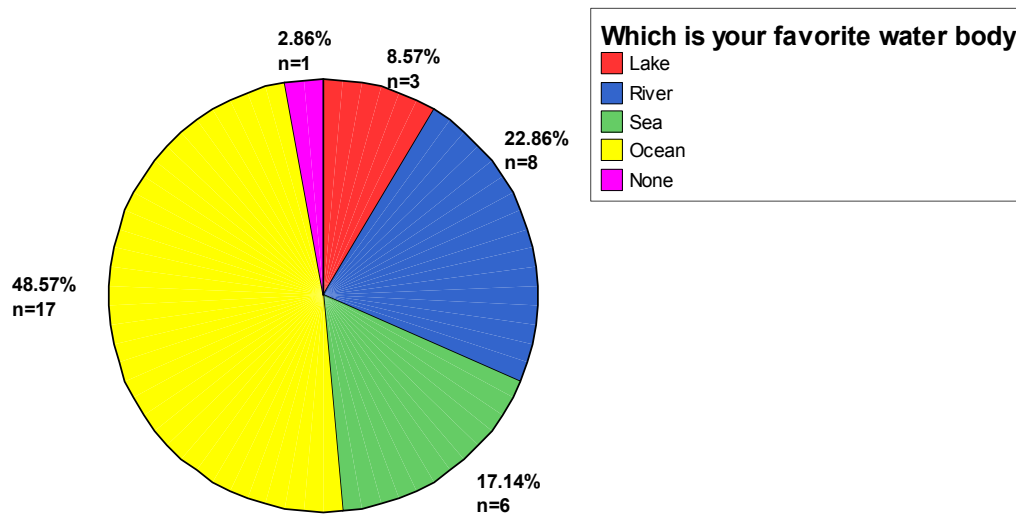


Figure 4.7 Favorite Water Body

In the man-made structures category, 70.5% of them preferred looking at multi-storey building and 26.4% of them preferred looking at single or one-storey building (see figure 4.8 below).

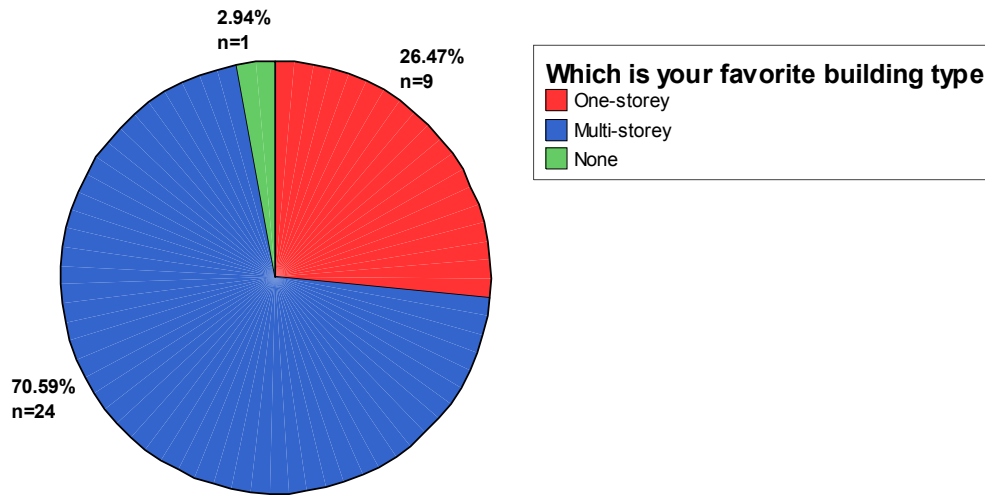


Figure 4.8 Favorite Building Type

In the same category, the building that they preferred to look at the most was stores (40%) such as department store, local store bookstore etc. The participants equally liked looking at offices (17.1%), other houses (17.1%), and schools (17.1%) (see figure 4.9 below).

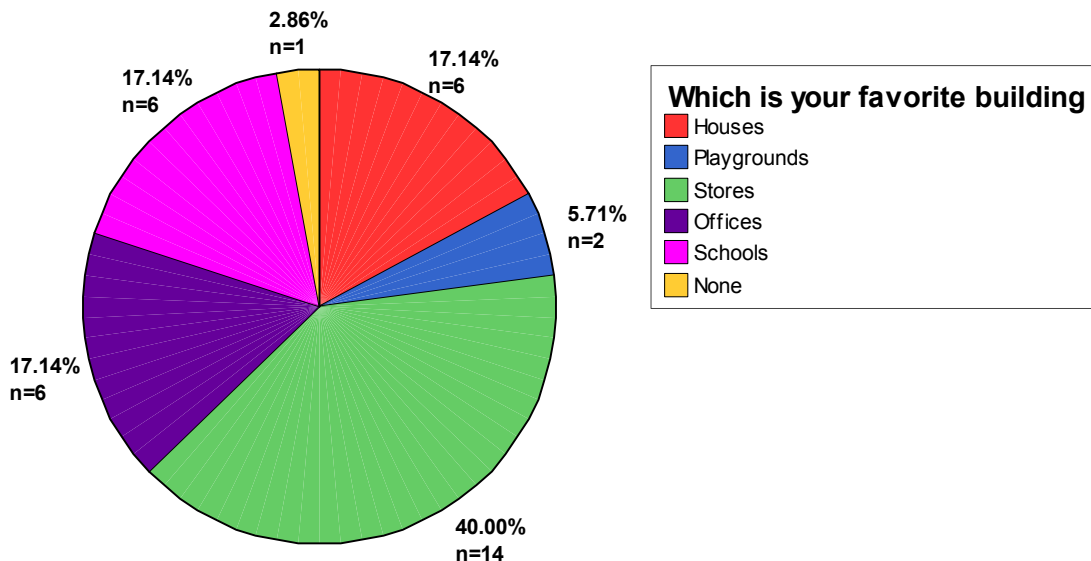


Figure 4.9 Favorite Building

In vegetation and man-made structures combined category, 62.1% of them preferred looking at equal quantities of both vegetation and buildings. 13.5% of them preferred more vegetation and fewer buildings, 10.8% preferred only buildings, 8.1% preferred only vegetation and 5.4% preferred more buildings and less vegetation (see figure 4.10 below).

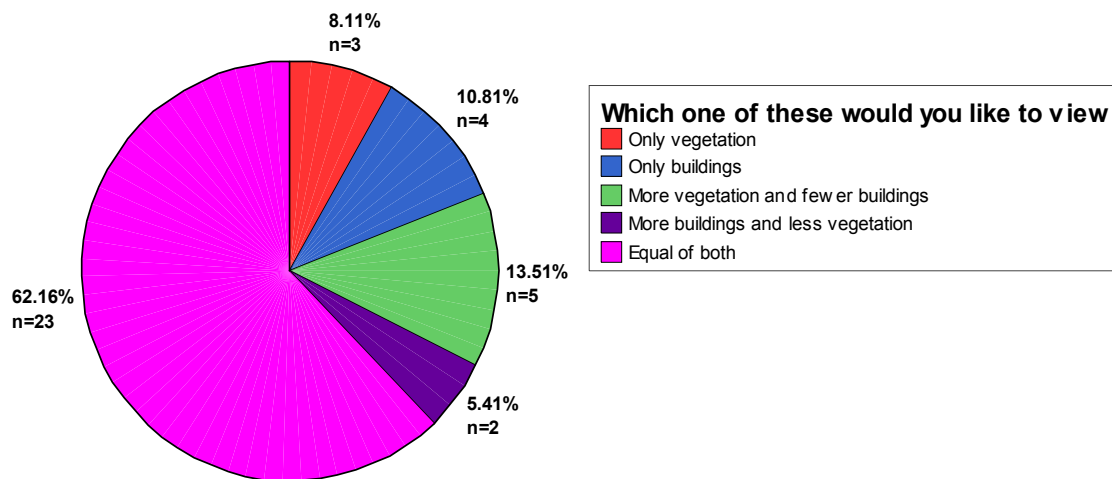
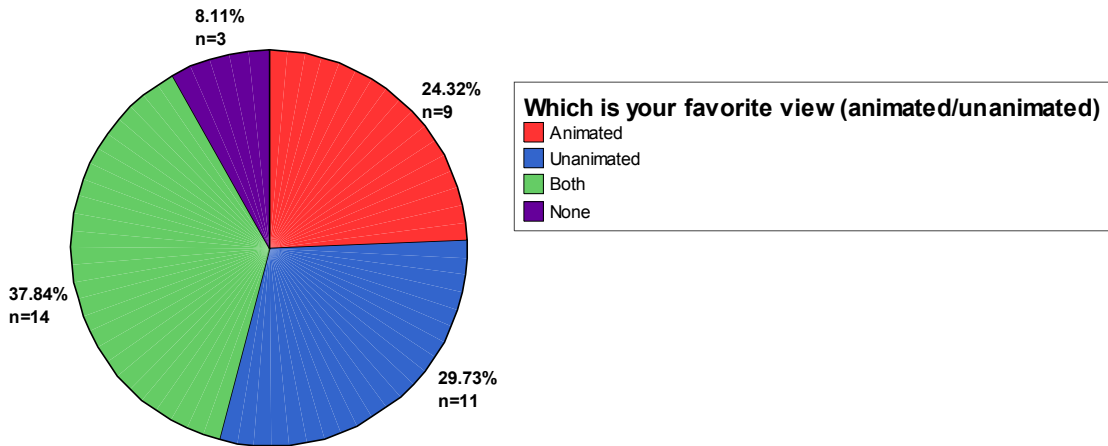


