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Using environmental education to integrate persons with mental illness into the community

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USING ENVIRONMENTAL EDUCATION TO INTEGRATE PERSONS WITH MENTAL ILLNESS INTO THE COMMUNITY

A Project
Presented to the
Faculty of
California State University,
San Bernardino

In Partial Fulfillment
of the Requirements for the Degree
Master of Arts
in
Education:
Environmental Education Option

by
Kathryn Jean Sandoval
June 1998
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ABSTRACT

This study will discuss the importance of infusing environmental education into community integration programs for persons with mental illness. Perspectives from within the disciplines of mental health, psychology, environmental education, criminology, and special education have made it possible for the author to develop activities that assist persons with mental illness in developing a link to their communities. Environmental education is highly relevant to persons with mental illness, and there is a need to infuse these concepts into education programs serving them. The activities that incorporate environmental education into topics currently addressed by mental health programs are included in this project.
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INTRODUCTION

The goal of this project is to assist persons with mental illness in assimilation into their communities. The author presents a practical and innovative approach to working with this population. This project is concerned with the development of programs that assist persons with mental illness who are currently in institutions and are making a transition into their communities (the deinstitutionalized). It is also concerned with those persons that have a mental illness who are currently living in situations where there is access to programs that are geared toward community integration.

When infusing environmental education into the current programs that service the needs of persons with mental illness, the author has found that environmental educational appears to fill a gap that currently exists in programs. The gap the author refers to is the lack of an attempt to provide a direct link between a person and the community so that a feeling of belonging can be nurtured. If a sense of belonging can be established, then a more successful program can be developed.

According to E. Fuller Torrey, M.D., a respected specialist and author in the field of schizophrenia, approximately 450,000 of the 1.8 million individuals with schizophrenia are living in various institutions or on the streets (Torrey, 1995). These institutions include
hospitals, nursing homes, jails and prisons, public shelters, and supervised living arrangements. The author of this project refers to institutionalized mentally ill persons as those from all of these settings. It is common to find mentally ill persons being cycled from one institution to another.

The author has worked as an adult education teacher in long term psychiatric facilities for nine years. Interest in the programs of those being serviced has facilitated the development and implementation of the sample lesson plans. The link that is needed between a person living in a facility for the mentally ill, and the community into which the person will transition can be achieved. Using relevant environmental education and infusing it into the current programs can create the sense of belonging that is needed to develop a more successful transitional program.

The trend since the 1950s has been to gradually decrease the populations of those residing in mental institutions. Community mental health centers were established to provide services to the seriously mentally ill leaving institutions. However, the centers have become a low cost service for those that are considered to have less pressing needs for the services. Additionally, the centers lack personnel experienced in dealing with the problems faced by those for whom the centers were originally established (Torrey, 1995).
This project has included the mentally ill that are incarcerated. This is because of the overlapping roles the criminal justice system and the mental health system have developed. Mental patients may be placed in correctional institutions, and clients from correctional institutions may be placed in mental institutions. This author has noted a thread of commonality in the residents of both types of institutions. The residents lack self-esteem and they have very little control over their lives. Both of these problems can be addressed by the lesson plans I have included.

The paradigm now in these institutions has shifted from psychotherapy as treatment for their problems to teaching of socialization skills and behavior modification. Research has shown that physiological problems are at the root of many mental illnesses and these are now treated with psychototropic drugs. The drugs are not effective in all cases, and they do not alleviate the problem of isolation many of the residents face. This project is designed to fit within the present paradigm and address the problem of isolation.

Support services beginning in the institutions and continuing in the community are the ideal. Environmental education can be integrated into those support services and enhance the effectiveness of the programs. Environmental education, for the purpose of my project, is categorized
into five areas that fit within the socialization framework that is now accepted as a model when working with the institutionalized. The five areas are: (a) lifestyles-consumerism, (b) academics, (c) leisure skills, (d) community service, and (e) employment. Sample lesson plans and rationale for the five areas are incorporated into the project.
LITERATURE REVIEW

The need for more and better rehabilitative programs for persons with mental illness is widely known (Torrey, 1995). Environmental education will promote the care and nurturing of our environment and ultimately enhance the quality of life we all desire (Geller, 1995). In researching information on both topics, this author has linked these two areas in proposing that environmental education is a valuable tool that can be used by those who work with institutionalized clients.

The emphasis of mainstreaming clients into society has led to nationwide downsizing of institutions that serve persons with mental illness. Support structures that can assist former residents of institutions are inadequate, and many former clients are ill-prepared to cope with the expectations of the communities where they hope to assimilate (Torrey, 1995). Support services could be enhanced by infusing environmental education into their programs.

This author has taught persons with mental illness for nine years. It is a challenging population with which to work, and new strategies for effective teaching have been sought. While searching for strategies, mental health and special education were the first fields investigated. Some of the approaches were utilized, but were found to be either geared toward children or lacking the elements necessary to
make the materials interesting to the students. While researching mental health it was discovered that many incarcerated inmates are mentally ill persons housed in the wrong type of institution. Therefore, criminology was investigated. Psychology is a related discipline to the above fields; it was this link that led to the investigation of psychology. The author's interest in environmental education led to the realization that there is a connection among all of the fields mentioned. An attempt has been made to integrate some of the concepts of each discipline into a common approach to socialization of those served.

It is believed in all the disciplines studied that contact with nature can be therapeutic (Cassidy, 1982; Geller, 1995; Roszak, 1993; Torrey, 1995). It is the author's belief that a structured approach to this contact, coupled with information about nature, can be used to achieve the purpose of mainstreaming the institutionalized into society. A structured approach that could effectively be utilized to assist in achieving the goal of socialization is presented as values clarification strategies (Engleson, 1995). The five general categories of teaching strategies for value development are identified as (a) awareness activities, (b) value clarification, (c) values analysis, (d) social action, and (e) cognitive moral development. Activities based on the strategies include making choices, publicly affirming choices, and examining choices made repeatedly. Small and
large group discussions, examining real dilemmas, and listening techniques are a few of the methods used to develop the activities.

