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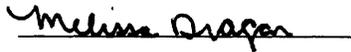
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Mentoring and Recycling: Two Ways of Giving Back to Society

An Interactive Qualifying Project Report
submitted to the Faculty of
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by



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Abstract

Recycling and mentoring both “give back” to the community. Recycling preserves the community by reducing waste generation. Mentoring accomplishes this by passing on knowledge and experiences. Both mentoring and recycling programs were set up at the EcoTarium. The mentoring program was designed to help underserved youth prepare for a future in a science related field. The recycling program monitored the current recycling program at the EcoTarium. This report contains a detailed progress of both programs and their success.

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Table of Contents

<u>Section</u>	<u>Page</u>
Abstract	II
Acknowledgements	III
Table of Contents	IV
Chapter 1 – Introduction	1
1.1 Introduction/Executive Summary	1
Mentoring Program	2
Recycle Program	3
Chapter 2 – Background	5
2.1 History of Great Brook Valley	5
2.2 TASC Ambassador Program	9
Chapter 3 – Mentoring	12
3.1 Introduction	12
3.2 A Mentor Is	13
3.3 Mentor Program Levels	15
3.4 EcoTarium Mentoring Program	16
3.5 Evaluating a Mentoring Program	20
3.6 Conclusions and Recommendations	22
Chapter 4 – Recycle Program	24
4.1 Introduction	24
4.2 Defining Recycling	26
4.3 Reasons for Recycling	27

4.4 Program Options	27
4.5 United States	30
4.6 Massachusetts	33
4.7 Worcester	35
4.8 Outside the U.S.	36
4.9 Recycling Program at the EcoTarium	37
4.10 Data Analysis	42
4.11 Summary and Conclusions	45
Chapter 5 – Conclusions	47
References	48
Appendix A – Mentor Packet	NA
Appendix B – Mentor Application and Mentee Questionnaire	NA
Appendix C – Surveys	NA
Appendix D – Brochure	NA
Appendix E – Monitoring Data	NA

Chapter 1 Introduction/Executive Summary

1.1 Introduction/Executive Summary

Mentoring and Recycling both “give back” to a community. Recycling keeps the environment clean by reusing materials. Mentoring helps the youth of today learn from the experiences of the previous generation. For this IQP, two programs were developed that continued the EcoTarium’s efforts to give back to the community: a mentoring program and a recycling program. Both the mentoring program and the recycling program used recycling to give back to the community. The recycling program accomplished this by monitoring and recycling waste. The mentoring program does not recycle any physical material, but instead recycles knowledge gained by mentors and passes this ~~the~~ knowledge on to the mentees to help their own future.

This Interactive Qualifying Project was performed at the EcoTarium in Worcester, MA. The EcoTarium is a three-story environmental science museum located on 60 acres of wilderness located in the heart of Worcester. The mission of the EcoTarium is “ to promote appreciation, increase knowledge and foster stewardship of our New England environment by stimulating learning about the world in which we live”. The EcoTarium features interactive exhibits focused on local and global environments, indoor and outdoor wildlife habitats for over 200 animals that cannot be returned to the wildlife, a planetarium, a tree canopy walkway and nature trails.

The EcoTarium offers several services to the public, such as lectures, demonstrations, special “home school days,” as well as activities and tours to

groups of schoolchildren visiting the museum. Another program the EcoTarium offers is the Teen Ambassador Science Crew (TASC). This program involves youth, mostly minorities from the Great Brook Valley, ages fourteen to seventeen. The program seeks to provide underserved youth with opportunities to work and learn in the field of science. The program is separated into three groups depending on the number of years that the participant has been involved in the program. The first-year students spend most of their time training on how to interact with the public when working as “Explainers” describing the exhibits. The second-year students, the Ambassadors, focus on studying recycling and recycling programs in the community. The third-year teens, called Mentors, assist the first- and second-year students, as well as learn about and work at an exhibit called the Micro-diner in the museum. This program will be further described in Chapter 2.

Mentoring Program

This IQP worked with both the Ambassador and the Mentor groups of teens involved in the TASC program at the EcoTarium. The beginning half of the project was to set up a mentoring program for the third-year teens. The objective of the mentoring program, which is described later in detail, is to provide the teens with information and exposure to science-related careers, and to encourage the teens in making decisions regarding their careers and education following high school graduation. Volunteers from the museum, who have backgrounds in science-related careers and activities, were recruited to serve as

mentors to the teens. The project work included gathering information on the teens, including the conditions in of the Great Brook Valley, the area in which they live. Information was also collected about other mentoring programs. This information was used to determine the goals and guidelines for the EcoTarium's mentoring program.

Recycling Program

Once the mentoring program had been established, the second half of the IQP involved working with the second-year teens on their recycling project. The goal for this group is to learn about recycling, and, after studying the current status of the EcoTarium's recycling procedures, suggests changes for improvement based on what was learned. Because the teens would be spending a large amount of time learning about recycling in general before actually applying what they learned to the museum, a large aspect of our involvement was in setting up a monitoring system in order to observe how much was currently being recycled and thrown away at the museum. These figures will later be used in comparison to determine whether or not the changes implemented by the teens had a positive affect on the recycling program. We established the monitoring system before the teens began the actual project in order to provide baseline data for the teens, as well as examine the procedure for its efficiency and to work out any 'bugs' before they began monitoring.

The IQP is a major project at WPI that involves relating science and technology to society. As stated above, this IQP relates how recycling, whether

information or actual waste, gives back to society. Mentors with a background in science provide guidance to youth interested in this field. The background chapter introduces you to the EcoTarium and Great Brook Valley. The third chapter discusses in detail the mentoring part of the project. The fourth chapter explains the recycling program. The final chapter will summarize this report.

Chapter 2 - Background

2.1 History of Great Brook Valley

The EcoTarium has had a large influence on one specific part of Worcester, the Great Brook Valley area. The EcoTarium has been trying to help this area's youth through the many programs that it offers. The following section will provide the reader with necessary background to understand the efforts of the EcoTarium and the situations for most of the youth involved.

The Great Brook Valley of Worcester Massachusetts has undergone many changes since its formation as a low-income housing project in the 1950's. Originally intended as a temporary housing project for World War II veterans, the Valley is now inhabited by some of Worcester's poorest minorities. The area generally referred to as the Great Brook Valley actually consists of a two-part complex of apartments and townhouses. The Curtis Apartments consists of brick buildings containing 390 units of one- to three-bedroom apartments. This state-funded complex was opened in August of 1952. The Great Brook Valley Garden units, which opened in April 1954, contain 567 federally funded units, which range from one- to five- bedrooms. The official count for the two complexes, as reported in the 1990 Census, was 849 families, with a total of 2618 residents. However the unofficial estimated number of residents, including both 'legal' and 'illegal' inhabitants, was closer to 3500, making up 970 families [12, p. 6].

The population today is made up of low-income minorities. The majority of Great Brook Valley inhabitants is Latino (69%), followed by white (17%), black

(11%) and Asians and others accounting for 3% [12, p. 6]. An estimated 32% of the residents do not speak English [3, p.10]. This causes communication problems between the residents and the Worcester community, which increase the isolation experienced by this group of people, both geographically and socially.

Because the housing project is so contained, the residents often feel alienated from the rest of the community. Residents attest that they are often judged, not by their color or appearance, but by the fact that they live in the Valley. Mayor Ray Mariano, who grew up in the Great Brook Valley, remembers schoolmates who were not allowed to play with him because of where he lived. Mariano believes that these types of housing projects are a bad idea, because the increased isolation of grouping together people from the same socioeconomic background does not allow for diversity [12, p.25]. Also, because so few of the residents speak English, they often do not have an understanding of the resources available to them. Recent efforts have been made to make people living in the Great Brook Valley aware of the programs offered, such as tutoring and after-school help for school children.

The average rent for the Curtis Apartments is \$146/month (1991), which includes heat, electricity, a stove and refrigerator. The average rent for the GBV Garden units is slightly higher, approximately \$174/month, including the same utilities. To qualify for the subsidized housing, a family of four cannot earn more than \$25,040 a year [12].

According to the Director of the Great Brook Valley Health Center, 70% percent of their clients in a four-person household had an annual income of less than \$11,200 in 1986. In a report by the Health Center in 1986, 64% if the families were below poverty level, 93% were unemployed. 53% of their clients were under the age of 17, and 87% of the households were headed by single females. The Worcester Housing Authority assistant director at that time estimated that 99% of the families living in the Great Brook Valley had an annual income of less than \$15,000. Forty-five percent of the households do not own a car, and 70% have no working telephone [3, p.9]. Current statistics were not available.

As with other housing projects, drugs and crimes have been a large problem in the Great Brook Valley. These problems were prevalent in the early 70's and 80's. Perhaps the lowest point for the Great Brook Valley was when the community experienced particular strain and hostility to the police department during the summer of 1979, when a Worcester Housing Authority police officer shot and killed a GBV resident, 27-year-old Angel Allende-Mojica. Allende-Mojica had been pulled over by police when he was seen driving with a GBV stove in his car. He allegedly assaulted one of the officers, and on the ride to the station, verbally assaulted another. The officer driving, Officer Estemera, turned and shot Allende-Mojica in the head, killing him. Estemera was later convicted of manslaughter. Earlier in the summer, a scuffle between two WHA officers and several teens at a playground had led to the arrest of two Puerto Rican brothers, injury to seven youths, and severe tension between the WHA and the residents.

The murder of Allende-Mojica was the final straw for many residents, who had been suffering under the WHA for years. The residents had been forced to endure racial prejudices from the WHA officers, meanwhile living in uninhabitable conditions that the housing authority did nothing to correct. For days after the murder, riots broke out in the community. The WHA police station was firebombed and fires were set in the dumpsters. Firefighters who arrived were stoned, police cruiser windows were shattered and 250 specially equipped riot police patrolled the riot, which resulted in the arrest of thirteen people and injury to thirteen others [1].