Figure 4.10 Favorite View

In final category of animated and unanimated scenes, 37.8% of them preferred a combination of both animated and unanimated scenes. 29.7% preferred unanimated scenes, and 24.3% preferred animated scenes (see figure 4.11 below).



In the same category Figure 4.11 Favorite View (animated/unanimated) 61.1% of them preferred viewing animals such as horses, 13.9% preferred people, 8.3% preferred vehicles such as parked cars; 5.6% preferred birds, 2.8% preferred both buildings and water (see figure 4.12 below). Discussion of these results is presented in Chapter Five.

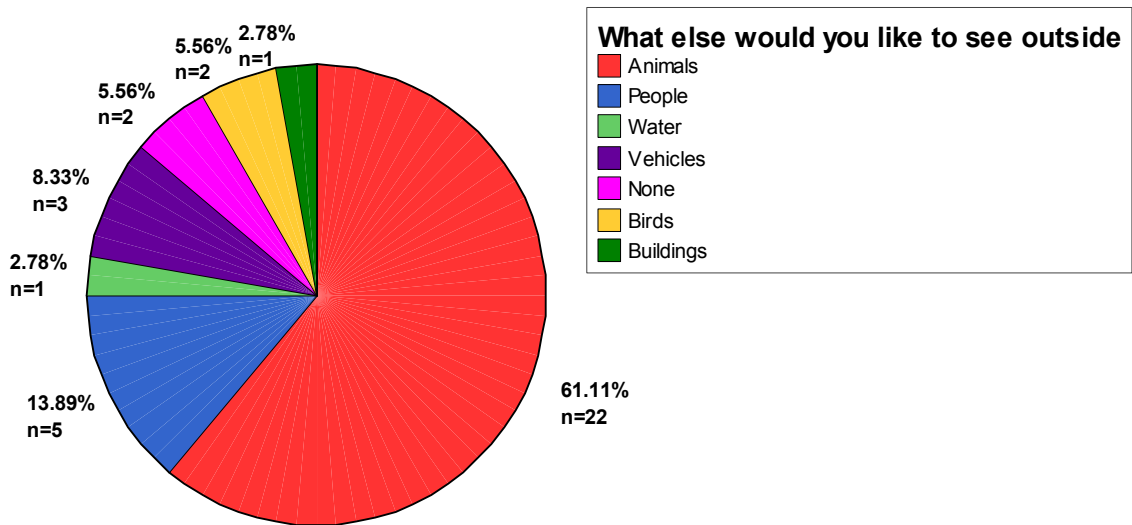


Figure 4.12 Other favorites

CHAPTER V

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This final chapter will summarize research findings, provide conclusions based on the findings and offer recommendations for future research. The results will be discussed with reference to the research questions identified at the end of Chapter One.

The review of literature suggested that exposure and contact with nature is psychologically and physiologically stress-reducing (Verderber, 1982; Ulrich 1984; Parsons *et al.*, 1994; Hartig, Evans, Jamner, Davis & Garling, 2003). Most of the studies emphasized the importance of nature and discussed preferences of different groups of people such as children (Van Aniel, 1990), patients (Ulrich, 1984), adults (Ulrich, 1981), students (Hartig, Mang & Evans, 1994) with different kinds of natural settings playgrounds (Van Aniel, 1990), nature views (Balling and Falk, 1982), parks (Owens, 1988), and trail paths (Simmons, 1994).

There were also studies that compared preferences between natural settings and man-made settings (Ulrich, 1979; Herzog, Maguire, & Nebel, 2003). Results from most of the studies revealed that people tend to like natural settings more than man-made settings (Tennessen & Cimprich, 1995; Ulrich, 1986). Though results show that natural settings are preferred over man-made settings, all these studies were conducted on people who are considered mentally normal like students, adults, surgical patients etc. There is however, scarcity in research determining the preferences of developmentally disabled and emotionally disturbed people. It could be possible that the results of this study may or

may not be consistent with earlier studies discussed above for two reasons: (1) all the above mentioned studies were conducted on mentally normal people and that this sample of population is not considered mentally normal; and (2) familiarity and preference can be related both positively and negatively depending on the context (Herzog, 1976) so it could be possible for the dually diagnosed adolescents whose group-homes are generally built away from the residential community may prefer man-made settings. The results of the questionnaire described in Chapter Four will be discussed with reference to the research questions identified in Chapter One.

Given the descriptive nature of the results and the cognizant levels of the population, there are variations in the results from the closed-ended questions and from open-ended questions. In most of the sections (general preferences, natural vegetation, water bodies, combination of natural vegetation and man-made structures), the results from descriptive results and recollective results were nearly consistent. One of the reasons for the discrepancies between descriptive results and recollective results could be that the closed-ended questions were posed first in the questionnaire and the open-ended questions were posed later. Because of this, and the participant's limited cognitive abilities, it could have been harder for them to recollect what they answered in earlier sections which could have led to inconsistencies in the results. Both descriptive and recollective are compared and then conclusions are drawn based on the discussion.

Research Question One

The first research question was “What are the visual preferences of dually diagnosed adolescents residing in a group-home, while looking out through a window from their individual rooms?”

The visual preferences of the dually diagnosed adolescents residing in group homes will be discussed in relation with the following five sections: (a) general preferences; (b) vegetation preferences; (c) water bodies’ preferences; (d) building preferences; (e) combination of natural vegetation and man-made structure preferences and (f) animated and unanimated scene preferences.

a) General preferences: Nearly half of the participants (45.9%) stated that outdoor viewing was very important to them. From the descriptive results, the most preferred room to view the outdoors was the patio (54.1%), followed by the living room (51.4%) and the bedroom (37.8%). From the recollective results their favorite rooms are in the order of bedroom (48.6%), patio (27%), and living room (16.2%).

One of the objectives of this study was to determine the visual preferences of this population in general but not in any particular order. Although there are differences in the order of preferences, it could be inferred that in general this population prefers to view outdoors from patio, living room, and bedroom. It was interesting to note that the participants (40.5%) never wanted to view outdoors from bathroom. These findings suggest that this population prefers to view outdoors from more public spaces than from intimate private spaces. Patio and living rooms could be preferred because they are public spaces while bedroom and bathrooms not so preferred because of being more private spaces.