The application of information found in the above guide (Engleson, 1995) would enhance current programs developed for persons with mental illness. Special treatment programs for persons with mental illness (State of California, 1990) are provided to those whose adaptive functioning is moderately impaired. They are therapeutic services, including prevocational preparation and prerelease planning, provided to mentally disordered persons having special needs in one or more of the following general areas: self-help skills, behavior adjustment, and interpersonal relationships (State of California, 1990). Some of the needs addressed through patient assessments include (a) self-help skills training, (b) behavioral intervention training, (c) interpersonal relationships, and (d) prevocational preparation services (State of California, 1990). The lesson plans developed for this project address the needs of the patients as identified according to the guidelines for special treatment programs.

Ecopsychologists' goal is to expand the framework of psychiatric thought to include the natural environment. They believe that the time has come to define sanity within a biospheric context (Roszak, 1993). In his article, Roszak told of a growing belief by some psychologists that there
are forms of neurosis, perhaps including the most corrosive kind, that trace back to our entrenched alienation from the natural environment. The article continued, "The crowded industrial city, with its killing pace and compulsive habits of consumption, may disseminate an 'urban madness' that exacts a heavy toll upon both the person and the planet" (p. 61). Whether the departure from sanity is viewed as being caused by an environmental factor, or an internal factor, such as a chemical imbalance in the brain, the road to rehabilitation appears, in many respects, to be the same. According to Roszak, there are some psychologists that are troubled by the environmental disconnection of their profession. They are seeking to create ecologically relevant forms of therapy. Their motivation is as much a matter of conscience as of theoretical curiosity. Just as lawyers have been drawn to environmental law, and teachers have introduced environmental curricula into our schools, so psychologists are responding to the influence of the environmental movement. "Ecopsychology" is the name most often used for this growing body of theory and practice. The article continues to explain that the history of psychiatry might be told as just such an ongoing effort to broaden the context of analysis: from the individual to the family to the workplace to the society and culture at large. Each of these extensions has brought with it new insights for diagnosis and treatment; each has also deepened the
public's understanding of human nature. In 1990, at a conference held at the Harvard based Center for Psychology and Social Change, ecopsychologists concluded that, "if the self is expanded to include the natural world, behavior leading to destruction of the world will be experienced as self-destruction." (Roszak, 1993, p. 61).

Another commentary that related environmental concerns to the field of psychology was reported by (Geller, 1995). He integrated two approaches in the field of psychology to encourage protection of the environment. He presented behaviorism (a behavior based approach) and humanism (a person based approach) as merging together to achieve the behavior of actively caring for the environment. Within these two approaches, he focused on self-esteem, belongingness, self-efficacy, personal control, and optimism as characteristics that need to be nurtured to bring about the desired behavior. These same characteristics were considered healthy behavior by Roszak (1993). Geller's theory maintained that if positive, caring behaviors were supported with feedback, monetary rewards, or supportive interpersonal communication, it increased the likelihood that people would actively care for the environment. Empowerment, self-esteem, and belongingness were the characteristics included in the model. These traits were believed to be influenced by communication strategies and learning opportunities. His approach also suggested that it
may be necessary to break down tasks into small, manageable ones; set short term goals and track accomplishments; and offer frequent rewarding feedback for environmentally responsible behavior.

A study was done by Adams (1992) concerning the characteristics of incarcerated inmates referred for mental health treatment units at two maximum security prisons. One prison contained 1600 inmates; the other housed 1900 inmates. Average age of the inmate studied was 28 years at the time they were referred for treatment. Nearly one-half of the referred inmates had been involved with psychological or psychiatric treatment prior to entering prison. The data describe self and staff referral requests for mental health services made between April and September of 1981. At one prison the sample consisted of 250 referrals involving 190 inmates. At the other prison the sample was composed of 263 referrals that involved 182 inmates. Two comparison groups were generated by taking simple random samples of the inmates under custody at each prison. The practical implications of the research involved the planners and providers of the mental health community and the criminal justice system. The comparison group could be representative of the general prison population, and about one-fifth of the inmates at both these maximum security institutions have spent time as a patient in a psychiatric facility prior to their incarceration. The author did not
try to determine if the deinstitutionalization of psychiatric patients accounted for the incidence of disturbed inmates. He simply noted the significant numbers of offenders who can benefit from service delivery arrangements that merge mental health and criminal justice concerns. The same goal is sought by correctional institutions and psychiatric facilities; successful assimilation of clients into society. It may be that both types of institutions, in some instances, service the same clients. There appears to be an overlapping of roles between the two types of facilities, and this has led to the inclusion of correctional settings in this project.

Yet another development has brought about changes in psychological services in prisons. The deinstitutionalization movement resulted in the release of many patients from psychiatric hospitals. Also, new drug therapies provided a rational basis for the release of mental patients into their communities. Those involved with the administration of the correctional system were concerned about the release of the patients. They believed that without adequate support services, those former patients would eventually end up in the criminal justice system (Adams, 1992). It is believed that a massive transfer of mental patients, from hospitals, to jails and prisons, did occur (Steadman, Monahan, Duffee, Hartstone, & Robbins 1984). Daunt (1997) reported that the Los Angeles County
Sherriff's Department is under order from the United States Justice Department to improve care for hundreds of mentally ill inmates at the Men's Central Jail or face a federal lawsuit. The same article also reported that "It's not unusual for inmates to go without their medications because their charts were lost or they were meeting with their attorneys when nurses were handing out medicine." This article told of the need for improvements for mentally ill inmates in the Los Angeles County Jail. It spoke of the reality that was referred to by Adams (1993), Steadman, Monahan, Duffee, Hartstone, & Robbins (1984), and Teplin (1983), in earlier work. Mental patients are housed in at least one jail, an indication that this is happening in other jails as well.

Adams (1992) also theorized that mentally ill inmates were more likely to receive treatment in prison settings because the courts have made it more difficult to commit inmates to psychiatric facilities. Mentally ill inmates have become more visible in the correctional setting. Because of this, Adams again theorized, many prison systems have expanded their mental health services, especially with regard to medication, crisis intervention, stabilization, and follow-up services. Adams' (1992) study concluded that although some mentally ill offenders pose serious threats to society, they are the exception rather than the rule. It was Adams belief that prisons contained significant numbers of
offenders who could benefit from providers that merge mental health and criminal justice concerns. At Auburn, one of the prisons involved in the study, the mental health staff defined their role within a broad context. They viewed their role of service provider as extending to the treatment of offenders who are interested in fostering pro-social life-styles. This was found to be important. The issue of how mental health staff defined their role was critical to the success of the treatment program. Adams informed us that this issue had to do with how they allocate treatment resources.