However, this incident eventually led to more positive results. In the next few years, committees such as a tenants association and Valley Residents for Improvement were formed to work with the Worcester Housing Authority to improve conditions in the Valley and to make sure that their needs were being met. Since then, several other committees and programs have been instituted, and the drug and crime rates have been greatly diminished [1], and according to Brain McQuade, the executive director of the WHA, are certainly not as bad as in larger city projects. Today crime in the Great Brook Valley is greatly exaggerated. A 1997 report from the Worcester Police Department indicated that crime rates in GBV are actually lower than in other Worcester neighborhoods. For example, out of 194 reported crimes involving guns in 1997, only 9 occurred in the Great Brook Valley. The Green Island/ Vernon Hill area accounted for 18 of the crimes, Hahnemann Hospital had 14, and 11 of the crimes occurred in the Belmont St./Shrewsbury St. neighborhood [1].

McQuade attributes the successful drop in crime rates and drug use to the new programs instituted in the projects, including childcare programs, a substance abuse program, and the Great Brook Valley library enrichment programs. Efforts have also been made to diversify the WHA police force, as well as providing sensitivity training to the officers. \$715,000 is spent annually on police patrol of the area [3]. Other recent programs include the Child Development/Head Start program, which offers training and education to eighty Great Brook Valley children, the New Star program, which provides educational motivation, such as prizes and other incentives, to students, and the Unity Project, which organizes and encourages activities other than drugs, such as team sports, concerts, and training workshops.

2.2 TASC Ambassador Program

Programs are being instituted in cities across the country for underprivileged youths. The Association of Science-Technology Centers Incorporated (ASTC) is an organization that promotes such programs. The ASTC developed the YouthAlive! Initiative (Youth Achievement through Learning, Involvement, Volunteering and Employment). The purpose of the initiative, started in 1991, was to provide “opportunities for education and personal growth to underserved youth, specifically focusing on the needs of children of color and those from low-income communities” [20, p. 6]. YouthAlive! Works with science centers, natural history museums, zoos, aquariums, and children’s museums to establish programs for youths. The initiative has several principles that the

programs must meet. For instance, the participants must have 120 contact hours at the institution each year, and should work in small but diverse groups with sensitive staff members. The participants are provided with opportunities for enhancement and responsibility. Work-based learning programs allow teens to gain work experience and self-confidence, as well as an appreciation for the sciences. Through their work, the participants learn how to interact with others, how to set and achieve goals, and problem-solving skills. More importantly are the feelings of self-worth and the sense of respect that the teens develop as a result of their work.

The EcoTarium is one partner in the YouthAlive! initiative. The TASC ambassador program (Teen Action Science Crew) targets underserved youth from the Great Brook Valley. The EcoTarium offers paid positions for youth, as well as mentoring and after-school programs. The TASC program begins in October with an introduction to the Museum and training in communication skills and science topics. The teens receive additional in-depth training in November, and then may begin working weekends and vacation weeks. The teens also may have the opportunity to apply for summer positions after the end of the program in June. The participants may work as Explainers/Interpreters and in cross-age teaching.

Previous participants' journals and essays provided a good insight into how the teens benefit from this type of program, and what they would like to attain. The majority of participants emphasized the interactive skills they acquired from working at the museum. The teens made friends with others, and

learned to interact and communicate with people who are different from them. The experiences that they gained working at the museum also contributed to their academic activity, as many felt more confident in asking questions and in their abilities as students. Not only did their self-confidence increase, but also so did their pride, through the responsibilities they were required to handle and the leadership abilities they attained. Several participants commented that their families were proud of them for working someplace where they weren't 'just flipping burgers'. Others contributed that working at the museum was a good chance for making money, while keeping them out of trouble. Through the technology training and field trips, many students gained an awareness of future careers and opportunities, and an interest in attending college.

Chapter 3 - Mentoring

3.1 Introduction

The EcoTarium is a center for environmental exploration and provides educational opportunities to the surrounding community. One program that the EcoTarium wants to provide is a mentoring program for underserved youth. The focus of the mentoring program is to help mentees, the underserved youth, prepare for their post-secondary education and career. A special emphasis is placed on advancement and opportunities in science-related fields. The EcoTarium, with the help of this WPI IQP, now runs a pilot mentoring program. The mentoring program at the EcoTarium is comprised of underserved teens from Worcester, particularly the Great Brook Valley. The teenagers are also involved in the Teen Action Science Crew (TASC) program at the EcoTarium that was previously described.

To be successful, a mentoring program must establish clear goals and objectives. For the mentoring program to work, mentors need to be screened, trained and appropriately matched with the mentees. The program also needs ongoing support and evaluation to improve the mentoring relationship. Local and national organizations, such as the Big Brother/Big Sister programs, were instrumental in helping to develop the EcoTarium Mentoring Program. These other groups provided models of how to establish a successful program. These programs also provided insight into what a mentor is and what mentoring entails. This information had to be determined first before the process of establishing a mentoring program could begin.

3.2 A Mentor Is...

Mentoring is a one-on-one relationship that provides guidance to a younger person in achieving the youth's goals and dreams. A mentor should serve as a positive role model in providing his/her support and encouragement to the mentee. A mentor is a trusted guide and friend who is generally more senior in age and experience to the mentee. The mentoring relationship can serve a vital role in helping youth develop important life skills such as decision-making, conflict resolution and long range planning.

Mentor goals

There are important attributes that a person should possess in order to be an effective mentor:

- Being a good listener
- The ability to listen and accept different points of view
- The ability to empathize with another person's struggles
- Respect for individuals and their right to make their own choices in life
- Flexibility and openness
- Personal commitment to be involved with the mentee for an extended time period

However, there are also things a mentor should not be: a parent, legal guardian, social worker or psychologist. It is more important for a mentor to act as a

resource broker and show the mentee how to access the resources or services that he or she needs rather than try to provide those services.

The mentor should have specific goals in mind in entering the mentor/mentee relationship:

- To be able to communicate effectively and honestly
- To develop a connection with the mentee as a trusting and supportive friend
- To provide encouragement and guidance
- To gain an understanding of one another's culture and beliefs
- To encourage the mentee to set and acquire his/her own personal goals

Specific goals of the EcoTarium's mentoring program include:

- To provide guidance and support in post-high school opportunities, including college and career exploration
- To expand the mentee's appreciation and interest in science
- To provide exposure and information on science-related career possibilities

According to the MassMentor training curriculum, there are four primary tasks of a mentor. These tasks were also considered in establishing the goals for this program. One task is to establish a positive, personal relationship with the mentee. This can be achieved through regular interaction, consistent support, and by making the meetings fun and interesting. The next task is to help the mentee to develop or begin to develop important life skills. To

accomplish this, the mentor works with the mentee to set, and attempt to achieve, specific program goals, and to instill the framework for developing broader life management skills. Another task is to assist the mentee in obtaining additional resources. With the mentor's knowledge of resources, the mentor can provide access to information on resources available to them. The fourth task is to increase the mentee's ability to interact with people from various backgrounds and cultures [15].

3.3 Mentor Program Levels

There are different levels of mentor involvement. According to The Mass Mentoring Partnership's Local Mobilization Model, mentor programs have three different levels of involvement. Level 1 is a mentor program that has regularly scheduled interactions, once-a-month meetings, and is a short-term program, (1 to 3 months). Level 2 is a short- to long-term (3-12 months), structured interaction occurring once a week. Most school and work place mentoring programs are this type. Level 3 is a long term (12 months or more), structured relationship occurring once or twice a month. These relationships require more extensive volunteer screening, training and program support, as some meetings take place off-site and not under direct supervision of program staff. An example of a level 3 programs is the Big Brother/Big Sister program [15].

3.4 EcoTarium Mentoring Program

The mentoring program at the EcoTarium was set up as a level 2 program. The EcoTarium Mentoring Program (EMP) trial runs from January 2001 to June 2001. Mentors and mentees will interact at the EcoTarium during the TASC program. The Teen Action Science Crew (TASC) offers a safe and supportive atmosphere that will allow opportunities for adolescents to gain life skills and explore science, technology, and the environment while working as Museum Assistants. This program operates every Tuesday and Thursday from 2:00 - 5:00 pm. Mentors will be expected to provide their mentee with the time and guidance needed to succeed in this program as well as in their future lives.

The first objective in establishing a mentoring program is to determine who is to be mentored and the unique purpose of the program. In the case of the EcoTarium, the target group had already been established, and specific goals mentioned above, such as helping the mentee search for and apply to college, were already set. Since the important aspect of a successful mentoring program is the mentor/mentee relationship, both the mentor and mentee should be made aware of the goals of the program, as well as the general guidelines of the program. The program description that we composed, and can be found in the mentor resource packet (Appendix A), discusses these guidelines. As discussed in the general description of mentoring, mentors should be prepared and willing to make a commitment to the program. Mentors for the program were recruited from inside the EcoTarium. Most of the people interested in mentoring are retirees who volunteer at the museum, and who have backgrounds in science-

related careers. An informational meeting was held a few months before the program began to inform potential mentors of what the program entailed and the amount of commitment expected. At that time the potential mentors were also given applications to fill out, which provided the EcoTarium with basic background information, as well as a basis for matching the mentors and mentees through a questionnaire given to both. These~~s~~ were forms that we created for the mentoring program, and can be found in Appendix B.

The trial program at the EcoTarium is designed to meet two times a month at the museum, as well as through other contacts such as telephone and email. It was felt that this was appropriate for the trial program, as it gave adequate time for the mentors and mentees to interact, but did not require too great of a time commitment, which could possibly deter mentors from applying. The mentors were required to attend a training session, which was hosted by the MassMentoring Program. Mentors were also provided with a mentoring resource packet, which will be discussed next.