Almost half of the participants (48.6%) felt very happy looking at something they liked in outdoors. Although half of the participants felt very happy at looking something they liked, only 35% indicated that outdoor views of something they liked would change their feelings from being upset to happy. However, this finding is in contrast to Ulrich's (1979) findings, which included that one of the positive effects derived from viewing nature scenes or scenes preferred/liked by participants was elation.

b) Vegetation preferences: More than half of the participants (58.3%) preferred medium dense vegetation over dense and sparse vegetation. From the descriptive results, of all the different vegetations such as trees, plants, shrubs/bushes and creepers/vines, nearly half of them (45.9%) preferred plants, followed by trees and bushes (35.1%) each. From the recollective results, participants preferred trees and plants (27%) each followed by shrubs/bushes (21.6%). In general they prefer trees, plants and bushes/shrubs than creepers/vines.

In the types of vegetation category from the descriptive results, participants preferred fruit bearing trees (67.6%). Similarly, flowering plants were also liked (60%) followed by vegetable bearing plants (43.2%). In recollective results, their favorite type of vegetation was fruit bearing trees (44.4%), flowering plants (33.3%) and vegetable bearing plants (11.1%). Clearly, in this category of vegetation, participants' order of preference is exactly the same.

c) Water bodies: In the type of water category, participants preferred flowing water (54%) than calm water (40%). These findings are consistent with Herzog's (1985) study about waterscapes. In his study, participants preferred mountain waterscapes (characteristics of these mountain waterscapes included rushing waterfalls, mountain

streams, which in my study can be compared with flowing water) than swampy areas (characteristics of these swampy areas included stagnant creeks, which in my study can be compared with calm-water).

Among the smaller water bodies such as pools, fountains, ponds, and creeks; most of them preferred pools (67.6%), followed by fountains (59.5%). Among the larger water bodies such as lakes, rivers, seas, and oceans; participants preferred oceans (48.6%) relative to other choices. Although in the earlier section they preferred flowing water than calm-water, they were not consistent with the characteristic of earlier preference as pools are less flowing in character than fountains. The reason for this discrepancy could be lack of pictures in the questionnaire. In the questionnaire, pictures of flowing water and calm-water were shown but no pictures were shown for pools, fountains, ponds and creeks. This might have led to insufficient information as to understand the question more clearly. But from the above findings it could be suggested that small water bodies (pools, fountains) are more preferred than large water bodies (oceans, seas).

d) Building preferences: In the building types, multi-storey buildings were clearly more preferred (70.5%) than single-storey buildings (26.4%). By multi-storey buildings, the researcher means skyscrapers generally seen in large cities. The reason for preferring multi-storey could be that they provide mystery and complexity (Herzog, Kaplan & Kaplan, 1982; Geller, et al. 1982). Multi-storey buildings are more complex than single-storey buildings in terms of huge structure, scale and texture. They are also mysterious in terms of predicting the purpose of the building and activities taking place inside the building.

From the descriptive results, more than half of them (60%) preferred looking at other houses, followed by stores (48.6%) and playgrounds (40.5%). However, in the recollective results, 40% of them preferred looking at stores, followed by other houses, schools and offices (17%) each. Although the participants preferred multi storey buildings in the above section, they also preferred other houses which are generally not multi-storey. The reason for this discrepancy could be “identifiability” (Herzog, Kaplan & Kaplan 1982). Maybe this population is able to identify and relate to other houses but not so much with offices.

It could be inferred that participants prefer looking at both single or two storey buildings (such as other houses) and multi-storey/skyscrapers (such as stores/offices) for various possible reasons (mystery, complexity, and identifiability), depending upon the aesthetics of the buildings. As presented by Parsons, Ulrich & Tassinari (1994), environmental aesthetics is one way of assessing human responses to environments for visual preferences. As long as the scene/setting/environment fascinates and engages (Kaplan, 1995) the viewer’s mind, the participants seem to prefer it.

e) Combination of natural vegetation and man-made structures: More than half of the participants (62.2%) preferred viewing equal quantities of natural vegetation and man-made structures than only vegetation (8.1%), only buildings (10%), more vegetation fewer buildings (13%), and more buildings and less vegetation (5.4%). These findings are consistent with the study of Herzog, Kaplan & Kaplan (1982) that compared preferences for different categories of unfamiliar buildings. Of all the building types (contemporary, old, factory, unusual architecture buildings and combination of trees and buildings), participants highly preferred combination of trees and building which was defined as

‘urban nature’ in that study. Mystery was cited one of the reasons for this preference. Cullen (1961) and Alexander, Ishikawa, & Silverstein (1977) also support the notion that ‘mystery’ could be possible factor for such preference. It could be possible that the group homes of dually diagnosed population situated outside cities with little or no scope for mystery prefer mystery in their surroundings and so preferred the combination of natural vegetation and man-made structures.

f) Animated and unanimated scene preferences: From the descriptive results, more participants (75%) preferred animated scenes than unanimated scenes (67%). Interestingly, there isn’t significant difference between the two preferences. On the other hand, from the recollective results, participants preferred both animated and unanimated scenes (37.8%). It could be inferred from the above scenario that the type of scene (animated/unanimated) doesn’t matter as long as the setting/scene engages the viewer’s mind (compatibility from Attention restoration Theory). According to the Attention Restoration Theory (Kaplan, 1995), a setting/scene/environment can engage viewer’s mind only when there is a match (compatibility) between viewer’s inclination/preference and environmental demands. Hence by providing animated or unanimated or both scenes may help in the process of attention restoration required to perform any task efficiently or even to think or act properly.

Research Question Two

The second research question was to determine the most preferred landscape of the three. What would they prefer to view?

i) a landscape dominated by natural vegetation and if so, what kind of vegetation
or

ii) a landscape dominated by man-made structures and if so, what kind of
structures or

iii) a landscape dominated by both natural vegetation and man-made structures

The dually diagnosed adolescents prefer a landscape dominated by natural vegetation more than man-made structures or a combination of both natural vegetation and man-made structures. These findings are consistent with Ulrich's (1981) study about psychophysiological effects of nature. Three categories of outdoor visual environment, namely, a) nature with water, b) nature dominated by vegetation and c) urban environments without water or vegetation were compared in Ulrich's (1981) study to determine their effect on psychological states of participants. Participants preferred the natural environment with water and vegetation more than the urban views and these views exerted a positive influence on human-well being. Although this study did not determine the effects of natural environment on human-wellbeing, it was evident that participants preferred natural vegetation more than man-made structures.

One of the reasons for the participants to visually prefer natural vegetation could be focal point/focus/focality (Ulrich, 1977). According to Ulrich (1977) "focality" is defined as a point /area that attracts the viewer's attention. It is one of the variables that influences visual environmental preference. Focality results when a prominent feature or group of features "creates a sense of dominance that attracts the viewer's eye" (Ulrich, 1977, pg 282). Participants preferred fruit bearing trees (67.6%) and flowering plants (59.5%) more than greens (43%) and creepers/vines (37%), suggesting that they tend to

like scenes/settings/environments that have focal points. The preferred natural vegetation clearly had focality in the form of fruits and flowers and were preferred more than more monotonous creepers/vines.

Also, one of the reasons for this population to prefer flowing water relative to calm water could be “complexity” (Ulrich, 1977.). According to Ulrich (1977) complexity was defined as “amount of information in a scene” (pg, 281) and humans tend to visually prefer an environment which has moderate to high complexity. For this reason, flowing water with a moderate to high complex character could have been preferred more than calm water.

The dually diagnosed population least preferred a landscape dominated by man-made structures. One of the reasons for this could be “massive doses of unstructured information” (Herzog, Kaplan, & Kaplan, 1982, pg. 56). There appears to be negative preference for buildings/structures which are massive in appearance and neglect to relate to human scale (Geller, 1982). Also, the inability to identify and relate to the structures could be the reasons for the participants’ least preference.

In the beginning of this chapter it was discussed that the results from most of the studies revealed that people tend to like natural settings more than man-made settings (Tennessen & Cimprich, 1995; Ulrich, 1986) and it was assumed that this population may or may not prefer the same way given their developmental disability and unfamiliarity of the urban environments (Geller, et al., 1982). However, it is interesting to note this population also prefers viewing natural vegetation over man-made structures and a combination of both natural vegetation and man-made structures.