Shah (1970) also addressed the inevitable interaction and collaboration between the mental health and criminal justice systems. He pointed out that historically the basic objectives of mental health and the criminal justice have become intertwined. He believed, however, that a more effective model needs to be developed so that the criminal justice system can more effectively utilize the intervention strategies developed by the mental health system. Shah suggested that counseling intervention has not been very effective with convicted offenders. He said this happens because social class variables come into play when counseling is practiced. "Treatment is largely mediated through verbal communications, the ability to talk about oneself and one's feelings, to form verbal abstractions, and to introspect, were necessary for such therapy suitably to
be conducted. These therapeutic techniques are not very applicable with lower class persons, a category which encompasses the bulk of convicted offenders" (p. 3). Shah presented another weakness of the present service provider system: mental health clinicians have tended not to look at individuals problems in terms of the broader social context. Shah wrote of a more effective model for dealing with social deviance. It addressed the aspect of social competence. He defined this as the ability to learn or to use a variety of alternative responses to reach a given goal, the ability to use a variety of social systems within society, moving within the systems, utilizing the resources they offer, and developing a perception of the world that is positive, broad and understanding. Shah proposed that success-oriented ways of behaving in society need to be taught. To do this, Shah suggested that intervention should be directed at the individual and his environment.

Brookes (1994) also proposed that "knowing how to behave in different social or physical situations draws on tacit knowledge. Outdoor experiences can impart tacit knowledge of place" (p. 31). He continued, "In trying to find new ways to imagine environmentally literate outdoor leisure or education, it may be helpful to think of outdoor experiences as conversational (oral) rather than textual" (p. 31).
The socialization skills that are lacking in persons with mental illness may be addressed by using environmental education as Brookes suggests. Local knowledge of place, obtained through local experiences with the outdoors are what Brooks suggested. Emphasis should be placed on conversational feedback to obtain the verbal contact with others that is a goal of socialization of persons with mental illness.

Yet another reference to the overlapping of services to both populations is given by a well known scholar in the field of mental health (Torrey, 1995). He estimated that of the approximate 1.8 million persons with the mental illness of schizophrenia, 100,000 are housed in jails and prisons. He also estimated that 100,000 were in hospitals, 150,000 in nursing homes, 100,000 were in shelters and on the streets, and another 300,000 were living in supervised housing such as group homes. He discussed the rehabilitation of those with schizophrenia. As in Adams study, Torrey referred to the importance of follow-up care and the supervision of clients by responsible mental illness professionals. Torrey reported the importance of breaking chores down to small, achievable tasks and setting short term goals to track accomplishments. This method of achieving desired behavior was also presented in Geller's study (1995).

Torrey (1995) spoke of the rehabilitative benefits of employment for the mentally ill institutionalized that are
making a transition into the community. Improved self-esteem, additional income, daily structure and routine, an extended social structure, and the necessity to try to control their psychiatric symptoms in work situations are given as reasons to include vocational training programs when deinstitutionalizing clients. Torrey's practical approach acknowledged that residual disabilities could be sufficiently severe that fulltime employment would not be possible. He emphasized the importance of stress reduction and proper rehabilitative programs when planning a vocational program for mentally ill clients.

In his discussion of vocational rehabilitation for the mentally ill, Torrey (1995) pointed out the lack of programs available. A model of job skills training was given. In an impressive example of training, a restaurant in Hayward, California was cited. Mentally ill clients of the California State Departments of Rehabilitation and Education were presented as doing all jobs, including food preparation, catering, cook's aide, busing tables, and waiting on tables. Some were training as hostesses, cashiers, dishwashers, and custodian services. Approximately 25 trainees were enrolled in this model at any given time. The training staff was comprised of several job counselors. The restaurant was reported to be self-supporting. Salaries for the job counselors were derived
from the California State Departments of Rehabilitation and Education.

Friendship also was presented as important to persons with schizophrenia (Torrey, 1995). The person with this illness often finds barriers to friendship. Torrey reported that studies indicate that of all patients living in communities, 25 percent were described as very isolated, 50 percent as moderately isolated, and only 25 percent as leading active social lives. Almost one-half had no recreational activity, other than watching television. As in Adams' study (1992), anti-social behavior was found to be associated with mental illness. It was believed by both Adams and Torrey that this behavior must be addressed when programs for the mentally ill are in the planning stages. Torrey discussed several possible programs that would address the need for friendship among individuals with schizophrenia. One focused on consumer self-help groups. Another focused on improving the person's social skills through didactic instruction and supervised group interaction. Yet a third response to the problem suggested clubhouses that address the need for peer friendship and social activities. Also included were vocational, educational, and housing programs as well.

With the realization that support services are necessary and beneficial to society, and with the utilization of staffs of mental health professionals and
paraprofessionals willing to advance innovative ideas, successful support programs within communities are a real possibility. I believe service delivery can be made more effective through the infusion of environmental education in mental health programs. Environmental concerns affect all segments of society.
GOALS AND OBJECTIVES

The goal of this project is to provide a framework for how environmental education can provide a new and successful approach to programs serving persons with mental illness. Many of those that have resided in institutions are being relocated into communities. The communities are not equipped to deal with this population, and the former residents of the institutions are lacking the skills necessary to cope with the communities. They have been found to have poor qualities of life. Many are homeless and wander aimlessly. The author believes that the quality of life and the quality of the environment are directly related. While working in psychiatric facilities for nine years and conducting this study, the author has become aware of links that could be made among programs and environmental issues that would assist students. It is possible to offer relevant programs that help develop an awareness and sensitivity to the environment. As residents understand how the environment functions, how they interact with it, and how they can assist in resolving environmental problems, a link with their community can be developed. A sense of belonging that assists in creating a sense of self-esteem is established and an improved quality of life can be achieved.

The objective of this project is to initially establish the success of environmental education infusion into programs by developing and carrying out activities with
clients. Evaluation is done by the clients using oral and written methods.
PROJECT DESIGN

Persons with mental illness that are living in institutions are the population this project addresses. Three psychiatric facilities were used for the project. The average number of residents residing in each facility has been 120. In each facility the age of the residents ranged from eighteen to sixty-five. Approximately 80 percent of the residents were Caucasian, non-Hispanic; 15 percent, Hispanic; 4 percent black; and the other 1 percent, Asian, middle eastern, or Native-American heritage. They were of varying socioeconomic backgrounds. The majority of the residents had been diagnosed with schizophrenia, or bipolar disorder, with varying degrees of overlapping diagnosis. The ability of the residents to participate in the adult education classes was the decision of the mental health treatment staffs at the facilities.