In establishing the mentoring program, it was important to develop clear guidelines for the mentors. The mentor resource packet is intended to establish these guidelines for the mentor/mentee relationship. The packet is designed with a variety of information that will be helpful to the mentor in his/her relationship with the mentee (Appendix A). As discussed above, the first important aspect was to define the mentor/mentee relationship. It was important to clearly define the role of the mentor. The job description and the training packet stress that the mentor should be a good listener, but not be expected to act as a counselor or

psychologist. Because the mentor may face a problem in which the mentee may confide in them something that they do not feel comfortable dealing with, or should not be discussing with the mentee, a list of emergency numbers was prepared by us to include in the packet. For example, if the mentee should confide that he or she is thinking about suicide, the mentor should not attempt to handle the situation alone. The policy in this situation is for the mentor to notify the youth coordinator at the EcoTarium, but the mentor may also give the mentee a telephone number for a suicide help line provided from the list. This list includes various help line numbers, as well as contact information for the EcoTarium and agencies such as the Department of Social Services. Also included on the list were numbers to obtain information on schools and careers.

Because the mentors and mentees are from very different socioeconomic backgrounds, one of the first challenges is for the couple to form a relationship and be able to interact comfortably. As described in the background in Chapter 2, the teens living in this area are often from low-class and broken homes. While the mentor training session provided some insight into valuing diversity and working with different cultures, we felt it would be beneficial to include more information in the mentor packet, which was collected from other mentor programs and mentor training manuals. For example, literature was included that offered suggestions on how to interact with teenagers, by explaining how to talk with the teens rather than talking down to them. Also included were suggestions on how to better communicate with teenagers and encourage them to talk. Further guidelines were provided giving ideas on what to say and what

not to say in certain situations. Literature was also provided on working with mentees from different racial backgrounds, which helped to explain racial diversity and encouraged the mentors to value it. This served as a reminder that the mentee's attitudes and beliefs are largely formed from their background and culture, and that mentors should keep this in mind when working with the youth. These guidelines and suggestions came from various literatures on establishing a mentoring program, as well as from web sites, and are referenced at the end of the packet (Appendix A).

Other literature included in the resource packet discussed goal setting. The information included guidelines on setting realistic goals for the mentee and for the mentor/mentee relationship, as well as how to best obtain those goals. As the mentees are in their junior or senior year of high school, there is special emphasis placed on the program on career and education planning. For this reason, several lists were provided to help the mentor guide the mentee in this process. These lists include phone numbers and addresses of career planning web sites, college searches and financial aid information, as well as scholarship opportunities and various mentor program sites. While the list is by no means exhaustive, each site was checked for its relevance and usefulness to the mentors/mentees, and provides a good starting point. The list was prepared by searching the web for useful sites and including sites suggested by the MassMentoring program. Other lists provided by the MassMentoring program included were suggestions of other activities that the mentor and mentee could perform together, as well as web sites that contained information on applying for

college and scholarships. No direct information on science and technology was included in the packet. The mentors, from their various backgrounds in the science fields, provided the teens with their experience and knowledge of this aspect.

3.5 Evaluating A Mentoring Program

The initial EcoTarium Mentoring Program is considered a trial run on which a more involved program will be built if the program is determined to be successful. For this reason, it is important to be able to evaluate the program from both the mentors and mentees point of view in order to determine which aspects of the program are successful and which needed to be improved. Evaluating the mentor program can help the coordinator learn whether the program has met its goals. In particular, it is important to determine if the program succeeded on any of the following:

- Helps the mentee in setting and achieving goals, specifically school and career-oriented
- Instills and encourages a greater interest in the fields of science and technology
- Improves mentee self-esteem and confidence
- Teaches valuable communication skills
- Teaches mentors the importance of commitment and sensitizes them to the needs, experiences, and situations of other members of their community

- Strengthens community ties by creating opportunities for youth to work with and learn from younger and older members of the community
- Dispels or reduces stereotypes, misconceptions, or fears that members of different races or age groups in the community may have held about others prior to the program

Evaluating a mentoring program requires both short- and long-term perspectives. In the short term, regular check-ins with mentoring pairs will keep the program on the right path. In the long term, following up with youth who were mentored to determine how the relationship affected them can provide important data on the program's success.

In addition, both mentors and the youth being mentored should have a regular opportunity to evaluate the program. They should be asked what they find most valuable and what they believe should be changed. Secure such input by administering a survey every month (or week) or by having a hotline or suggestion box available at all times. The following are examples of questions to ask both mentors and the persons being mentored when evaluating the program:

- How did the mentoring program help you?
- What were some of your favorite activities with the program?
- What were some of your least favorite activities?
- How did the program compare with your expectations?
- How do you think the program could be improved?

Since this initial program at the EcoTarium is only being held for a few months, and the mentors and mentees would not be meeting very frequently, it

was determined to implement a final formal evaluation form for the end of the program, although all participants were encouraged to give their input and suggestions at any time. At the end of the program, mentors and mentees will be given an evaluation form to help determine the success, strengths and weaknesses of the program (Mentor evaluation included at the end of the mentor resource packet). An informal questionnaire was given to the mentors to provide us with some insight to how the program was progressing in order to draw some conclusions on this aspect of our project. Unfortunately, only two participants returned the questionnaire, which asked the mentor for the most fun and challenging moments, and for their suggestions for improvement for the program.

3.6 Conclusions and Recommendations

Although only two mentors responded to the questions, their responses along with the feedback from the youth coordinator, Carmen Quintero-Melendez, provided some insight into the success of the program. The mentors overall felt that the program is going well. They had the most fun in meetings when they were able to talk with their mentees, and each was able to contribute to the conversation. The mentors learned about their mentees cultures and traditions. In return, the mentors exposed the mentees to other types of culture, by visiting museums and colleges, and volunteering together at a halfway house. The only changes suggested by the mentors were for more feedback, to see if they were doing a good job in mentoring, and more structured activities other than working on college and scholarship applications, for those mentees that either had

already completed applications or were not intending to apply to college. Overall, the program was determined to be a success, and will continue next year in much the same fashion as it was run during this first trial period.

Chapter 4 - Recycling

4.1 Introduction

Recycling? This is a seductive word to the environmentally aware among us. But what is it? Who does it? What is it all about? Why should I? Some of these questions have simple answers and others much more complex. Just addressing the definition is a complex issue as almost every governmental entity, industrial and commercial organization, professional associations, academics, and practitioner's attempts to define it. Since each has a different perspective and motive for recycling, the issue is hotly debated.

Recycling today is a solid waste management strategy. Equally useful as land filling or incineration, and environmentally much more desirable, recycling clearly is the preferred method of solid-waste management.

Early in human society a solid waste management (SWM) strategy was not needed, mainly because the hunter/gatherer did not need one. They never remained in one place long enough to accumulate waste. However, once humans began to settle and leave a nomadic life behind, a higher concentration of waste producing individuals and activities led to a need for SWM.

The first municipal dump was founded in 500 B.C. in Athens. In 1388 Britain banned garbage in streets and waterways. In 1400 garbage was piled so high at the city gates of Paris that it began to interfere with the city's defenses. By the 1840's the western world began the "Age of Sanitation" [11, p. 3].

Only after World War II, with increased populations, advancing scientific methods, and a better understanding of the environment and its finite resources,

did an examination of proper disposal methods take place. The realization of the long-term impacts of groundwater and air pollution initiated a need for greater regulation. The first federal solid waste management law was the Solid Waste Disposal Act (SWDA) of 1965, which authorized research and provided grants. Three years later the National Survey of Community Solid Waste Practices was commissioned [6]. This commission receives data from communities and recommends specific recycling activities for the community. Two years after that the Resources Recovery Act amended the SWDA [6]. 1970 saw the Clean Air Act implanted, establishing federal authority to combat smog and air pollution, leading to the shut down of incinerators and elimination of open burning solid waste [6].

With the environment becoming more and more of a critical issue, Earth Day was established on April 22, 1970. Within a year, Oregon established a "bottle bill", creating a federal procedure for the reuse and recycling of bottles. Although all of the states had some waste management program by the mid 70's, it was not until the Resource Conservation and Recovery Act of 1976 (RCRA) that the first truly significant role for the federal government in waste management was created [^{10?}11, p. 7].

All of these considerations have led to both a public and a legislated demand for recycling as the preferred waste management strategy today and in the future. The willingness of the government to require and subsidize recycling when necessary has grown to enormous proportions.

4.2 Defining Recycling

Recycling is still an elusive concept that everyone thinks they have a clear understanding of until they began to practice it. Most people understand the role that the individual has to play but the subtleties necessary for the interplay between the private and public sectors needed to succeed require definitions other than those of common language and law. The terms recyclable materials, recovered materials, and recycled materials all are needed to define the concept of recycling and usually require definition in various state regulations. Therefore, a dictionary definition of recycling can only give a general idea of a term.

Recyclable materials are materials that ^{can be} ~~a reuse exists for~~. Recovered materials are the amount of materials received for recycling. Recycled materials are the amount of materials reused from the recovered materials [17, p 20].

Due to an increase in local public awareness campaigns, the general public's perception of recycling mainly focuses on the visible elements including curbside pick-up recycling centers, and a vague understanding that recycling is good for our environment.

Legislative definitions at this time generally center on materials in the waste stream that are easy to separate and for which there are known and relatively stable markets. These definitions do ignore however, previously established industrial recycling efforts based purely on economic considerations. This sort of legislative definition promotes additional recycling activities rather than accounting for existing economic conditions.

4.3 Reasons for Recycling

There are three main reasons for recycling; humane reasons, economic opportunities, and legal considerations. Protecting the environment and conserving resources have become self-evident as being the number one reason to recycle. The avoided cost of environmentally-acceptable waste disposal has risen to a level where, combined with all costs associated with recycling, it makes economic sense to recycle many materials. With a lack of alternative waste disposal methods and additional public demand for recycling, the government requires recycling by providing penalties and incentives to recycle.