Research Question Three

What are the characteristic features of outside views that dually diagnosed adolescents would prefer to view from their rooms?

As discussed above, the adolescents prefer to view medium dense vegetation more than dense and sparse vegetation. Again, the reason for such preference could be moderate complex environment (Herzog, Kaplan & Kaplan, 1982; Geller, et al. 1982). Settings/scenes/environments, especially natural landscape are preferred more if the viewer finds them easy to see, understand and grasp the context (Ulrich, 1977). As medium density vegetation is complex enough to hold the viewer's attention and is legible; it could have been preferred the most. Among the natural vegetation, fruit bearing trees and flowering plants are preferred as they have focal point (s) to focus the viewer's attention. According to Attention Restoration Theory (Kaplan, 1995), the environment has to be ordered, organized and coherent so as to engage the viewer's mind, which in turn restores attention. It could be this coherent characteristic of the natural vegetation comprised of trees and plants with fruits and flowers that engaged the participants' minds.

Given the cognizant levels of the population, it is doubtful whether they have understood the difference between river, sea and ocean in terms of vastness and viewability, though they have been shown pictures to help understand. Pictures were used in studies (Balling & Falk, 1982; Olds, 1989; Boerger & Shepley, 1991; Herzog, 1985; Ulrich, 1979, 1986) to help participants understand the context when it is physically unpractical to show the real environments. Oceans (48%) were most preferred among all the water bodies, and it could be possible that though the participants didn't understand

the physical difference between these water bodies, they might have wanted to see those water bodies.

In terms of view appearance, though animated scenes were preferred over unanimated scenes, there isn't significant difference between the two preferences. As defined earlier, animated scenes are those which contain some movement or action and will include flying birds, jumping squirrels, or pet animals such as dogs or cats playing in the backyard. Unanimated scenes are those which are at a restful state and are characterized by being quiet, serene and repose.

It could be possible that both these scenes represent fascination (Attention Restoration Theory, Kaplan, 1995), for this population and that phenomenon holds their attention.

CONCLUSIONS

The theoretical framework including (Attention Restoration Theory, and Environmental Aesthetics), the results and the discussion of this study are very consistent with each other. The theories support the results and discussion which in turn lead to the following conclusions.

Attention Restoration Theory (Kaplan, 1995) states being away, fascination, extent and compatibility as the four ways to restore attention in order to perform any task efficiently or even to act properly. The dually diagnosed population, experiencing stress and frustration by the very nature of their disability (Nirje, 1976), need to restore their attention. Providing them with their choice of environment will engage their minds and help in the process of restoring their attention.

The dually diagnosed adolescents prefer a landscape dominated by natural vegetation such as trees and plants over man-made structures and a combination of both natural vegetation and man-made structures. This finding is consistent with studies in which participant's preferred natural environments than man-made environments (Ulrich, 1979, 1981, 1984, 1986; Hartig, Mang & Evans, 1994; Tennessen & Cimprich, 1995). Their outdoor visual preferences are natural vegetation with medium dense trees and plants. Focal point and /or fascination to hold the viewer's attention was provided by fruits and flowers on that vegetation. Flowing water, part of natural landscape, was also preferred. Between the water bodies, small water bodies such as pools and fountains were preferred than large water bodies.

Among the man-made structures, though multi storey buildings were more preferred than single storey buildings, the participants still preferred to look at other houses. As discussed in Research Question One, the reason for that could be aesthetics and complexity of multi storey buildings, and identifiability and being able to relate to other houses.

Equal quantities of natural vegetation and man-made structures was also preferred than other combinations. In terms of view appearance, though participants preferred animated scenes than unanimated scenes there wasn't vast difference between the two. So it could be inferred that the type of scene (animated/unanimated) doesn't matter as long as the setting/scene engages the viewer's mind (compatibility from Attention restoration Theory).

RECOMMENDATIONS

As stated in Chapter One (page 3), the findings of this study are significant to interior designers, architects, environment planners, and builders of group homes as well as the Developmental Disabilities care members. Based on the above findings, recommendations are suggested in two areas: 1) recommendations to interior designers, architects, builders and environmental planners and designers 2) recommendations for future research.

Recommendations for interior designers, architects, builders and environmental planners and designers:

- The findings of this study show that this population prefers viewing natural vegetation such as trees, plants, water bodies over man-made structures. Based on these findings, builders, when selecting a site for construction of group homes for this population, should consider selecting a site that is either adjacent or has visual access to natural vegetation.
- Architects and interior designers should take advantage of the above site conditions and design the population's favorite rooms with views to the outdoors such as patio, living room, and bedroom adjacent to or visually accessible to natural vegetation areas. While, kitchens and bathrooms can be placed on the viewless areas.
- If ideal site conditions as described above are unavailable, the care provider organizations should grow plants and trees in the available outdoor space to provide for the preferences of the population.

Recommendations for future research:

- Future research might consider collecting data from a bigger and more diverse sample. This can be achieved by multi-state data collection efforts.
- Comparing the visual preferences based on age (children, adolescents, and adults), gender (male and female) regions (east coast, west coast, south, mid-west etc.) and diagnosis level (mild, moderate and profound), number of people residing in group home facilities (4, 8, 12).

REFERENCES

American Association on Mental Retardation (AAMR) (1997): Mental retardation defined and explained. In *Mental retardation: Definition, classification, and systems of supports (9th edition)*. Washington D. C.: AAMR

American Psychiatric Association (1994). Diagnostic and Statistical Manual of Mental Disorders (4th ed.). Washington, D. C.: American Psychiatric Association.

Balling, J. D., & Falk, J. H. (1982). Development of visual preference for natural environments. *Environment and Behavior*, *14(1)*, 5-28.

Bongiorno, F.P. (1996). Dual diagnosis: Developmental disability complicated by mental illness. *Southern Medical Journal*, *89(12)*, 1142-1147.

Burchard, J. D. & Clarke, R. T. (1990). The role of individualized care in a service delivery system for children and adolescents with severely maladjusted behavior. *The Journal of Mental Health Administration*, *17(1)*, 48-60.

Dowrick, P. (1988). Alaska Youth Initiative. In P. Greenbaum, R. Friedman, A. Duchnowski, et al, *Children's mental health services and policy: Building a research base*. Tampa, FL: Florida Mental Health Institute.

Geller, D. M., Cook, J. B., O'Connor, M. A., & Low, S. K. (1982). Perception of urban scenes by small town and urban residents: A multidimensional scaling analysis. In P. Bart, A. Chen, & G. Francescato (eds.), *Knowledge for design* (pp. 128-141). College Park, Md.: Environmental Design Research Association.

Gunzburg A. L. (1968). Sensory experiences in the architecture for the mentally subnormal child. *Journal of mental subnormal*, 26, 57-58.

Gunzburg, H. C., & Gunzburg, A. L. (1992). Grouphomes – Neoinstitutionalism. *Issues in Special Education and Rehabilitation*, 7(1), 7-18.

Hammitt, W. E. (1979). Measuring familiarity for natural environments through visual images, (pp, 217-226). Proceedings of *Our National Landscape: A conference on applied techniques for analysis and management of the visual resource*. USDA Forest Service, Berkeley, CA.

Hartig, T., Mang, M., & Evans, G. E. (1991). Restorative effects of natural environment experiences. *Environment and Behavior*, 23(1), 3-26.

Hartig, T., Evans, G. W., Jamner, L. D., Davis, D. S., & Garling, T. (2003). Tracking restoration in natural and urban field settings. *Journal of Environmental Psychology*, 23, 109-123.