After reviewing the literature, the author linked together various activities with the common theme of environmental education. Five sample lesson plans were developed and field tested. The sample lessons were developed to fit within the guidelines of outings used by the facilities. Consideration was taken for the length of time the residents susceptibility to sun and fatigue, and the types of food prepared by the kitchen staffs.

The sites for the project were located in Riverside County. The Robidoux Nature Center, San Jacinto Wildlife
Area, and Hidden Valley Wildlife Refuge, are within one-half hour or less driving distance from the facilities. The road close to San Jacinto Wildlife Area is not well paved. This outing may take longer, depending on the condition of the road.

During the time of the project (September of 1994 to June of 1997), the average length of stay for residents changed from approximately two years to three to six months. This was due to decisions made by the state to shorten the length of stay for economic reasons.

Repeated positive exposures to the environment through environmental education should lead to sensitivity to and actively caring for the environment. Direct experience in the environment is designed in this project to develop self worth through the knowledge that individual actions matter. Lifestyles that are within the possibility of the target population can make a positive difference toward the quality of the environment.
LESSON PLANS AND FIELD STUDY RESULTS

Academic Lesson Plan and Field Study Results

Background:
Teaching basic academic skills is a necessary component of preparing clients of a locked psychiatric facility for integration into society. Many clients have poor basic skills in the areas of reading, writing, and math. Many have not been able to integrate critical thinking skills into their lives. This lesson plan teaches math and critical thinking skills as basic educational skills. I have incorporated environmental education into the lesson to make the lesson relevant to the students' lives. Thus, they become aware that choices they make have an effect, not only on themselves, but on society as well.

Lesson Plan

TOPIC: How the number of people in a family affects the environment.

AGE: Adult

GROUP SIZE: 12 to 18 students.

DURATION: Three to 5 45-minute sessions.

OBJECTIVES:

1. Students will improve basic math skills by practicing addition and multiplication when computing grocery bills.

2. Students will utilize graphing concepts to see how family size and lifestyle affect grocery bills.
3. Students will use critical thinking skills to relate information on a personal level.

4. Students will relate products bought to the positive and negative effects the products have on the environment.

5. Students will conclude that what is bought in the grocery store affects our environment.

6. Students will relate grocery costs to size of family.

SOME ENVIRONMENTAL CONCEPTS ADDRESSED:

People utilize the environment to secure their needs.

People can make personal choices which affect the conservation and destruction of natural resources.

Disposal of waste products is affecting the natural environment.

METHOD:

Students will make up what they believe to be their ideal family, as it relates to number of people in the family. Students will compute their grocery bills over a two week period. They will decide how many are in their invented family, and the kinds of food they like. We will graph the information and then conclude how family size and lifestyle affect grocery bills.

MATERIALS:

Paper, pencils, newspaper sections with grocery ads, graphing paper, empty food and personal necessity containers, items to be identified as impulse choices (candy,
magazines, cheap toys) monopoly money, plastic coins, grocery bags (paper and plastic).

PROCEDURES:

1. Teacher will bring in empty food and personal necessity containers until there is enough for the class to "go" grocery shopping. Teacher will mark cost of items on packages. Price will be similar to actual costs found in a market close to the facility where class is taught. Monopoly money and plastic coins will be used to "purchase" the items. Each student will be given $375.00 for groceries. This money is grocery money for a month.

2. Remind students this is only one of several grocery purchases they will be making for the month, so they need to budget their money.

3. Students will break into groups to discuss shopping. They will have newspaper ads from the food section to help them make their choices.

4. Each student will make a list to take with them shopping.

5. One student at a time will shop. They will pick up a paper or plastic bag and go down an aisle we have made, and decide what to place in the bag.

6. When shopping is completed they will go to the board and add up the cost. "Shopper" will call out cost of item as they write it on the board. Students sitting down are asked to compute the same items at their table.
7. When each student has completed the task, the teacher uses the overhead projector, setting a blank grid on the projector. Each student is to mark the cost of their purchases and the size of their family accordingly, on the grid. On the left edge of the grid, each student's name is written, as in a column, included is the number of family members to be fed. Across the top edge are dollar amounts, as in $20.00, $30.00, $40.00, $50.00, and so on to $400.00. All students are to work on making the graph with the grid that is passed out to each student.

8. When the class's graph is completed and the students have completed their individual graphs, teacher will lead discussion of the results.

Some of the discussion questions:

a. Did the number of people in the family have an effect on the amount of money spent on food? How?

b. Did the number of people in the family have an effect on the amount of trash that was generated from use of the groceries? How?

c. Did you think about the cost of food when you thought about the number of people you chose for your ideal family?

d. If we did this exercise again would you change the number of people you include in your ideal family?
e. Consider the students in the class, and the "families" for whom they shopped. Do the decisions the class makes have an effect on the environment? How?

EVALUATION:

Students will write about their conclusions regarding the activity.

Field Study Results

A field study regarding this lesson was conducted at two long-term psychiatric facilities. At facility number 1 there were 12 residents participating in the lesson: 18 residents participated at facility number 2. A total of 15 residents wrote an evaluation about what they had learned. All who wrote an evaluation wrote that they had learned that family size affects the amount of trash generated and they had learned that the number of people in the family affects the environment. All indicated they had learned that the more people that were in a family, the more trash is generated. Five residents wrote that they would think about how family size affects the environment when they have children.

Fifteen wrote an evaluation; nine of them said they enjoyed the lesson. One said it was a waste of time, and 4 did not comment on whether or not they enjoyed the lesson. I inferred, from the fact they participated, that the experience had been positive for them.
Those that did not write an evaluation rarely write. This is due to a number of factors: their medication affects their thought processes, they have difficulty with the motor coordination necessary for writing, or they have no confidence in their writing ability.
Community Service Lesson Plan and Field Study Results

Background:

Community service is a vital link to integrating people with mental illness into their communities. As individuals become capable of functioning in society, community service provides access to the "real" world. A sense of accomplishment, a sense of being needed, structure, and an opportunity to give to and be a part of the community are some of the reasons community service is an important aspect of re-entry into society. The opportunity to spend time away from a facility, in a natural setting, is often looked forward to. The structure provided by participating in a community service project in a natural setting may enhance the experience of being in the setting. Robidoux Nature Center in Riverside is a popular nature center located within a wildlife preserve. It is the setting for this community service project.