4.4 Program Options

A wide variety of options for recycling exist, however, no single option provides all the answers. But there is a best option or combination of options for everyone when a careful evaluation is made to determine needs and circumstances [11, pp. 20-60].

Curbside Collection

Curbside programs often serve single-family residences. Curbside collection may require the residence to use multiple containers to separate and sort recyclable materials that are then diverted from the main waste stream. The type and number of containers vary from program to program. Some programs provide containers while others do not. Where these containers are used, they are left on the curb and picked up on a certain day.

Commercial Collection

Similar programs are conducted for multi-dwelling residences and commercial applications. These programs do not include curbside collection. Instead, these programs require recyclable materials to be placed in specialized containers of the type used. Consequently, if a multi-dwelling residence is served as a single family for waste, using centralized containers for all residents allow for the dwelling to be single-family served for recycling as well. The same goes for the commercial units.

Commingled or Source Separated?

The degree of separation may vary from program to program. In some programs there may be a great deal of commingling if the unit it is being brought to uses a centralized processing facility to separate the commingled materials. Even without a centralized processing facility they can still commingle with a separation at the collection vehicle.

Material Recovery Facilities

The use of material recovery facilities (MRFs) serving commingled residence programs is rapidly gaining popularity. Commingled programs used in a multi-dwelling residence or commercial application can allow efficient collection methods where available space for placement of collection containers is limited.

Drop-off / Buy-Back Centers

Voluntary participation in recycling programs is often related to the ease with which an individual can participate. Therefore, drop-off centers that depend on humane motivations add a degree of convenience that can reduce participation. These centralized locations where recyclable materials are collected are easier and less expensive to implement than curbside programs. They are especially effective in areas where regular waste collection is not required or available.

Buy-Back centers offer all of the benefits of drop-off centers and the increased incentives of monetary benefits to the participant. They are, however, more expensive to operate because they need to be staffed, secured, and handle cash.

Recycling at Waste-to-Energy Facilities

Waste-to-energy facilities increasingly employ separation systems to recover non-organic recyclable materials. The amount and type of material recovery depends largely on whether the materials recovered are prior to- or after incineration. Recoveries of materials after incineration, known as back-end systems, are frequently used with mass burn waste-to-energy facilities. They can recover high percentages of ferrous and nonferrous metals through the use of simple technology.

Front-end separation systems that remove recyclable materials prior to incineration are used in facilities that prepare a refuse-derived fuel by removing the inorganic fraction of the waste prior to incineration. These materials are then recycled or land filled with other non-processible materials.

Composting

The methodologies and technologies used in separating materials from mixed waste can also be used in the preparation of compost. Long championed as the solution to the solid waste dilemma, the composting of mixed waste has met with limited success. Although easy to do on a small size, it is hard to do on a large scale.

4.5 United States

From Hawaii to Maine, new solid waste recycling and reduction legislation is being passed each year. Forty-one states now have comprehensive recycling laws. Most states set a goal for a reduction rate of 25 percent; however, a few states have set higher standards by having a 50 percent reduction-rate goal. Figure 1 shows the total waste generated in the United States in 1996 [6].

1996 Total Waste Generation - 209.7 Mil Tons
(before recycling)

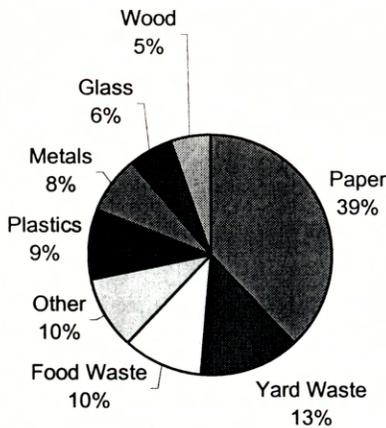


Figure 4.1 1996 U.S. Waste Generation

Recycling has been national law since the passing of the National Environmental Policy Act (NEPA) in 1970. NEPA focuses on the government's responsibility to maintain the balance between Mother Nature and society. Section 4331 (a) declares that:

It is the continuing policy of the Federal Government, in cooperation with State and local governments, and other concerned public and private organizations, to use all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill conditions under which man and nature can exist in productive harmony, and fulfill the social, economic and other requirements of present and future generations of Americans [13].

This section of the NEPA really demonstrates the role the U.S. government set for itself with the passing of this bill. And indeed the national

Recycling Rates 1960-1996

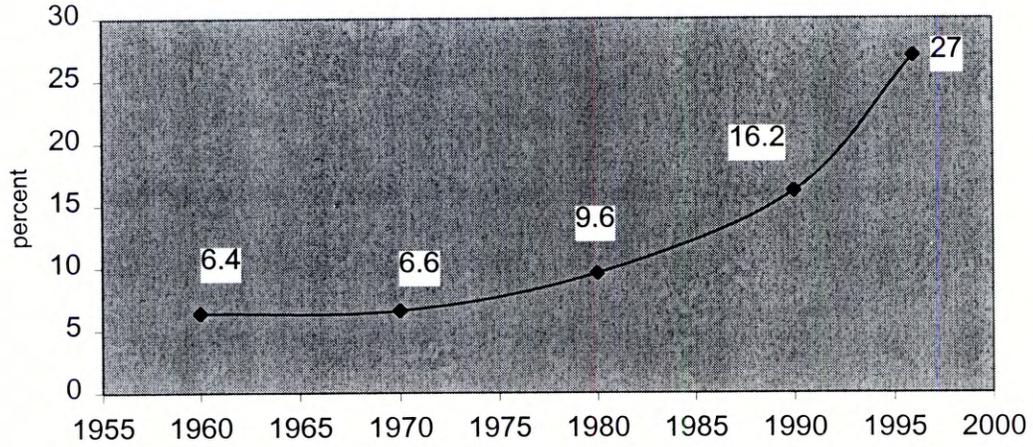


Figure 4.2 Recycling Rates over the years

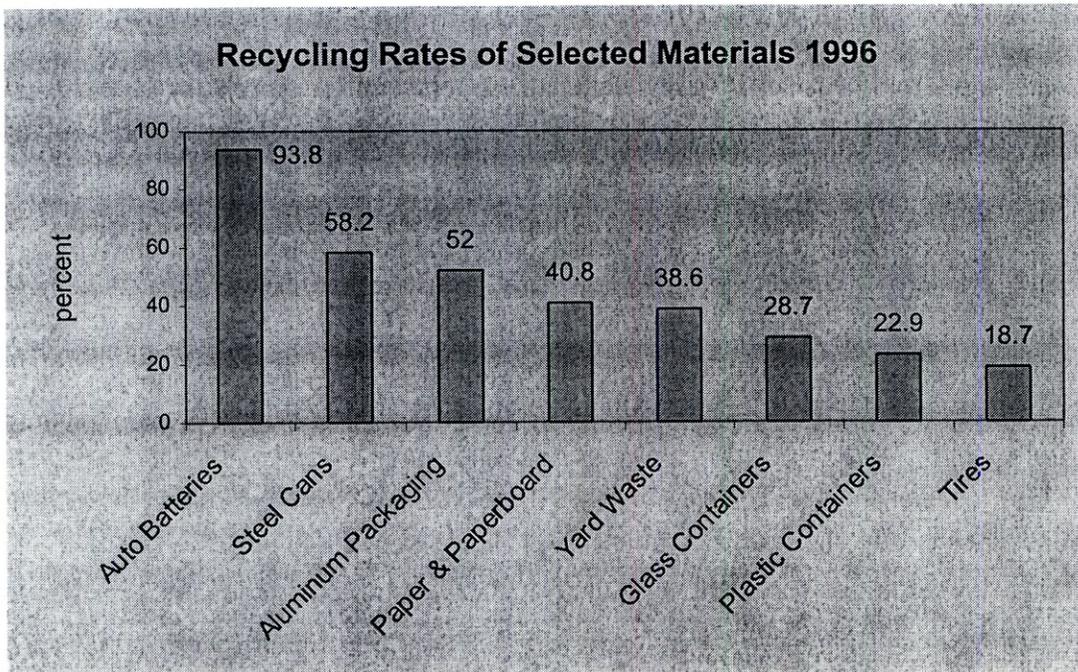


Figure 4.3 Recycling Rates of selected materials in 1996

waste reduction and recycling legislation has been increasing each year since 1970. This is due to public outrage and the realities of the solid-waste disposal problem.

Figure 4.2 compares the recycling rates of our nation from 1996 to 1995 [5]. As the graph in figure 4.2 shows, recycling rates have increased exponentially since 1960. This figure also shows the recycling rates of the different materials recycled in the U.S. in 1996 [7, pp 11-20].

4.6 Massachusetts

Recycling industries support over twelve thousand jobs in the state, and recyclable materials are the largest export from the Port of Boston. Massachusetts has 173 companies that collectively use an estimated 3.7 million tons per year of recycled material that otherwise would enter the waste stream [8].

The nationwide trends discussed above can be also been seen in Massachusetts. Newspaper, office paper, cardboard, glass bottles, metal cans, scrap metal, and recyclable plastics account for about 60% of the solid waste stream in Massachusetts. They are the most common materials targeted for recycling because there are many processors and end-users for those materials in Massachusetts and in the New England region [8]. About 50% of Massachusetts-produced glass is made of recycled bottles, a significant amount of tissue paper is made of recycled content, and at least 19 out of 31 Massachusetts paper/pulp mills use recycled materials. Ninety-five percent of

Massachusetts's municipalities offer residents some opportunity to recycle, and many businesses offer recycling in the workplace [8].