- Herzog, T. R. (1976). The prediction of preference for familiar urban places. *Environment and Behavior*, 8(4), 627- 645.
- Herzog, T. R. (1985). A cognitive analysis of preference for waterscapes. *Journal of Environmental Psychology*, 5, 225-241.
- Herzog, T. R., Kaplan, S., & Kaplan, R. (1982). The prediction of preference for unfamiliar urban places. *Population and Environment*, 5(1), 43-59.
- Herzog, T. R., Maguire, C. P., & Nebel, M. B. (2003). Assessing the restorative components of environments. *Journal of Environmental Psychology*, 23, 159-170.
- Ittelson, W. H. (1973). Environment perception and contemporary perceptual theory. In W. H. Ittelson (ed.), *Environment and Cognition*. New York: Seminar Press, pp. 1-19.
- Olmsted, F. L. (1870). *Public parks and the enlargement of towns*. Cambridge: Riverside press.
- Kaplan, R. (1984). Wilderness perception and psychological benefits: an analysis of a continuing program. *Leisure Sciences*, 6, 271-290.

Kaplan, S. (1995). The restorative benefits of nature: Toward an integrative framework. *Journal of Environmental Psychology, 15*, 169-182.

Merriam, S.B. (1998): *Qualitative Research and Case Studies Applications in Education*. San Francisco: Jossey-Bass Publications.

Nirje, B. (1976). The normalization principle and its human management implications. In M. Rosen, G. R. Clark, & M. S. Kivitz (eds.), *The history of mental retardation: Collected papers*, Vol 2. Baltimore, ML: University Park Press.

Owens, P. E. (1988). Natural landscapes, gathering places, and prospect refuges: Characteristics of outdoor places valued by teens. *Children's Environments Quarterly, 5*(2), 17-24.

Parsons, R., Ulrich, R. S., & Tassinary, L. G. (1994). Experimental approaches to the study of people-plant relationships. In (Eds.) J. Flagler, & R. P. Poincelot, *People-plant relationships: Setting research priorities*. NY: Food Products.

Schalock, R. L., & Kiernan, W. E. (1990). Defining adults with disabilities. In R. L. Schalock & W. E. Kiernan, *Habilitation planning for adults with disabilities* New York: Springer-Verlag.

Tennessen, C. M., & Cimprich, B. (1995). Views to nature: Effects on attention. *Journal of environmental Psychology, 15*, 77-85.

Ulrich, R. S. (1974). Scenery and the shopping trip: The roadside environment as a factor in route choice. Michigan geographical publications, No. 12. Ann Arbor: Dept. of Geography, University of Michigan.

Ulrich, R. S. (1977). Visual landscape preference: A model and application. *Man-Environment Systems, 7*(5), 279-193.

Ulrich R.S. (1979). Visual landscapes and psychological well being. *Landscape Research, 4*(1), 17-23.

Ulrich, R. S. (1981). Natural versus urban scenes: Some psychophysiological effects. *Environment and Behavior, 13*(5), 523-556.

Ulrich, R. S., & Addoms, D. L. (1981). Psychological and recreational benefits of a residential park. *Journal of Leisure Sciences, 13*, 43-65.

Ulrich, R. S. (1983). Aesthetic and affective response to natural environment. In: I. Altman and J. F. Wohlwill (eds.), *Human Behavior and Environment*, Vol 6. Plenum, New York, pp. 85-125.

Ulrich, R. S. (1984). View through a window may influence recovery from surgery. *Science*, 224, 420-421.

Ulrich R. S. (1986). Human responses to vegetation and landscapes. *Landscape and Urban Planning*, 13, 29-44.

Van Aniel, J. (1990). Places children like, dislike and fear. *Children's Environments Quarterly*, 7(4), 24-31.

Verderber, S. F. (1982). Designing for therapeutic functions in the hospital rehabilitation environment. In P. Bart, A. Chen, & G. Francescato (eds.), *Knowledge for design* (pp. 476-492). College Park, Md.: Environmental Design Research Association.

Wilson, L. M. (1972). Intensive care delirium: The effect of outside deprivation in a windowless unit, *Archives of Internal Medicine*, 130, 225-226.

Wohlwill, J. F. (1983). The concept of nature: A psychologist's view. In: I. Altman and J. F. Wohlwill (Eds), *Human Behavior and Environment*, Vol 6. Plenum, New York, pp. 5-37.

Zajonc, R. B. (1980). Feeling and thinking: Preferences need no inferences. *American Psychologist*, 35, 151-175.

APPENDICES

APPENDIX A

Mail questionnaire

**VIEW OUT OF A WINDOW: VISUAL PREFERENCES
OF DUALY DIAGNOSED ADOLESCENTS
RESIDING IN GROUP HOMES**

Demographic Information

1. Age of the participant: _____
2. Sex: Male Female
3. State: _____
4. Group Home Number: _____
5. Initials of the participant: _____

In case the participant has difficulty understanding some of the following terms, you (staff) can replace it with the other words given below

Glossary of terms:

1. Vegetation: plants and trees
2. Dense: Thick, crowded
3. Medium: Average, not so thick or thin
4. Sparse: Thin, meager

General questions:

1. How important is for you to look outside
 Very important Important Neutral Not really important Unimportant
2. How important is for you to look outside through windows?
 Very important Important Neutral Not really important Unimportant



3. Do you like to look outdoors from your living room?
 Very much Somewhat Doesn't matter Very little Not at all
4. Do you like to look outdoors from your bedroom?
 Very much Somewhat Doesn't matter Very little Not at all
5. Do you like to look outdoors from your kitchen?
 Very much Somewhat Doesn't matter Very little Not at all

6. Do you like to look outdoors from your bathroom?
 Very much Somewhat Doesn't matter Very little Not at all
7. Do you like to look outdoors from your patio?
 Very much Somewhat Doesn't matter Very little Not at all
8. Of all the rooms mentioned above, which is your favorite room _____
9. Is there any other room you would like to see outdoors from? _____
10. How do you feel when you look outdoors at something you like?
Sad very much Somewhat neither Somewhat very much
 Happy
11. How do you feel when you look outdoors at something you don't like?
Sad very much Somewhat neither Somewhat very much
 Happy
12. When I'm upset and look outside I feel
Upset very much Somewhat neither Somewhat very much
 Happy

(Please turn the page)

Landscape dominated by green vegetation and water:

13. How important is for you to look outdoors with vegetation (plants, trees, shrubs etc.)
 Very important Important Neutral Not really important Unimportant

14. What sort of vegetation would you like to view at outdoors? (look at the pictures below) (For clear definition of the following terms refer glossary at the beginning of the questionnaire)
 Dense vegetation Medium vegetation Sparse vegetation



15. Do you like to look at trees?
 Very much Somewhat Doesn't matter Very little Not at all

16. Do you like to look at plants?
 Very much Somewhat Doesn't matter Very little Not at all

17. Do you like to look at shrubs/bushes?
 Very much Somewhat Doesn't matter Very little Not at all

18. Do you like to look at creepers/vines?
 Very much Somewhat Doesn't matter Very little Not at all

19. Of all the types of vegetation mentioned above, which one is your favorite? _____



20. Do you like to look at trees/plants/creepers with flowers on it? (look at the above pictures for the following questions)

- Very much Somewhat Doesn't matter Very little Not at all

21. Do you like to look at trees/plants/creepers with fruits on it?

- Very much Somewhat Doesn't matter Very little Not at all

22. Do you like to look at trees/plants/creepers with vegetables on it?

- Very much Somewhat Doesn't matter Very little Not at all

23. Do you like to look at trees/plants/creepers with greenery on it?

- Very much Somewhat Doesn't matter Very little Not at all

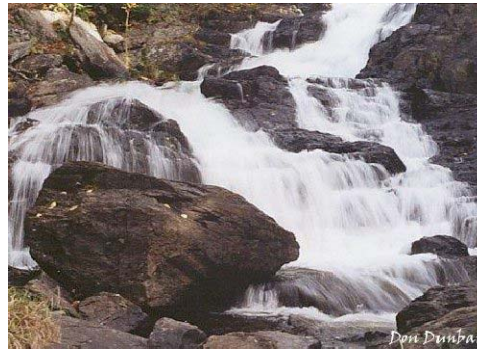
24. Of all the types of flowering trees, fruit trees, vegetable plants, and creepers mentioned above, which one is your favorite?