Lesson Plan

TOPIC: Nurturing nature
AGE: Adult
GROUP SIZE: 12 to 18
DURATION: Two 45 minute sessions. One session before the project and one after the community service is completed.

OBJECTIVES:

1. Students will become aware of the need for volunteers in communities.
2. Students will feel a sense of pride in their community.

3. Students will become aware that they can take action to make a better environment.

4. Students will become aware that everyone has a responsibility to conserve and protect the natural resources.

SOME ENVIRONMENTAL CONCEPTS ADDRESSED:

- Work, rules, responsibilities and beliefs are important for maintaining a healthy environment.
- People have a responsibility to conserve and protect the natural environment.
- People can take action to make a better environment.
- People's actions have environmental consequences.
- It is important to keep our environment safe and healthy.
- Pleasant environments may be created by adding or subtracting items.

METHOD:

Students will assist in taking care of a nature trail.

MATERIALS:

- Bags, gloves, sun hats, and tools used for clearing a trail. Picnic lunch. Lunch provided by facility in which they live, as prearranged. Tools provided by park services, as prearranged by teacher. One mental health worker or aide
will be needed to help supervise on the trail. Teacher will prearrange activity with director of local nature center.

PROCEDURES:

1. Teacher will lead discussion about the environment and some of the ways we, as individuals, can help to protect and preserve that which we feel is important.

Some discussion questions:

a. What are some outdoor activities that you enjoy?

b. When you participate in outdoor activities are they in settings that are free of trash and other "negative" indications that humans have been there?

c. Is trash harmful? How?

d. Does anyone think it is important to protect our environment?

e. Can anyone think of a way you can help to take care of the environment?

f. Has anyone ever participated before in community service? Please share your experiences.

g. Is anyone interested in participating in a community service project by assisting in taking care of a nature trail?

2. Six volunteers will be chosen to participate. Rotation will occur weekly so that all who wish to participate may do so. Outing will be scheduled to take
place at a later date so that lunches, staffing, and transportation can be coordinated.

3. On the day of the outing, aide will get lunch from the kitchen. Students will be transported by van to Robidoux Nature Center. They will meet the director and she will designate on which trail students will work. (This has been prearranged.) The degree of difficulty and amount of direct sun the students will be exposed to has been taken into consideration when the trail is designated.

4. Students will obtain tools from the director and go to the designated trail. The aide will supervise three students, and the teacher will supervise three students.

5. Students will remove trash and any overgrown brush from the trail. Students will do the same to area parallel to the trail.

6. After students have completed the task they will return tools. Teacher will make sure all tools are returned. After tools are returned, participants will wash their hands, have a picnic lunch, and return to the facility.

7. The next group meeting will consist of discussion of our community service and what the students feel they have achieved. Participants will share their experiences with other students in the group. Other community service projects will be discussed. Students will be given
information about who to contact to become a volunteer in their community.

Discussion questions:

a. How did students help the park?

b. Was working in the park meaningful to the students? How?

c. Would the students like to work in the park again?

d. Will the students go back to the park when they have been discharged from the facility?

e. Is there a park or nature preserve in the area they have lived or will live where they could do community work?

f. Do the students think it is important to do community service?

g. Is the park a good choice for community service? Why, or why not?

EVALUATION:

Students will write about how they feel about what they did. Those that have not participated yet will write about their reaction to what the others have said. These essays will be included in the facility newsletter if they so choose.

Field Study Results

A field study regarding this lesson was conducted at a mental health facility in the Riverside area. It was a popular lesson, with a waiting list of 19 residents that wanted to participate in the community service.
Of the 12 that were able to participate (6 at a time), all said they felt it was a valuable experience because they were able to be outdoors, and they were helping the community. The aides that assisted reported that the residents' demeanor appeared to be more relaxed, and that the residents participated more in the other groups they attended for the next day or two after the community service experience. They interacted more with other residents and answered questions group leaders asked.

A total of 12 residents assisted in the community service. Twelve more students participated in the group sessions when we discussed and planned the outings. The author of this project received five written evaluations. Those that were not able to attend reported that they would like to participate in the future.
Leisure Skills Lesson Plan and Field Study Results

Background:

Most people leaving an institution find they have excess time to fill and few resources. In addition, a side effect of some of their medications may be agitation and/or constant movement. They may walk without a destination, to keep moving. This time could be directed at positive activities that provide mental stimulation, as well as social interaction. Introduction to low cost outdoor activities could introduce students to a lifetime hobby, such as nature walks or bird watching, and outings to enjoy.

Lesson Plan

TOPIC: Wildlife viewing at San Jacinto Wildlife Area

AGE: Adult

GROUP SIZE: 6 to 12

DURATION: One afternoon, plus two 45 minute sessions (one session before and one session after the outing).

OBJECTIVES:

1. Fostering awareness and respect of the environment.
2. Development of social skills through a positive shared experience.
3. Participation in low-cost, leisure time activity that could be done again.

SOME ENVIRONMENTAL CONCEPTS ADDRESSED:

The best way to enjoy nature is to observe nature.
Opportunities to experience nature are psychologically rewarding.

METHOD:

Students will be transported via large van to San Jacinto Wildlife Area, on the outskirts of Moreno Valley. San Jacinto Wildlife Area is managed by the California Department of Fish and Game.

MATERIALS:

Transportation, sun hats, protective lotion, binoculars (provided by the Dept. of Fish and Game), appropriate shoes and clothing, snacks and bottled water (provided by the facility kitchen), wildlife identification books or brochures relating to the area being visited. One mental health worker or aide per every 6 students.

PROCEDURES:

1. Before trip, teacher leads class discussion. Topic is, "What outdoor activities have you enjoyed in the past?"

Some discussion questions:

a. Has anyone used binoculars before? (If not, demonstration should be given)

b. What is your favorite natural setting? Please share with the group what it looks like.

c. Do you prefer going on outdoor activities alone or with others? Why?

2. Students will share experiences orally. Those that do not want to speak will be invited to write of a previous
experience. Papers will be collected.

3. Group participating in outing will gather in front of building. Staff will have assisted in students' preparation to assure they are properly dressed and snack is brought with them.

4. On the bus the teacher initiates discussion regarding parks and other nature sites in the area that can be utilized for outings.