The state support the “recycling loop” through a variety of programs, including equipment grants to municipalities, the deposit container law, providing financial assistance to manufacturers, purchasing recycled products, and promoting “buy recycled” programs among business, consumers, and industry. Examples of recycling programs managed by the DEP include:

Municipal Recycling Grants - Grants to municipalities for recycling collection systems. Items include curbside recycling trucks, setout containers, consumer education materials, Pay-As-You-Throw bags and stickers, household hazardous waste equipment, and Universal Waste storage sheds.

The Municipal Recycling Incentive Program (MRIP) - Performance-based grants are available to municipalities that meet a set of eligibility criteria designed to increase recycling and to stimulate demand for recycled products.

Recycling Rules or “Waste Bans”- These state regulations prohibit the disposal of certain recyclable items at solid waste landfills and incinerators in Massachusetts.

The Recycling Loan Fund - A program that provides loans to recycling-related businesses to increase access to capital for the recycling industry. Loans are

provided for the processing, reuse, or manufacturing of non-hazardous solid wastes.

Recycling paper, glass, steel, aluminum, and plastic saves energy and resources and reduces the amount of waste and pollution generated. It also saves us millions of dollars by extending the lives of our remaining landfills and offering a cost-competitive alternative for disposal of large portions of the solid waste stream.

4.7 Worcester Recycling

Responding to a continued increase in solid waste costs and a desire to provide curbside recycling services to residents, Worcester citizens created "Pay a little. Save a lot." Introduced in late 1993, this innovative solid waste management program put Worcester among the elite "over 50" cities - cities throughout the nation that recycle over 50% of their waste stream. The engine that drives the program is a bright yellow trash bag, costing 50 cents, which residents in over 50,000 households purchase to dispose of their trash (i.e. the "pay a little"). In return, they are presented a wide array of "free" recycling services that promote a cleaner environment, reduce dependency on virgin materials and contribute to the local economy (i.e. the "save a lot"). Commenting on the program, Massachusetts DEP Commissioner for 1996 David Struhs stated, "No other town in America, from our perspective, does as good a job as Worcester to recycle their solid waste" [2].

4.8 Outside the U.S.

Waste management policy in the European Union (EU) follows a three part, hierarchically ordered strategy: conservation, recycling, and disposal [4 p. 2]. Waste management policy outside the U.S. relies strongly on the conservation principle, which attempts to optimize the production process to minimize the total amount of waste produced. An obvious everyday example of conservation principles is purchasing items in bulk, which require less packaging.

Conservation of materials helps in product-life-cycle planning, which considers issues of resource recovery for the constituent materials of the good in question from the production to the disposal process. A variety of process tools driven by the concept Extended Producer Responsibility (EPR) are currently promoting conservation. In brief EPR policies place responsibility for managing waste from products after their life cycle, on the producers [10, p. 60].

Recycling, the middle rung of the waste management hierarchy, runs on two principles. The first is the traditional type of recycling activity where material from goods that have reached the end of their life cycle are collected, sorted, and used to create alternative goods. The second type of recycling activity focuses on using waste materials such as a fuel for renewable energy, especially bio-fuels projects.

The bottom rung of the waste management hierarchy is waste disposal. Like most of the rest of the world, landfills have been the principle waste disposal choice of policy makers in all the EU member states. According to a Commission

publication, in 1990, 69% of the community's waste was disposed of in landfills. Currently the Council is considering a directive that will provide a common landfill policy.

4.9 Recycling Program at EcoTarium

As mentioned previously, the second-year TASC students will be focusing on recycling as their project for the year. Their assignment, after researching recycling and evaluating the EcoTarium's current status, is to propose and implement changes to improve the program. However, due to time constrictions, we could only be involved in the initial monitoring of the current program, as the teens would not begin changes until May 2001. The teens also would not begin the monitoring until early April, which gave us a chance to implement the monitoring program and evaluate its efficacy as a trial before they began collecting data, as well as to provide them with a larger amount of data to be analyzed.

In order to determine if any alterations to the program were indeed improvements, it was necessary to collect information on the current status of the program at the EcoTarium. To begin with, employees were given questionnaires to determine what they know about recycling at the museum, and also to get estimates on how much trash and recyclable materials were being used. Also, their opinions and suggestions for improvements were considered. Two surveys were sent out. One was prepared by the coordinator of the Ambassador's recycling program (survey 1, Appendix C). Another survey (survey 2, Appendix

C) was prepared by us to attempt to gather more accurate information on the amount of products recycled. This information was analyzed by us and then used to put together a brochure for the employees informing them of some of our conclusions from the surveys. This survey asked questions about employee recycling habits and recycling knowledge. The survey, which can be found in Appendix C, was given to 25 employees at the center and asked the following questions:

1. For which products are there separate recycling containers available in your department?
2. Where are these containers located?
3. Are they clearly marked?
4. Which product is recycled the most by your department?
5. How much of the product from question 4 is produced each month?
6. Who is in charge of recycling in your department?
7. How often is the recyclable material picked up?
8. Where do the recyclable materials go after pick up from your department?
9. What is difficult to recycle in your department?
10. Are there any special costs associated with recycling in your department?
11. Are there any special recycling concerns in your department?
12. Is the waste management procedure difficult in your department?
13. How many pieces of paper per day do you use?
14. Do you recycle all of your paper?

15. How many cans or bottles per day do you produce?

16. What other items would you like to see recycled

17. Is access to the recycling bins limited?

The questions were given to people working in all departments at the EcoTarium. The questions on this survey were chosen because they could portray the current state of the EcoTarium's recycling habits. Most of the questions above were chosen to determine the actual habits of the employees. Their habits helped us to determine what was recycled and how much was recycled. The questions also gave us information on ~~the~~ how educated the employees were about recycling at the EcoTarium.

Unfortunately for the EcoTarium, the surveys showed a general lack of effort to recycle and lack of knowledge as to the who, what, where, when, and how's of recycling at the museum. Out of the 25 surveyed, 15 returned the surveys with enough information to be useful. These can be found in Appendix C.

The results of the surveys are described below. This information was used to produce the brochure (Appendix D) that will be given to the EcoTarium staff. According to the surveys, 80% of the employees recycle everyday. All of the employees said that they have recycling bins located near them. However, access to the bins was still limited. To increase access, the employees surveyed mentioned more bins, individual bins per desk, bigger signs, and more strategic locations (for example next to the copy machine).

Every person surveyed agreed that paper was the product used most often. The amount varied from person to person but was averaged to 35 pieces of paper per day. Also each person produced, on average, one can or plastic bottle per day. The employees believe that plastic is the hardest thing to recycle at the EcoTarium.

No one knew who picked up the recycling or when it was picked up. Also no one knew where it went after it was picked up from the individual departments. Almost all of the people surveyed thought that people mixing the wrong recyclable materials in the wrong bins was a concern to be dealt with soon. Other items that the people surveyed wanted to see recycled in the future were batteries, computer cartridges, milk jugs, food waste, newspaper, and packing peanuts.

To establish baseline values for the amount of trash and recyclables produced before the changes were made to the recycling program, it was decided to monitor these amounts for a few months. This information would also be used to project how much trash, paper and other recyclables is used in a year at the museum.

The first step in monitoring the recycling was to determine which areas were to be monitored. It was decided to monitor two different areas to measure and compare the amount of materials recycled and the amount of trash produced. The education offices area was chosen as one area because it was determined to be an appropriate location to set up our barrels. This location would give us a good indication of amounts of trash and recyclables produced by

the museum staff. The second area chosen was on the museum floor, to determine how much trash and recyclables were produced by visitors to the museum. To record data, we initially measured the height of material in each of the three barrels (trash, paper, and cans, bottles and plastics). However, this yielded inaccurate and rather ineffective data. The volume was not indicative of the actual amount of paper being recycled, for example, because one barrel would have a large volume due to a small amount of crumpled paper, whereas another barrel may have had twice as much paper by weight, but only half as much volume if it was compacted down. Therefore it was determined that measuring the materials using a scale would be a much more effective method for analyzing the data. The volumes were still tracked to use as a comparison to the data already collected. Because one of the barrels in each area was labeled as a receptacle for cans, bottles and plastics, but only refundable cans and bottles are actually currently recycled at the EcoTarium, this barrel usually contained a much larger amount than what was recycled. Materials that were not recycled were placed in the trash barrels and measured as trash. The number of cans and bottles was relatively small, and these numbers were also recorded as data.

The two areas were initially monitored once a week, but it was determined that the barrels were full before the end of the week, so the monitoring was conducted twice a week, Mondays and Thursdays, at approximately 3:00 p.m. There were some difficulties encountered in establishing the ~~mentoring~~^{monitoring} program. Employees in the education office were notified of the recycling monitoring

proper receptacle before the measurements took place on Thursday afternoon. The employees often forgot to do this however, and many did not use the proper containers, often throwing trash in with the paper and throwing away cans and bottles in with the trash. From quick observations, it seemed that few, if any, recycled the maximum amount that could be recycled. As noted earlier, it was impossible to get accurate, meaningful data from simply measuring the height of trash on the barrels. The monitoring will be continued through May by the teens in the TASC program, which will then propose and implement improvements to the current recycling program.

4.10 Data Analysis

The two areas were monitored twice a week for a six-week period. As explained previously, measuring the only height of the barrels did not yield sufficient data, so we began measuring the weight in the second week of monitoring. The heights were still recorded for comparison. The amounts were recorded on a data sheet, which can be seen in Appendix E. The totals for the six-week period are presented in the following table:

	<u>Office (lbs)</u>	<u>Visitor (lbs)</u>	<u>Total (lbs)</u>
Trash	83.5	29.25	112.75
Paper	14.5	11.25	15.75
Cans and Bottles	10.2	6.6	16.8

Figure 4.4 Waste Totals

The average amount of waste produced in the office area per week was 13.92 pounds compared to the amount in the visitor area that was 4.88 pounds per week. However, the amount of waste collected from the visitor area might not be completely accurate. If the trash got too full during the weekend, presumably a janitor (not knowing of our program) emptied the trash.