25. How do you feel when you look at the type of plants/gardens mentioned above?

very much Somewhat neither Somewhat very much
Stressed Excited

26. How important is for you to look at water in your outdoors?

Very important Important Neutral Not really important Unimportant



27. How important is for you to look at calm water in your outdoors? (look at the picture above; left hand side)

Very important Important Neutral Not really important Unimportant

28. How important is for you to look at flowing water in your outdoors? (look at the picture below; right hand side)

Very important Important Neutral Not really important Unimportant

29. Among calm water and flowing water, which one is your favorite? _____

30. Do you like to look at fountain?

Very much Somewhat Doesn't matter Very little Not at all

31. Do you like to look at pond?

Very much Somewhat Doesn't matter Very little Not at all

32. Do you like to look at pool?
 Very much Somewhat Doesn't matter Very little Not at all
33. Do you like to look at creek?
 Very much Somewhat Doesn't matter Very little Not at all
34. Do you like to look at lake/river/sea/ocean? (look at the pictures below)
 Very much Somewhat Doesn't matter Very little Not at all



35. Of all the water bodies mentioned above, which is your favorite? _____

Landscape dominated by man-made structures:

36. How important is for you to look at buildings from your outdoor?
 Very important Important Neutral Not really important Unimportant

37. Do you like to look at one-story building?

Very much

Somewhat

Doesn't matter

Very little

Not at all



38. Do you like to look at multi-story building?

Very much

Somewhat

Doesn't matter

Very little

Not at all



39. Of the two types of buildings, which one is your favorite?

40. Do you like to look at other houses?

Very much

Somewhat

Doesn't matter

Very little

Not at all



41. Do you like to look at road?

Very much

Somewhat

Doesn't matter

Very little

Not at all



42. Do you like to look at playgrounds with play equipment like see-saw, swings etc.?

Very much

Somewhat

Doesn't matter

Very little

Not at all



43. Do you like to look at stores (departmental, local store, bookstore etc.)?

Very much

Somewhat

Doesn't matter

Very little

Not at all



44. Do you like to look at offices?

- Very much Somewhat Doesn't matter Very little Not at all



45. Do you like to look at schools?

- Very much Somewhat Doesn't matter Very little Not at all

46. Of all the buildings mentioned above, which one is your favorite? _____

47. How do you feel when you look at the types of buildings mentioned above?

- very much Somewhat neither Somewhat very much
Stressed Excited

Landscape dominated by both vegetation and man-made structures:

48. How important is for you to look at a combination of buildings and vegetation? (look at the picture below)

- Very important Important Neutral Not really important Unimportant



49. Which one of these would you like to view?

- Only vegetation
 Only buildings
 More vegetation and fewer buildings
 More buildings and less vegetation
 Equal of both

50. The quality of the view you would like to see at outdoors?

- Calm, quite, and relaxing
 Energetic, vibrant, and lively
 Both of the above
 None
 Other _____

Landscape dominated by animated and unanimated scenes:

51. Do you like to see animals (dog, cat) outside?

- Very much Somewhat Doesn't matter Very little Not at all

52. Do you like to see birds outside?

- Very much Somewhat Doesn't matter Very little Not at all

53. Do you like to see squirrels, rabbits outside?

- Very much Somewhat Doesn't matter Very little Not at all

54. What else would you like to see outside? _____

55. Would you like to see a squirrel or a bird moving in a garden, or a dog playing in the backyard etc? (look at the picture below)

- Very much Somewhat Doesn't matter Very little Not at all



56. Would you like to see a quiet garden, a far-view mountain or pond etc in the outside? (look at the picture below)

- Very much Somewhat Doesn't matter Very little Not at all



57. Which one of the above scenes would prefer?

- 55 56 both none other _____

APPENDIX B

Letter to the Group-Home Organizations

Ms. Goard
Programs Manager
Residential Services, DDS-DHS

I'm Hema Boggavarapu, a graduate student doing Masters at Oklahoma State University. My specialization is in Interior Design. I'm working on my Thesis titled "Visual Preferences of Dually Diagnosed Adolescents (11-17 years of age) residing in group-homes." I want to determine what these adolescents would like to view from their windows. A copy of my research proposal and questionnaire are enclosed for further details.

In order to get significant results for my study, I need a sample of 100 dually diagnosed adolescents of age 11-17 years residing in group homes. As the State funded group homes are managed by Department of Human Services (DHS), this letter is to seek your permission to conduct my research in those facilities. I will not be visiting those facilities in person. I will mail a package containing consent forms, assent forms, questionnaire, instructions to staff and self-addressed envelope. I will discuss the instrument (questionnaire) and its administration with the manager of each of the group homes, who will in turn train staff in proper method of administering the questionnaire.

The questionnaire will consist of 56 questions, mostly close-ended. The questionnaire will be administered by the staff of each group home. The staff does not need any special expertise to administer the questionnaire; however it is required that the staff administering this questionnaire to be familiar with the residents and not new employees. They have to ask the questions and provide limited help to the participants if they have any difficulty understanding the questions. Once the participant answers the question, the staff will circle the option or place a checkmark in the questionnaire. The test can be conducted during any time of the day and will take 30-45 minutes to answer. Participation by the adolescents is absolutely voluntary and they can withdraw from the study at any time. After completing the questionnaire, the staff will mail it to me by the self-addressed envelope in the package.

I would really appreciate if you would allow me to conduct my research in those facilities.

I thank you for your time and help.

Hema Boggavarapu
431, HES, Oklahoma State University
Stillwater, OK, 74078
Phone: 405 372 3608 Email: hema0705@yahoo.com



APPENDIX C

Assent Form

**ASSENT TO PARTICIPATE IN RESEARCH STUDY
OKLAHOMA STATE UNIVERSITY**

Hi!!

My name is Hema and I study in college. The reason you are reading this letter is because there are few questions that I need to know the answers of. I would like to know what you like to see outside your window. Would you like to see trees, plants, flowers outside of your window or buildings such as offices, playgrounds, other houses? Or would you like to see both trees and buildings? I am writing a report about this and would appreciate your help.

If you agree to help me, you have a small task today. You will be shown and asked questions by staff and you need to choose one of the five choices given below the question. Sometimes there will be pictures to help you understand the question more clearly. So all you have to do is, choose an answer for the question asked by your staff.

It will take about 30-45 minutes to answer all the 56 questions. In case you don't understand the question or picture you can ask your staff to help you understand it more clearly. But they will not help you in choosing the answer or option. It will be you to select the option.

You can answer the questions at your convenience. Here is how you can do that:

- 1) You can answer all the 56 questions at one time, or
- 2) You can answer some questions and take a break and come again later and answer the remaining questions, or
- 3) You can choose not to answer the remaining questions at all, or
- 4) You can choose not to answer any of the questions.

It is completely up to you to choose whichever way you want to do it. If you feel that you are stressed out or uncomfortable answering any question, tell your staff so. As I said, you can stop answering the questions at time or you can skip any question if you feel uncomfortable answering or for any other reasons.

Once again you are free to stop at any time. There is nothing wrong or bad if you choose not to answer. In case if you have any questions ask the staff.

So would you like to participate in this task? 1) YES 2) NO

Thank you for your time.

Hema
Researcher



APPENDIX D

Script to the Staff

Script for the staff of the group homes

Staff: Hi (name of the participant)

Staff: How r u feeling today?

(If the participant replies in a positive way then follow to the next line. If s/he replies in a negative way then find out an alternative day or time to conduct the test)

Staff: I'm going to ask you a question and you will look at the choices and choose the choice which you like the most.

(Find out if the participant has understood what you have said. If s/he says OK then follow to the next line. If s/he doesn't understand repeat the same line)

Begin with question 1. Read the question at a medium pace so that the participant will understand the question clearly. After reading the question, read and/or show the choices. Ask his/her answer and you have to circle or checkmark that choice on the questionnaire. In case if the question has a picture beneath, show the picture.