5. At arrival, teacher meets Site Manager who distributes binoculars as students depart from bus. Teacher distributes wildlife identification books and brochures to those interested.

6. Site Manager takes students on a short hike to kangaroo rat habitat, then on a longer hike on a trail around a built wetlands area. During walk he explains the history of San Jacinto Wildlife Area. Trail is level and accessible to the disabled.

7. Snacks are taken off bus and students eat at picnic tables.

8. Binoculars and books are returned at end of visit. Students return to facility. Brochures given out by Site Manager are kept by the students.

9. Teacher leads discussion on bus, asking questions about birds and animals seen by the students.

10. The next class meeting centers around discussion of students' experiences at the San Jacinto Wildlife Area.
Some discussion questions:

a. Have any students visited similar areas?

b. Have any students been on a naturalist led hike before?

c. What information did the students find particularly interesting?

d. Would any students go to the San Jacinto Wildlife Area when they are discharged?

e. Do any students know others that would enjoy a trip to the San Jacinto Wildlife Area?

f. Do any students know of similar areas that they could visit?

g. How can you find out about other similar areas?

h. What in particular did you enjoy? Why?

EVALUATION:

Students will write about their reaction to the experiences at the San Jacinto Wildlife Area. If there are negative reactions, they will be addressed by a one to one meeting between the student and teacher.

Field Study Results

A field study regarding this lesson was conducted at a mental health facility in the Riverside area. Of the 12 students (residents) that participated in the lesson, all reported they would like to revisit the San Jacinto Wildlife Area. Three students turned in written evaluations. The 3 students reported they had not been on nature walks with a
guide prior to this experience. Two of the 3 students that turned in written evaluations reported they would like to purchase binoculars and learn more about birds. The remaining written evaluation indicated that the binoculars were a bother and would not be used again by the 30 student. All of the 12 students indicated that it was a positive experience by a show of hands.

One student did indicate a fear of snakes although we did not encounter any. One student reported he enjoyed the sounds he heard when we were all quiet. One student reported spotting a place where he could live and not be found. This brought about a discussion led by the teacher. Questions asked, "What would some of the positive things be about living there?, What would some of the negative things be about living there?" Students agreed there would be more negative things about living there, and it would be better just to visit. The experience was a positive one. The students appeared to form a bond, and it was reported by facility staff that many in the group spoke of it for weeks after the outing.
Employment Lesson Plan and Field Study Results

Background:

Employment is an important issue for persons who are confined to a psychiatric facility. The residents and the staff view employment training skills as a vital link to the "real" world. Vocational rehabilitation, assisting the residents with training and employment, is part of the treatment program within many locked psychiatric facilities. Once a person is released into the community employment provides needed structure. Employment also provides the opportunity for socialization and renews self concept. The client learns to accept responsibility for accomplishing work tasks and is forced to interact with coworkers. One practical application that can be easily taught is landscaping. It is a low stress occupation that allows exercise in the out-of-doors environment. It is also possible to use the grounds of the facility as the classroom, and to enhance job training in landscaping it is possible to utilize community resources. This is explained in the lesson plan developed for this purpose. The client can receive job training, and still be under close supervision of those responsible for assisting him in becoming stabilized. There are other occupational training skills that can infuse environmental education into their curriculum and can be taught within a facility. A few of
these are; janitorial services, maintenance, housekeeping, and kitchen aide.

Environmental education can easily be incorporated into lessons in landscaping. I have prepared a lesson plan that includes a visit to Hidden Valley Wildlife Area in Riverside. The staff at Hidden Valley is working in conjunction with Riverside Regional Water Quality Treatment Plant. They are using wetlands to clean water. This lesson plan will help students realize why water conservation is important and the effects of using herbicides and pesticides in landscaping.

Lesson Plan

TOPIC: The use of water and chemicals in landscaping.

AGE: Adult

GROUP SIZE: 12

DURATION: One 45 minute session before and two 45 minute sessions after field trip.

OBJECTIVES:

1. Students will develop an awareness of how chemicals used in landscaping affect our water supply.

2. Students will develop knowledge of alternative types of pesticides and herbicides available for use in landscaping.

3. Students will become aware of water as a natural resource that needs to be conserved.
4. Students will become aware that their actions can have a positive effect on the environment.

5. Students will be introduced to the concept of xeriscaping.

SOME ENVIRONMENTAL CONCEPTS ADDRESSED:

Changes in the environment, including pollution, may affect food chains.

Both humans and wildlife depend on their habitat.

Work, rules, responsibilities and beliefs are important for maintaining a healthy environment.

People have a responsibility to conserve and protect natural resources.

People can make personal choices which affect the conserving, recycling, and destroying of natural resources.

Disposal of waste products is affecting the natural environment.

It is important to keep our environment safe and healthy.

People cause environmental change.

People can take action to make a better environment.

The water cycle effects changes in the environment.

METHOD:

Students will tour Hidden Valley Wildlife Area Wetlands Project.

MATERIALS:

Transportation, note pads and pencils.
PROCEDURES:

1. All students are given a writing pad and pencil. Divide students into cooperative groups of 3; there will be 4 groups. Each group is given a topic. Topics include: (a.) water pollution, (b.) plants, (c.) animals, and (d.) water. Each group designates a note taker for the field trip. The other students in the group are instructed to write down questions they have about the topic as they participate in the hike. Notetaker is instructed to take notes regarding what the naturalist says about their topic. Groups will be given a few minutes to choose a notetaker and write down their topic.

2. Review the water cycle, including background information regarding fresh and salt water. Information and materials for this may be obtained from the local water district offices and various educational resources. Some of the related questions may include, Can water cleanse itself?, What are some of the ways that water pollution affects you? Information will focus on water as a natural resource that needs to be conserved.

3. Take students on a field trip to Hidden Valley Wildlife Area. Students will participate in a naturalist led hike. The hike will end at the wetlands area. The naturalist will explain the interconnectedness of all the students have seen and heard on the nature walk. The naturalist will explain how the wetlands area is part of the
pollution solution and how an individual's decisions can make a difference in protecting this valuable resource. The students will be asked to observe the three wetland ponds and the different types of plants in each pond. The naturalist will explain that the ponds are a part of an ongoing experiment with Riverside Water Treatment Facilities. The naturalist will also explain that each pond is being monitored regarding the chemicals in it. The plants are able to filter the water, and assist in making it usable again. The experiments help to determine which plants are most effective and how long the process takes. The naturalist will also explain how various chemicals affect the water and the ecosystem, giving examples of bird deformities and how phosphates can upset the ecosystem in a wetland area and cause plants to grow more abundantly than the ecosystem can tolerate, and cause the area to choke, ultimately killing the wetland. Specific names of chemicals used in landscaping will be given. The effects of the chemicals will also be given.