The visitor area recycled a higher percentage of paper, cans, and bottles than the office area. The following charts show the percentages of each of the three bins of the total waste collected.

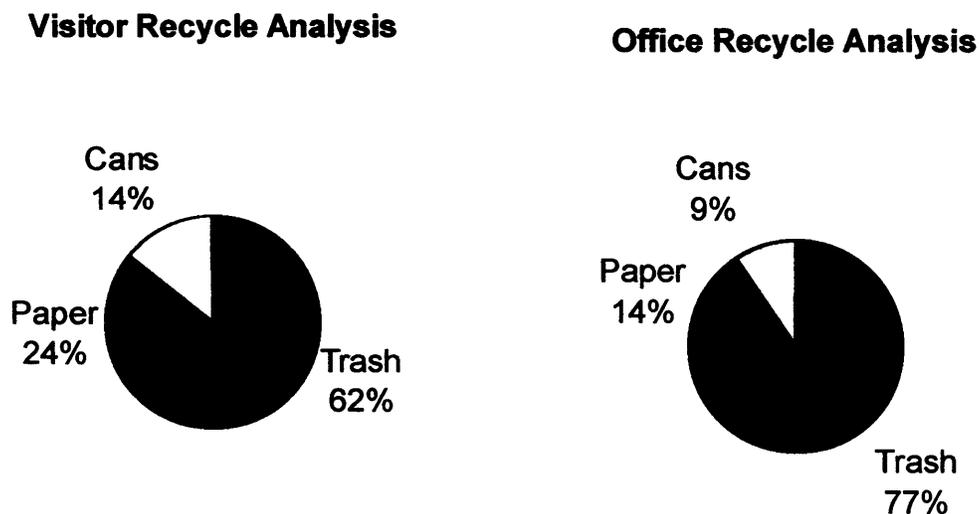


Figure 4.5 Visitor and office recycling percentages

The current recycling capabilities at the EcoTarium only allows for the recycling of refundable cans and bottles. To determine if it would be worth the extra money to recycle all of the cans, the amount of cans recycled were noted

as well as the number that had to be thrown away. The following bar graph shows the number of cans collected in each case.

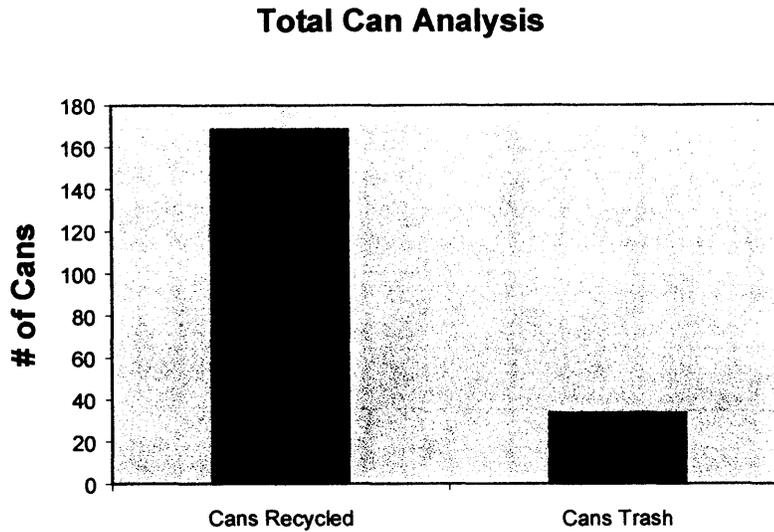


Figure 4.6
Can Analysis

The number of cans recycled per week was 37.3 and the number thrown away per week was 7.3 cans. In one year 380 cans are thrown away at the EcoTarium.

As seen in figure 4.5, the visitor area recycles more paper than the office area does. From these results, we were able to predict the total yearly average of waste and recyclables produced by the EcoTarium. The office area recycles 167 pounds of paper per year and the visitor area recycles 129 pounds of paper per year for a total of 296 pounds of paper per year for these two areas alone. Since there are two office areas, and three visitor floor levels, this would mean a total of 721 pounds of paper each year. There are approximately 30 employees in the office area. Each person in the office area produces 5.6 pounds of paper

per year, 32.2 pounds of trash per year and uses 11 cans, two of which are not recycled.

4.11 Summary and Conclusions

From our observations, it is apparent that there are several changes that need to be made to the EcoTarium's current recycling program. The most obvious change is in the materials that can be recycled versus what materials actually are recycled. Currently the only materials actually recycled at the EcoTarium are paper and cardboard. There are receptacles marked for plastic, aluminum and glass. However, the only materials actually recycled from these materials are refundable cans and bottles collected and returned by a museum volunteer. The rest of the materials are simply thrown away with the trash. From our monitoring, it appears that there is a large quantity of such materials (which we included in the trash measurements as it is being thrown away). The first step in improving the recycling program is to expand in the materials recycled, such as plastic, aluminum and glass.

The other significant problem with the current state of the program is that employees and volunteers are largely unaware of how the recycling program operates. The bins used to collect recycling are not labeled well, and therefore usually end up containing a mixture of trash and recyclables. In addition, there are not enough bins, and the few they have are not placed in advantageous locations. For example, it seemed that most people either did not think of recycling paper, or found it inconvenient to get up from their desks to find the

proper receptacle, and so instead threw a large amount of paper away in the trash. It was observed that the few people that did have both trash and paper bins at their desk seldom had paper in their trash when we collected it. Each person should have a recycling bin for paper at their desk, as this will encourage them to recycle. These bins also need to be well marked to avoid confusion. The employees and volunteers also need to be made more aware and educated about recycling. The TASC Ambassadors will be making a presentation to the staff regarding various issues of recycling. In addition, they will all receive brochures (Appendix D) indicating the current state of recycling at the EcoTarium.

Finally, in order to determine if any of the implemented changes are beneficial to the program, monitoring should be maintained, or resumed a few months after the changes are made to compare with current data to ascertain whether or not these changes are an improvement.

Chapter 5 – Conclusions

In order for this project to assist the EcoTarium, it was necessary to first research the two topics of interest, mentoring and recycling. The information that was gathered and presented in the background section, Chapter 2, provided us with some insight into how these types of programs are developed and run. In order to implement a mentoring program, it was important to glean information on how to recruit mentors, how to set goals and objective, and how to make the program effective and a success. These ideas then needed to be transferred from paper to the actual program. In the same manner, research completed on recycling was applied to examining and improving the EcoTarium's current recycling program. This information was "recycled" from other sources and incorporated into our project. Our results and conclusions will, in turn, hopefully be used by the museum in the future to make further changes and improvements.

Both aspects of this IQP relied on the recycling of materials. The mentoring program, which relied on other such programs as models, also recycled information between mentor and mentee. The mentors were able to pass on to their mentee's their experience and appreciation of science. They also served as models, by sharing their life experiences that the mentees can learn from. For the recycling program, the knowledge and experience gained by the teens will in turn be used to establish recycling programs in the community, so therefore the teens are giving back to the community that has helped them to learn and grow.

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Appendix A – Mentor Manual



Mentors Manual

Table of Contents

Program Description	1
Diversity & Youth	3
Mentoring Tips	9
Communication Skills	12
Goal Setting	15
Activities	19
Contact Information	25
References	26
Appendix I-	27
Mentor Evaluation Form	

EcoTarium

A Center for Environmental Exploration

TASC EcoTarium Mentoring Program

Program Description

- *Mission Statement*

The EcoTarium Mentoring Program seeks to provide underserved youth, between the ages of 14-18, with one on one guidance to help the mentees to prepare for and succeed in their future.

- *Mentor Description*

Mentoring is a one on one relationship that provides guidance to underserved youth in achieving the youth's goals and dreams. A mentor should serve as a positive role model in providing his/her support and encouragement to the mentee.

The EcoTarium Mentoring Program trial runs from January 2001 to June 2001. Mentors and mentees will interact at the EcoTarium during the TASC program. The Teen Action Science Crew (TASC) offers a safe and supportive atmosphere that will allow opportunities for adolescents to gain life skills and explore science, technology, and the environment while working as Museum Assistants. This program operates every Tuesday and Thursday from 2:00 - 5:00 p.m. Mentors will be expected to provide their mentee with the time and guidance needed to succeed in this program as well as in their future.

Specific goals of a mentor should be:

- Provide guidance in post high school opportunities, including college and career exploration.
- Be a trusting and supportive friend.
- Use experiences to encourage and promote learning
- Commit to providing the time necessary to help the mentee with his/her life skills decisions.
- Be a good listener

A mentor should not be:

- A parent or legal guardian
- A social worker
- A psychologist

It is more important for a mentor to act as a resource broker and show the mentee how to access the services and resources he or she needs than to provide the above services.

Qualities of a successful mentor are:

- Personal commitment to be involved with another person for an extended time period
- Respect for individuals and their abilities and their right to make their own choices in life.
- Ability to listen and to accept different points of view
- Ability to empathize with another person's struggles
- Ability to see solutions and opportunities as well as barriers.
- Flexibility and openness

There are four primary tasks of a mentor. The first is to establish a positive personal relationship with the mentee. This entails establishing mutual trust and respect through regular interaction and support. The second task is to help the mentee to develop or begin to develop life skills, by working with the mentee to accomplish his/her goals. The mentor should be able to encourage basic decision-making skills that will provide a foundation for the decisions the mentee will have to make in their future. The third task is to assist the mentee in obtaining additional resources. For this, the mentor should act only as a guide, and not a professional case manager, by encouraging and advising the mentee, rather than dictating what the mentee should be doing. The fourth task is to increase the mentee's ability to interact with people/places/things from various other backgrounds. The mentee should be encouraged to respect and explore the differences between people of different backgrounds.

Enjoy being a mentor and give it your best. Have fun; it is important that both of you enjoy this experience so that the most can be taken from it. If you both make the most of the partnership, and have fun, together you will be successful in achieving your goals.