In case the participant has difficulty understanding a term, you can use an alternative word from the glossary.

Note: Let the participant know that their participation is voluntary and it is OK to stop the test at any time. Let them understand that there is nothing wrong or bad if they choose to stop the test

Note: As stated before, there is no requirement that the test be completed in one sitting. Here is how they can choose to answer the questionnaire:

1. The participant can finish answering all the 56 questions in one sitting, or
2. S/he can answer some questions and take a break and come again later and answer the remaining questions, or
3. S/he can choose not to answer the remaining questions at all.
4. S/he can choose not to answer any of the questions.

It is completely up to the participant to choose whichever way s/he wants to do it. They can withdraw from answering the questions at any point of time or can skip any question if they feel uncomfortable answering it or for any other reason.

As the staff, you are the one familiar with the participant more than anybody else. So the decision is up to you as to when to give the test and when to resume it in case the participant takes a break. It is preferred that the test be given when the participant is physically and mentally in a good condition so as to ensure better results. It is also preferred that you be familiar with the participants and understand them well so that they feel comfortable, which in turn will yield better results.

Thank you for your cooperation.
Hema Boggavaru
Researcher


Institutional Review Board
Approved <u>2/22/05</u>
Expires <u>2/21/06</u>
Initials <u>Hj</u>

APPENDIX E
Staff Consent Form

**STAFF CONSENT TO PARTICIPATE IN RESEARCH STUDY
OKLAHOMA STATE UNIVERSITY**



RESEARCH TITLE: View out of a window: Visual preferences of dually diagnosed adolescents residing in group homes

INVESTIGATOR: Hema Boggavarapu, B. Arch

PURPOSE:

The purpose of this study is to determine the visual preferences of adolescents (11-17 years) who are dually diagnosed with developmental disabilities and emotional disturbances living in group homes. The type of visual preferences that will be studied in my research will include

- a) a landscape dominated by natural vegetation such as trees, plants etc.
- b) a landscape dominated by man-made structures such as office buildings, playgrounds, departmental stores etc.
- c) a landscape dominated by both natural vegetation and man-made structures.

PROCEDURE:

The dually diagnosed adolescents residing in group homes need to complete a questionnaire. The questionnaire will have 56 questions and most of them will be close-ended, meaning each question will have five choices and the participant (dually diagnosed adolescents) has to pick/select one choice from the 5 choices. The questionnaire will also have pictures for some of the questions to help the participant understand the context when required. A package containing consent forms, assent forms, questionnaires, staff consent forms, detailed instructions for staff (script), small envelopes, and self-addressed large envelope will be mailed to the group home providers

About the questionnaire:

The questionnaire will have six parts. The first part is about demographic information of the participant such as age, sex, city, etc. The second part is about "general questions" like would they like to look outside, which is their favorite room to look outside etc. The third part is "landscape dominated by green vegetation and water". In this part, questions regarding their preferences on types of vegetation (trees, plants, shrubs, creepers) and varieties in vegetation (flowers, fruits, vegetables, only greenery) will be posed. Also, preferences regarding types of water bodies such as ponds, lakes, pools, will be inquired. The fourth is about "landscape dominated by man-made structures". Man-made structures such as offices, schools, playgrounds, stores, roads, other neighboring residences, will be a part of the questionnaire. The fifth part is "landscape dominated by both vegetation and man-made structures". Pictures showing a combination of both vegetation and buildings will be shown and questions will be asked about their visual preference. The sixth and the last part is "landscape dominated by animated and unanimated scenes". Animated scenes are those which contain some movement or action and will include flying birds, jumping squirrels, pet animals such as

dog, cat playing in the backyard. Unanimated scenes are those which are at a restful state and are characterized by being quiet, serene and repose. Pictures of this category will include a quiet garden, calm water pond or a far-view of a mountain. Pictures will be placed below the questions when required.

Staff's role:

Your role is to administer/conduct the test and help the participant understand the questions and choices given in the questionnaire. You will not, however, help the participant in choosing the answer/option. It will be the participant who will choose the answer/option from the choices. You do not have to have special expertise in order to conduct this test. However, it is better that you read all the questions and choices before the beginning of the test, so that you can help the participant understand the questions if necessary. There are some alternative terms in the glossary which can be substituted instead of the original word. For example "vegetation" can be substituted with "plants and trees."

The test will be conducted with one individual at a time. It can be conducted during anytime of the day and will take 30-45 minutes to answer. It is not necessary that the whole questionnaire be finished in one sitting. If the participant shows any signs of stress or feels uncomfortable, you can stop the test and resume when the participant feels comfortable or not resume it at all depending upon the participant's request. Here is how the participants can choose how they would like to answer the questionnaire

1. The participant can finish answering all the 56 questions in one sitting, or
2. S/he can answer some questions and take a break and come again later and answer the remaining questions, or
3. S/he can choose not to answer the remaining questions at all.
4. S/he can choose not to answer any of the questions.

It is completely up to the participant to choose whichever way s/he wants to do it. They can withdraw from answering the questions at any point of time or can skip any question if they feel uncomfortable answering it or for any other reason.

As the staff, you are the one familiar with the participant more than anybody else. So the decision is up to you as to when to give the test and when to resume it in case the participant takes a break. It is preferred that the test be given when the participant is physically and mentally in a good condition so as to ensure better results. It is also preferred that you be familiar with the participants and understand them well so that they feel comfortable, which in turn will yield better results.

RISK OF PARTICIPATION:

There are no anticipated risks involved in this research project.

CONFIDENTIALITY: To ensure confidentiality of the participants the following steps need to be followed:

1. When the participant chooses to answer some of the questions and take a break,

- the staff who had started the test should be the one to restart it.
2. During the time of break, the questionnaire should be stored in a cabinet/drawer which is not accessible to other staff members.
 3. After the participant finishes answering all/some of the questions, seal it in the small individual envelope (provided by the researcher) and place it in a self-addressed larger envelope.

BENEFITS OF PARTICIPATION:

There are no direct benefits of participation. However, the results of the study are important for the following reasons.

- a) The dually diagnosed population, experiencing stress and frustration by the very nature of their disability (Nirje, 1976), need to restore their attention to perform any task efficiently. Providing them with their choice of environment may engage their minds and help in the process of restoring their attention.
- b) Providing them with their choice of visually preferred environment, may influence their emotions, can in turn have an effect on their physical and mental health.
- c) Knowing the specific elements present in nature that evoke positive responses would allow interior designers, architects, planners, and environmental psychologists to understand the importance of those elements and incorporate them in their future designs.
- d) Knowing the exterior visual preferences of this population, organizations developing group homes can apply these findings in the site selection process.

If interested, I can send a copy of the results when the research is finished.

COMPENSATION:

No compensation will be provided.

COMMENTS/SUGGESTIONS

If you observe some of the participants reacting to certain questions in an absurd way or any other information, comments or suggestions that can help me, please inform me.

CONTACTS:

I can be contacted regarding questions on participation, results or in general at the following address:

Hema Boggavarapu
Graduate Research Assistant
431, Human Environmental Sciences
Oklahoma State University
Stillwater, OK 74078
Ph: 405 744 5035
Email: hema.boggavarapu@okstate.edu

For information on subjects' rights, contact
Dr. Sue Jacobs, IRB Chair,
415 Whitehurst

Oklahoma State University
Stillwater, OK 74078 Ph: 405 744 1676

PARTICIPATION RIGHTS:

I understand that my participation is voluntary and there is no penalty or punishment or compulsion from anybody for refusal to participate. I can terminate or refuse to participate in the test at any time without any penalty.

SIGNATURE:

I have read and fully understand the consent form. I sign it freely and voluntarily. A copy of this form has been given to me.