4. Discussion of information will continue in the classroom. Students will then be introduced to the concept of xeriscaping (low maintenance landscaping, using plants native to the area in which they are planted) and how it can have a positive effect on the environment. Students will be told about how the type of plants that are used in a landscape can have a negative or positive affect on the
environment. Lesson information will explain that plants that are indigenous to an area have grown there because they have adapted to the environment of the region. Indigenous plants would make it possible to water less, and would be hardier than plants brought into an area solely because they had been found pleasing to the eye.

5. Students will break into their initial groups and the notetaker will write all of the information down that the group shares. This will include the questions each student in the group has regarding the topic. Teacher will assist each group, going from one group to the next.

6. Each group will share information regarding their topic. Teacher will make a list of the four topics and information gathered about each topic on the board. After groups have shared their information, teacher will lead discussion on what they have learned. Teacher will add to lists.

EVALUATION:

Each student will actively participate in discussion. Students will be taken to a plant nursery and pick out plants that could be used in xeriscaping. Teacher will evaluate through observation whether students appear to understand concepts presented. Teacher will observe if students discuss the reasons for water conservation, alternatives to chemicals used in landscaping, and xeriscaping.
Field Study Results

A field study regarding this lesson was conducted at a psychiatric facility in the Riverside area. There were 12 students (residents) who participated in the lesson. Oral evaluations of the lesson were given to the teacher by the participating residents upon conclusion of the lesson.

All 12 students reported they had not thought about how much water different plants need before the lesson. All 12 students reported they had not been familiar with the term or concept of xeriscaping. All 12 reported they now believe it is important to choose plants for landscaping based on how much water they need. One student reported that he had worked for his uncle who owned a landscaping business. The concepts taught in the lesson had not been taught to him by his uncle, and the student appeared eager to share the information with him.

The author of this project took the students out on the grounds of the facility to do landscaping maintenance on a regular basis. They often discussed information they had learned on the field trip, and appeared pleased to be able to share their information and experience with other students.
Consumer Education Lesson Plan and Field Study Results

Background:

Consumer education is a topic that holds interest for many residents of locked psychiatric facilities. They are aware they need to use their money wisely. Except for a very few that have money held in a trust, they are limited to the resources that Supplemental Security Income or the Veteran's Administration extends to them.

Lack of sufficient monetary resources can lead many residents to view themselves as having low self-worth. Limited and fixed income has been viewed as necessarily limiting one's choices. The positive aspects of a frugal life are not presented often enough. The residents may feel overwhelmed by the belief they have no control over their lives. A limited income may reinforce negative feelings the clients may have about themselves. Consumer education assists the residents in becoming more aware of choices they can make. They can through consumer education, take better control of their lives. Although the choices may still be limited, consumer education infused with environmental education may make it possible for residents to have a more positive outlook regarding the choices they have.

Lesson Plan

TOPIC: Consumerism. What effect does lifestyle choice have on the environment?

AGE: Adult
GROUP SIZE: 12 to 18
DURATION: Two to three 45 - 50 minute

OBJECTIVES:

1. Students will become aware of how their lifestyle choices effect the environment.

2. Students will become aware of how choices they make effect natural resources.

3. Students will become aware that developing wise consumer habits plays an important role in conserving our natural resources.

4. Students will recognize that they have the ability to make choices in their lives that are important to society.

SOME ENVIRONMENTAL CONCEPTS ADDRESSED:

People can make personal choices which affect the conserving, recycling, and destroying of natural resources.

People's use of natural resources has led to the destruction of some natural environments.

Disposal of waste products is effecting the natural environment.

Each person is responsible for his/her environment.

The values of a society affect the utilization of its natural resources.

People are dependent upon the environment for energy.

Human health is related to a healthy environment.
Living things are adapted to and dependent on the environment in which they live.

METHOD:

Students will interview each other and discuss what kind of impact they have on the environment. They will compare their activities to activities a wealthy person might participate in and what effect that has on the environment. Students will be asked to relate information to their personal lives.

MATERIALS:

Copy of questions to be asked, one per student.
Chalkboard and chalk, eraser, scratch paper, and pencils for students.

PROCEDURES:

1. First session: A definition of renewable and non-renewable natural resources will be given.

   **renewable resources:** naturally occurring raw material or form of energy which has the capacity to replenish itself through ecological cycles and sound management practices. The sun, wind, falling water, and trees are examples of renewable resources. (American Forest Foundation, 1993, p.373)

   **non-renewable resources:** substances such as oil, gas, coal, copper, and gold, which, once used, cannot be replaced in this geological age. (American Forest Foundation, 1993, p. 373)
2. Students will answer questions regarding which of our resources are renewable and which are non-renewable.

3. Lead discussion about the positive and negative impact using our natural resources has on the environment. Sample questions:
   a. What is your hobby (or hobbies)?
   b. What kind of clothing is necessary for this hobby (or hobbies)?
   c. Is it necessary to travel from your home to participate in your hobby (or hobbies)?
   d. What form of transportation do you use to participate in your hobby (or hobbies)?

5. Second session the class will work in pairs. Pass out paper to each student with a list of questions they are to ask each other. They are to fill in the paper as the questions are asked. Second set of sample questions:
   a. What is your typical day like when you live in the facility? Please list your activities.
   b. What is your typical day like when you are living outside the facility? Please list your activities.

6. Student "a" will interview student "b". Student"a" will ask student "b" questions regarding hobbies and activities he/she enjoys. Student "a" will also ask
questions regarding what a typical day involves for student "b" when he/she is living outside of the facility.

Example list of questions and answers:

Q. What are your hobbies?
   A. I like to ride a motorcycle. I also like to go camping.

Q. What equipment, clothing, or gear do you need?
   A. Leathers and boots and a helmet for my motorcycle. And my motorcycle magazines that give me all the latest information. And my motorcycle. And gas for my machine. For camping I need a tent, sleeping bag, cooking utensils, ice chest, lantern, map, compass, and a way to get there. And food.