Exploring and Valuing Diversity

This unit addresses one of the most critical training needs that has surfaced in surveys of mentors and volunteer coordinators: the need to help mentors deal with diversity. Some mentors talked about "culture shock" in reference to their initial apprehension and lack of familiarity with, and/or understanding of, the world from which their mentees came. When you think about it, it is normal and natural to feel a certain amount of apprehension about meeting someone for the first time, especially if it's expected that you will become a trusted friend. Add to that a significant difference in age, in socioeconomic status and/or in racial and ethnic background, and it is easy to understand why this is such a critical issue for mentors.

Toward a broad definition of cultural diversity

Many mentor programs prefer to match mentees with mentors who come from similar backgrounds in terms of race, socioeconomic status, etc. Often this is not possible, and mentors are matched with young people who may look and act very differently than they do and whose backgrounds and lifestyles may be dissimilar to their own.

Culture, in this sense, is more than race or ethnicity. It encompasses values, lifestyle and social norms and includes issues such as different communication styles, mannerisms, ways of dressing, family structure, traditions, time orientation, and response to authority. These differences may be associated with age, religion, ethnicity and socioeconomic background. A lack of understanding and appreciation of cultural diversity can result in mentors becoming judgmental, which may prevent the development of a trusting relationship.

What can you do?

As in many other situations, knowledge is the key to understanding. Below are descriptions and examples of different types of diversity issues. Each has the potential to cause misunderstandings between a mentor and a mentee. However, cultural understanding is not something you can learn exclusively from a textbook. Talk to your mentee about his or her background and ancestry, about what life is like at school or home or with his/her friends. Find out why s/he does and says the things s/he does. Your program director, other mentors, friends and coworkers may also have insights into cultural differences.

As you begin to learn and understand more about your mentee, you will be less likely to make negative value judgments. We hope that these few examples will help you become more knowledgeable about and encourage you to explore your mentee's cultural background.

Ethnic Diversity

If your mentee comes from a different ethnic background, learn about the values and traditions of that culture. Such things as the role of authority and family, communication styles, perspectives on time, ways of dealing with conflict, marriage traditions, etc. vary significantly among ethnic groups.

For example, people from Scandinavian and Asian cultures typically are not comfortable in dealing directly with conflict. Their approach to problems or disagreements is often more subtle and indirect. Consequently, a mentee from one of these cultures may find it difficult to discuss a problem with candor. Similarly, many Asian and Hispanic families place a high emphasis on respecting and obeying adults. For them, disagreeing with an adult, particularly a family member or in this case a mentor, is forbidden. Conversely, the role and style of communication of some African Americans is much more direct and assertive.

Many Asian cultures have unique courtship and marriage traditions. For example, a Hmong girl typically marries before age 18 and most often is expected to marry a Hmong man of her parents' choosing. She may have no choice about whom she marries.

Ethnic groups can also vary in terms of their beliefs about and orientations toward time. For instance, some Native Americans may follow an "inner" clock, which they believe to be more natural, rather than adhering to a predetermined agenda or timetable.

Families which have recently emigrated to this country often develop distinct reaction patterns. Second generation children, i.e., those who are the first generation to be born in a new country, typically react negatively to their parents insistence that they follow the "old ways." Children from this generation are often ashamed of their culture and their traditions. They may even be ashamed of their parents. Mentors can help their mentees celebrate the uniqueness of their culture by showing curiosity and interest in the history and traditions of their mentees' culture.

Obviously, these are gross stereotypes. They are described here only to demonstrate the range of diversity among different ethnic groups. It is your task as a mentor to learn about ethnic diversity from your mentee, from your observations, and from discussions with program staff so that you can better understand the context of your mentee's attitudes and behavior.

Socioeconomic Diversity

Oftentimes, mentors come from different socioeconomic backgrounds than their mentees. While one may have grown up on a farm, the other may never have been outside of the city. One may own a house, while the other may not know anyone personally who owns a new car, let alone a house. A mentee's family may move frequently, perhaps every few months, and may not have a telephone. A mentee may have to share a very small apartment with many people. A mentor must learn that many things s/he may have taken for granted are not necessarily common to all. These types of cultural differences are common between mentor and mentee and require time and understanding for an appreciation of their significance. Remember, however, that poverty is color-blind, i.e., many white people are poor, many people of color are not, and dysfunction can occur regardless of income, geographic location or level of education. Try not to make assumptions.

It is important to realize that there are psychological effects of chronic poverty. Some mentees may develop a short term "culture of survival" frame of mind. In the videotape, a mentor from the studio audience comments on how her mentee, who comes from a very poor family, spends large sums of money on frivolous things (the example she gives is \$100 jeans). Poverty often prevents people from believing that their future holds any promise of getting better. Saving money and investing in the future is a luxury they don't believe they have. Buying a pair of \$100 jeans when you don't have enough food to eat may very well be a function of the "take what you can get while you can get it" perspective which comes from chronic poverty. During a focus group interview with mentors, one participant mentioned whenever he was short on cash, he would feel compelled to go shopping and buy things he could not afford. This is perhaps analogous, albeit to a lesser degree, to the attitudinal effect of poverty.

Exploring and Valuing Diversity

Mentoring and Youth of Color

(This article discusses cross-culture vs. like-culture mentor/mentee matches.)

Many people maintain that youth of color need mentors of color not only because these adults represent the fruits of success, but also because only they can fully understand the youth's social and psychological experiences well enough to help them or act as models or figures of identification. These observers argue that youth of color are vulnerable to low self-esteem or have restricted views of their possibilities because of their environments and because they internalize the racial and ethnic attitudes of the larger society toward them. We also know, moreover, that to counter these destructive influences these youth internalize the regard and attitudes of teachers and mentors in their communities of the same race or ethnicity, who filter out belittling and fatalistic attitudes by sending them different messages.

Many youth of color also often must make conflicting choices between the values, accepted behaviors, and attitudes of their own group and those of the larger society. These youth must choose between assimilation, separation, and alienation from the larger society or a kind of biculturalism. They cannot easily remove themselves from their "home" environment, which, as has been suggested, may be a safer haven and more powerful to them than any special program. Not having the maturity or fully integrated identity, they need guidance and support to evaluate these choices, and many people feel that only a mentor of the same ethnic or racial group can understand this conflict well enough to truly help the youth.

It is true that mentors outside the youth's ethnic and cultural world cannot easily understand it. However, this does not mean that they cannot be good mentors. They can still offer good social support to the youth and recognize and foster the areas of the youth's competence and values, even if they do not completely recognize or understand their source. The mentor outside the youth's world also represents an alternate and larger world, which youth of color, like all youth, are seeking, no matter what they feel about their own worlds.

The social contact and the psychological engagement of the mentoring relationship also breaches the social distance between the mentor and youth from different social or ethnic environments. Both the characteristics and caretaking style of the mentor and the joint activities engaged in by the mentor and the youth have the potential of creating a common ground for mediating their cultural differences. But for the youth to be able to deal with the stress of the relationship, the mentor has to be able to permit conflict, even aggression, and to tolerate the youth's desire for connectedness on the one hand and personal and social autonomy on the other.

(Excerpt from Flaxman, Erwin. *The Mentoring Relationship in Action*. BRIEFS, Number 3, August 1992; a publication of The Institute for Urban & Minority Education, Teacher's College of Columbia University, New York.)

Youth Culture

Many of the characteristics of adolescence are normal, common, developmental traits and consequently don't vary significantly from one generation to the next. For instance, while many adults believe that, in general, teenagers are exceedingly more rebellious than they themselves were as young people, rebellion is a common (and perhaps necessary) ingredient in an adolescent's transition into adulthood. Most of us, as teenagers, dressed very differently—perhaps even outrageously—by our parents' and grandparents' standards. We did things our parents didn't do; we talked differently than our parents, etc.

Take the time to remember what it was like to be your mentee's age. If you think about the following questions, you'll find that much of what you went through at that age, your mentee is also going through:

For example, when you were in ___ grade:

What was a typical day like?

What was really important to you at that time?

What was your father/mother like? Did you get along? Were you close?

Think of your friends. Were friendships always easy or were they sometimes hard?

In general, did you feel as though adults typically understood you well?

However, it is also important to remember that some things, particularly sociological trends, do change dramatically and result in very different experiences from one generation to the next. There is significantly more alcohol and drug abuse today than there was when you were growing up (although, to be sure, alcohol and drug abuse have always existed); sexually-transmitted diseases are more common and more dangerous; crime and violence have drastically increased throughout the country particularly in urban areas; single-parent families have become more common while greater demands are being placed on all families.

One mentor talked about a conversation he had with his mentee about school dances, which for the mentor, were filled with fond memories of discovering dating and dancing. For the mentee, on the other hand, school dances were dangerous, as gunfire was a common occurrence. Obviously, it is important to be aware of these generational changes in lifestyle and children's coping responses to their life circumstances.

REMEMBER . . .

The following are some suggestions which may help you successfully handle diversity:

- Keep in mind that you are the adult—you are the experienced one. Imagine, for a moment, what your mentee must be thinking and feeling. In general, young people of all ages, but particularly teens, believe they are not respected by adults and worry about whether a mentor will like them or think they're stupid. They are coming to you for help and may already feel insecure and embarrassed about the problems in their lives. Thus, it is your responsibility to take the initiative and make the mentee feel more comfortable in the relationship.

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- It's also important to remember to **be yourself**. Sometimes, with the best of intentions, we try to "relate" to young people and try to use their slang and be like "one of the gang." Mentees can see through this facade and may find it difficult to trust people who are not true to themselves.
 - Furthermore, *you may learn a lot* about another culture, or lifestyle, or age group, but you will **never be from that group**. Don't over-identify with your mentee; s/he realizes you will never know exactly what s/he is feeling or experiencing. A mentee may actually feel invalidated by your insistence that you truly know where s/he is coming from. There is a big difference between the statements, "I know exactly what you're feeling" and "I think I have a sense of what you're going through." It is helpful to paraphrase what you think your mentee has said or is feeling and to give examples of similar situations which you have experienced.
 - If something about your mentee is bothering you, first determine whether the behavior is simply troubling to you because you would do it differently, or whether it is truly an indication of a more seriously troubled youth.