Signature of staff member

Date



APPENDIX F

Consent Form

**CONSENT TO PARTICIPATE IN A RESEARCH STUDY
OKLAHOMA STATE UNIVERSITY**



Research Title: View out of a window: Visual preferences of dually diagnosed adolescents residing in group homes

Investigator: Hema Boggavarapu, B. Arch

Purpose:

The purpose of this study is to determine the visual preferences of adolescents (11-17 years) who are dually diagnosed with developmental disabilities and emotional disturbances living in group homes. The type of visual preferences that will be studied in my research will include

- a) a landscape dominated by natural vegetation such as trees, plants etc.
- b) a landscape dominated by man-made structures such as office buildings, playgrounds, departmental stores etc.
- c) a landscape dominated by both natural vegetation and man-made structures.

Procedure:

The participants, with the help of their staff, need to complete a questionnaire. There will be 56 questions and most of them will be close-ended, meaning each question will have five options and the participant has to circle or check his/her preference. The questionnaire will also have pictures for some of the questions to help the participants understand the context when required.

The questionnaire will have six parts. The first part is about demographic information such as age, sex, city, etc. The second part is about "general questions" like would they like to look outside, which is their favorite room to look outside etc. The third part is "landscape dominated by green vegetation and water". In this part, questions regarding their preferences on types of vegetation (trees, plants, shrubs, creepers) and varieties in vegetation (flowers, fruits, vegetables, only greenery) will be posed. Also, preferences regarding types of water bodies such as ponds, lakes, pools, will be inquired. The fourth is about "landscape dominated by man-made structures". Man-made structures such as offices, schools, playgrounds, stores, roads, other neighboring residences, will be a part of the questionnaire. The fifth part is "landscape dominated by both vegetation and man-made structures". Pictures showing a combination of both vegetation and buildings will be shown and questions will be asked about their visual preference. The sixth and the last part is "landscape dominated by animated and unanimated scenes". Animated scenes are those which contain some movement or action and will include flying birds, jumping squirrels, pet animals such as dog, cat playing in the backyard. Unanimated scenes are those which are at a restful state and are characterized by being quiet, serene and repose. Pictures of this category will include a quiet garden, calm water pond or a far-view of a mountain. Pictures will be placed below the questions when required.

The questionnaire will be administered by the staff of each group home, as it is not possible for the researcher to access the participants directly. The staff does not need any specialized expertise to administer the questionnaire, they just have to ask the questions and help the participants if they have any difficulty understanding the questions. Once the participant answers the question, the staff will circle the option in the questionnaire. The test can be conducted during anytime of the day and will take 30-45 minutes to answer. It is not necessary that the whole questionnaire be finished in one sitting. If the participant shows any signs of stress or feels uncomfortable, the staff can terminate the test and resume when the participant feels comfortable.

Participation by the participants is absolutely voluntary and they can withdraw from the study whenever they want. There will be absolutely no penalty or punishment in case of termination of the test at any point. If the participant feels like not answering a particular question for some reason, the staff can skip that and proceed with next question. The test will be conducted when the participants are all physically and mentally fit as determined by their staff.

Risk of participation:

The participants may experience some difficulty or stress while answering the questions because of their cognitive levels of understanding. The staff can help them in understanding the questions in other way and even then if the participants show signs of stress or discomfort, the staff can terminate the test and resume it whenever the participant feels to answer them. As the test takes about 30-45 minutes it will not cause any long-term effects.

Benefits of participation:

There are no direct benefits to the participants for participation. However, the results of the study are important for the following reasons.

- a) The dually diagnosed population, experiencing stress and frustration by the very nature of their disability (Nirje, 1976), need to restore their attention to perform any task efficiently. Providing them with their choice of environment may engage their minds and help in the process of restoring their attention.
- b) Providing them with their choice of visually preferred environment, may influence their emotions, can in turn have an effect on their physical and mental health.
- c) Knowing the specific elements present in nature that evoke positive responses would allow interior designers, architects, planners, and environmental psychologists to understand the importance of those elements and incorporate them in their future designs.
- d) Knowing the exterior visual preferences of this population, organizations developing group homes can apply these findings in the site selection process.

If interested, I can send a copy of the results when the research is finished.

Confidentiality:

The subjects' name will not be mentioned on the questionnaire instead the questionnaire will be identified by a code. The code will consist of initials of the state in which the group home is situated, the group home number, and the participants last initial. The list

of the code will be kept in a locked file cabinet in my OSU office. This information will be kept for a period of one year. After the research is completed, this information will be destroyed using a shredding machine. The analysed data will be reported in an aggregated form.

To ensure further confidentiality of the participants the following steps need to be followed by the staff administering the test:

1. When the participant chooses to answer some of the questions and take a break, the staff who had started the test should be the one to restart it.
2. During the time of break, the questionnaire should be stored in a cabinet/drawer which is not accessible to other staff members.
3. After the participant finishes answering all/some of the questions, seal it in the small individual envelope (provided by the researcher) and place it in a self-addressed larger envelope.

Compensation:

No compensation will be provided to the staff or the participants.

Contacts:

I can be contacted regarding questions on participation, results or in general at the following address:

Hema Boggavarapu
Graduate Research Assistant
431, Human Environmental Sciences
Oklahoma State University
Stillwater, OK 74078
Ph: 405 744 5035
Email: hema.boggavarapu@okstate.edu

For information on subjects' rights, contact
Dr. Sue Jacobs, IRB Chair,
415 Whitehurst
Oklahoma State University
Stillwater, OK 74078
Ph: 405 744 1676

Participation rights:

I understand that my participation is voluntary and there is no penalty or punishment for refusal to participate. I can terminate or refuse to participate in the test at any time without any penalty.

Signatures:

I have read and fully understand the consent form. As a guardian I authorize _____
(print name) to participate in the described research.

Parent/Guardian Name (printed)

Date

Signature of Parent/Guardian
I certify that I have personally explained this document before requesting that the participant sign it.

Date

Nena

Signature of Researcher

03.04.05

Date



APPENDIX G

Institutional Review Board Approval

Oklahoma State University Institutional Review Board

Date: Tuesday, February 22, 2005
IRB Application No HE0525
Proposal Title: View Out of a Window: Visual Preferences of Dually Diagnosed Adolescents Residing in Group Homes

Reviewed and Processed as: Full Board

Status Recommended by Reviewer(s): Approved Protocol Expires: 2/21/2006

Principal Investigator(s)

Hema Boggavarapu
431 HES
Stillwater, OK 74078

Theodore Drab
439 HES
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.


- The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTernan in 415 Whitehurst (phone: 405-744-5700, emct@okstate.edu).

Sincerely,



Sue C. Jacoby, Chair
Institutional Review Board

VITA

Hema Latha Boggavarapu

Candidate for the Degree of Master of Science

Thesis: View out of a window: Visual preferences of dually diagnosed adolescents residing in group homes

Major Field: Design, Housing and Merchandising

Education:

Bachelor of Architecture from Jawaharlal Nehru Technological University, Hyderabad, India in May 2002. Completed the requirements for the Master of Science degree in Interior Design from Design, Housing and Merchandising department at Oklahoma State University in May 2005.

Experience:

Research Assistant; Oklahoma State University, Stillwater, OK (Jan 2003 – Present)

Teaching Assistant; Oklahoma State University, Stillwater, OK (Jan 2003 – May 2003)

Graduate Assistant; Oklahoma State University, Stillwater, OK (Aug 2002 – Dec 2003)

Volunteer work; Oklahoma State University, Stillwater, OK (Jan 2003- Jan 2004)

Presentations:

Boggavarapu, H. (2004). The impact of near environment on people's psychological and physical well-being. Poster presentation at Annual Research Symposium at Oklahoma State University, Stillwater, OK.

Vogel, L. M., & Boggavarapu, H. (2004). Group homes as a therapeutic intervention for dually diagnosed. Seminar at Developmental Disabilities Services Division, Oklahoma City, OK.

Bormann, C., & Boggavarapu, H. (2004). Developing a therapeutic group home prototype. Poster presentation at the conference of National Association for the Dually Diagnosed, Vancouver, BC.

Honor Society:

Kappa Omicron Nu (August 2003 – Present)