Q. What is a typical day like for you when you're not living here? Please tell me what you do from the time you get up in the morning,
   A. Have a cigarette. Take my medication. Eat breakfast (you may want to ask what the student eats if you want to include that information to determine what natural resources are used). Watch TV. Take the bus to an appointment. Walk around downtown. Sleep in the park. Eat lunch.

7. Student "b" will interview student "a" when the first interview is concluded.
8. When all interviews are completed the students will orally report their interview. Student "a" will report what student "b" said, etc.

9. Teacher will list answers on the board. Teacher will ask the class what impact each activity has on the environment.

10. Teacher and students will rate, from 1 to 100 each activity according to how much damage it does to the environment. The most damage is to be scored at the high end. The least damage is to be scored at the low end.

11. Teacher will lead discussion on activities of wealthy people.

12. Teacher will list the activities of the wealthy on the board, asking students to rate, from 1 to 100, the effect the lifestyles have on the environment. The hobbies and lifestyles that cause the most damage rate at the high end. Those lifestyles causing the least damage rate on the low end of the scale.

13. Comparisons of the two groups will be made: the class's impact vs the wealthy group's impact.

Sample of completed board is presented in the appendix.

EVALUATION:

Students will write about how their hobbies and lifestyles affect the environment. Students should include
what renewable or non-renewable resources they use when participating in their hobbies and lifestyles. Extra credit may be given for those students who write about seeking new hobbies, or lifestyles, that would have less negative impact on the environment.

**Field Study Results**

A field study regarding this lesson was conducted at two locked psychiatric facilities in the Riverside area. A total of 35 residents participated, 18 residents at facility 1 and 17 residents at facility 2. They all appeared to be interested in the lesson. All 35 participated when we were devising the ratings scale. The teacher suggested a rating and the group voted on it, modifying the number of the rating when they felt it was necessary.

The aides reported that positive social interaction, among the residents that participated, occurred during and after the class. Using a show of hands, all residents that participated indicated they had not thought before about how different activities affected the environment. A total of 11 residents said they would change their activities to have a more positive effect on the environment. Twenty-two residents indicated they were pleased that their behavior was not as harmful to the environment as a wealthy person's.
IMPLICATIONS AND LIMITATIONS

Persons with mental illness that are living in institutions are the population this project has addressed. Those that deal with this "at risk" population at any age level can use this project as a guide. It can be utilized to develop tools to bring about sensitivity and change in a group that is often ignored. The lack of success in working with this population using traditional methods is documented. Environmental education can be the bridge that links persons from the "at risk" population to their communities and society.

Limitations of the proposed curriculum development project include cost considerations. The cost of training personnel to carry out the lesson plans would be minimal. Staff meetings are held on a daily basis, and rationale for an environmental education lesson plan, as well as a lesson plan, could be included in a staff meeting. However, the lack of adequate numbers of staff could be a significant deterrent to success of the program. There is seldom enough staff to cover a full day. This would cause outings and implementation of lesson plans to be put on hold. This could lead to low staff morale, and lack of enthusiasm to carry out programs. Another limitation to the assurance of success of the program is the inability to guarantee that those involved in program remain "stabilized" by continuing
to take prescribed medications. Continued support services would enhance the probability of continued stabilization.

Within the institutions, a mental health staff willing to advance innovative ideas, such as environmental education, is key to the success of the program. Service delivery can be made more effective through the infusion of environmental education into mental health programs. This can be accomplished with the cooperation of a staff that has been included in the planning and implementation of the program. Although it may not always be feasible to take persons with mental illness on field trips, it is possible to simulate the experience. Service providers can adjust the lesson to fit within the context of the institution. Videos can often be located relating to the lesson. If a video is not available, it may be possible for those conducting the lesson to visit and videotape a particular location.
APPENDIX:
Rating Scale of Activities for Consumer Education Lesson Plan

RATING SCALE OF ACTIVITIES, AND HOW THEY AFFECT THE ENVIRONMENT
(BASED ON 1 BEING THE BEST, AND 100 HAVING THE WORST ENVIRONMENTAL IMPACT)

<table>
<thead>
<tr>
<th>STUDENT ACTIVITIES</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. MOTORCYCLE RIDING IN THE DESERT</td>
<td>100</td>
</tr>
<tr>
<td>2. SWIMMING IN THE OCEAN</td>
<td>0.05</td>
</tr>
<tr>
<td>3. CAMPING IN THE DESERT</td>
<td>0.30-100</td>
</tr>
<tr>
<td>NUMBER 3 rating depends on how much human evidence of camping is left. Also included is whether fossil fuels were used</td>
<td></td>
</tr>
<tr>
<td>4. WALKING ON A QUIET TRAIL</td>
<td>0.02</td>
</tr>
<tr>
<td>5. CRUISING IN CAR &amp; LISTENING TO TUNES</td>
<td>0.40</td>
</tr>
<tr>
<td>6. PLAY SOFTBALL</td>
<td>0.35</td>
</tr>
<tr>
<td>7. RIDE BIKE TO FRIEND'S HOUSE</td>
<td>0.09</td>
</tr>
<tr>
<td>8. PICNIC AT FAIRMONT PARK, THEN GAMES</td>
<td>0.09</td>
</tr>
<tr>
<td>9. RIDE BUS TO THE BEACH WITH FRIENDS</td>
<td>0.15</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ACTIVITIES OF THE WEALTHY</th>
<th>RATING</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. TRAVELING BY PRIVATE PLANE</td>
<td>0.90</td>
</tr>
<tr>
<td>2. HAVING YOUR OWN TENNIS COURTS, AND HAVING OUTDOOR COURTS MISTED WITH WATER IN THE DESERT</td>
<td>0.075</td>
</tr>
<tr>
<td>3. OWNING MANY CARS, USING THEM ALL</td>
<td>0.85</td>
</tr>
<tr>
<td>4. HAVING FAVORITE FOODS FLOWN IN FROM AROUND THE WORLD</td>
<td>1.00</td>
</tr>
<tr>
<td>5. CONSTANT SHOPPING AND BUYING</td>
<td>0.90</td>
</tr>
<tr>
<td>6. MOTORIZED RACE CARS AND BOATS</td>
<td>0.90</td>
</tr>
<tr>
<td>7. CHANGING LANDSCAPE OF HOME IN DESERT TO TROPICAL PLANTS</td>
<td>1.00</td>
</tr>
</tbody>
</table>
REFERENCES