If, in fact you feel the troublesome situation facing your mentee is detrimental or harmful to him/herself or others, you have an obligation to discuss this with your program coordinator. The coordinator will know when and where to refer the young person for professional help. For example, if it is a serious problem — your mentee's abuse of alcohol and/or drugs, for instance — the program coordinator may refer the mentee to an adolescent drug abuse program. You will want to know what you should and should not do or say to your mentee. You are not expected to solve the problem or to be a therapist, but there may be situations where you can be helpful. For instance, your program coordinator might suggest that you actively support your mentee's attendance and participation in support groups, or s/he might suggest that you talk with your mentee about similar situations which you have either experienced or heard about and the ways in which these problems were successfully overcome. Get suggestions from your program coordinator about ways in which you can be helpful and supportive.

Some troublesome behaviors are not indicative of a serious problem, but are dysfunctional nonetheless. For example, being chronically late for appointments, adopting certain styles or ways of dressing or excessive swearing may have negative consequences. While your mentee has the right to dress, talk and be responsible as s/he sees fit, you can help by letting him/her know:

- How the behavior makes you feel
- What judgements others may make about the mentee as a result of the behavior
- The reactions and consequences s/he might expect from others

EXAMPLE: Let's say your mentee usually wears torn jeans and a leather jacket with signs and symbols on the back and is quite proud of his/her unusual hairstyle. Although these outward differences made you uncomfortable at first, you (being the great mentor that you are!) have gotten beyond these "troubling" aspects and realized that, in this case, "different" does not mean "bad person."

Now, your mentee is looking for a job. Initially, you have decided to say nothing about the impact of appearances during job interviews, but your mentee is having trouble getting a job. You might ask him/her such things as:

Why do you think you didn't get the job?

What do you think was the interviewer's first impression of you? What do you think gave him/her that impression?

Do you think the impression you gave is one which is helpful in getting a job? What can you do about this?

If you were 30 years old and owned a business, would you be hesitant to hire someone who looked and dressed in a way which was completely foreign to you?

You might also discuss ways in which your mentee could still keep his/her individuality and identity (both very important needs in adolescence) yet look more respectable to those s/he is trying to impress. A typical response from a young person might be to refer to the "hypocrisy" and "material values" of the adult culture. Don't mislead or misrepresent the truth — the fact is, like it or not, there are standards and norms in certain situations with which one is expected to comply.

Cultural Reciprocity

An important but often forgotten aspect of cultural diversity is the mutuality of the mentoring relationship, which is what we call cultural reciprocity. This phrase refers to the fact that mentors and mentees alike can benefit from their increased understanding of others who may at first seem unfamiliar.

For the mentor, a greater breadth and depth of understanding of others can facilitate better relationships at work, at home and in other social situations. As your mentee begins to trust and know you, s/he will begin to learn about life outside his/her limited circle of peers and s/he can discover new opportunities and alternative ways of doing things that s/he never knew existed: you can model diversity for your mentee. The more options we have, the better off we'll be.

Remember: Our lives are enriched by diversity!

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▶ NAVIGATING ROUGH SPOTS

Below are tips to help you work through trouble spots. Other sources to turn to are your program director or www.mentoring.org.

WHAT TO KNOW ABOUT

- **Teens care about adults' opinions.** Teens often worry that they are disliked or not respected by adults. Even though teens may occasionally seem nonchalant in attitude, your opinion is always important.
- **Youth culture has unique rules.** Young people often experiment with dress and behavior. You will need to distinguish typical, rebellious adolescent behavior from broader cultural differences.

- **Youths need validation.** Peer pressure and emerging sexuality are very real and confusing to teens. While these problems may at times seem trivial to you, recognize that they are very real to your mentee.
- **Some young people have difficulty succinctly expressing their innermost feelings.** Their emotions can be like a maze, and it may take them time to understand and unravel all that they are feeling.
- **As a mentor, you have a unique role.** You are not a parent, a principal or another, similar authority figure. The trust between a mentor and mentee is built on that premise. Established trust will move your mentee to confide in you.

- **All relationships have problems.** Changes in your mentee's life can affect her behavior around you. Adolescence is a particularly trying time. Peer pressure and insecurity can also come into play.
- **Occasionally, a mentee will have a serious problem.** Though this arises infrequently, you may be asked to help her with problems for which you are not qualified.

- Problems with friends and family
- Problems in school
- Problems at work

WHAT TO DO ABOUT

- **Understand your influence as an adult.** Recognize that your mentee has come to you for guidance. Always take his concerns seriously. Praise and censure only as appropriate.
- **Confront inappropriate behavior directly, but with care.** Some adolescents may refer to adult culture as "hypocritical" or "material." Explain to your mentee that like it or not, the adult world is made up of standards and norms with which one is expected to comply.

- **Establish productive communication.** If she is upset, don't trivialize her feelings. Ask her to tell you how she feels, then listen. Be sure to establish eye contact. Don't interrupt, and keep an open mind.
- **Help your mentee clarify his feelings.** Repeat back what he tells you. Ask questions to help him clarify what he means while he talks. But always pay attention, and stay focused.
- **Do not breach your mentee's confidence** unless absolutely necessary. If there ever comes a time when you feel a breach is unavoidable, first inform your mentee of your plans to talk to someone outside.

- **Don't expect perfection.** The majority of problems are not severe, and can easily be overcome. Just stay level-headed and calm. Be sure to use communication tools to get to the heart of an issue.
- **Recognize your limitations and do not exceed them.** You are not a psychologist, psychiatrist, drug counselor or social-service worker. Instead, connect your mentee with qualified, experienced specialists if the need arises.

- **Ask questions, but remember your role.** It is not your job to take the place of a young person's family. Help clarify his feelings, and give advice only when asked.
- **Assess the source of the conflict.** Is there one particular class your mentee finds troublesome? Does she have conflict with one teacher? Or does she need to develop better study habits?
- **Get all the facts.** A number of factors can contribute to dissatisfaction with a job. The problem could be anything from friction with the boss to boredom. Clarify the problem before trying to offer a solution.



► BUILDING TRUST

This section is intended to give you the skills you need to enter into a successful mentoring relationship. For more, go to www.mentoring.org.

WHAT TO KNOW ABOUT

• A mentor is not a hero. A mentor is not a social worker, a moneylender or a disciplinarian. A mentor is not expected to take over parenting.

• Formal mentoring programs often rigorously screen potential mentors. Common steps include fingerprinting, an interview and a background check.

- You will encounter differences. Mentees often differ from their mentors in age, racial or ethnic background and/or in socioeconomic status.
- Diversity is a two-way street. You may represent a different world to your mentee. For example, your mentee may know of no one else who has a career like yours.
- Poverty has its own culture. Many young people come from economically deprived backgrounds.

- It takes time to get to know someone. In your initial meeting, you want to have enough time to get to know your mentee. On the other hand, you don't want to force a premature friendship.
- Your mentee may be shy. He may be intimidated by new surroundings. He may wonder what to say to you, or be concerned that you will not find him interesting.

- Your mentee may initially be unresponsive. Some mentees are used to disappointment when dealing with adults. As a result, some mentees initially may not return your calls, and may not seem enthusiastic upon meeting you.
- You may be tested. She may test you to see if you will become angry. She may ask you questions you do not feel comfortable answering.
- Building trust requires work. In general, younger or less traumatized children are able to bond with an adult more quickly than older or abused children.
- Young people need privacy. Even as they crave guidance, they are striving for autonomy.

WHAT TO DO ABOUT

• Recognize that a mentor is a caring and concerned adult. A mentor is an advocate for the needs of a young person. A mentor is a listener and a guide.

• Understand that a screening process protects you and your future mentee. Organizations with screening programs are also generally equipped with support systems.

- Don't be afraid of diversity. Take time to get to know your mentee, and his or her "differences" will no longer be so apparent.
- Share your culture. Young people are curious. Answer questions with patience and candor. Use this questioning and answering as a means to build trust.
- Be understanding and nonjudgmental. Your mentee may come from a world very different from your own. Don't make judgments, and your relationship will develop trust.

- Plan an activity that will take an hour or two. Avoid activities that limit opportunities for conversation. Opt for a more social outing like going to the zoo or performing a community-service project.
- Be patient. To initiate conversation ask questions like: "How many brothers and sisters do you have?" and "What is your favorite TV show?"

- Demonstrate your dependability. Don't make promises you can't keep, and try not to break appointments. When you set and fulfill realistic expectations, your mentee will learn to trust you.
- Walk the middle ground. You don't want to be a disciplinarian or a pushover. Discuss disturbing behavior, but make sure your mentee understands that you care.
- Remain patiently committed. In some instances it will be a matter of months before your mentee opens up. By repeatedly showing your commitment, you will gain his trust.
- Don't force discussions about personal issues. Ask questions to give your mentee the opportunity to communicate. But don't pry.

► EXPLORING POSSIBILITIES

Once you and your mentee have bridged initial differences, you are ready to set goals and enjoy activities. For more information, go to www.mentoring.org.

WHAT TO KNOW ABOUT

- Mentoring is not just about friendship. It would be inappropriate for a mentor and a mentee to exchange confidences as equals.
- Many young people lack focus. They may have many interests, but may have difficulty concentrating for long periods.
- Young people need positive reinforcement. Some youths may have suffered neglect in school. As a result, they may not believe they are capable of reaching their potential.
- Your commitment to the goals may be tested. You may be the first person in your mentee's life to show an interest in his growth and progress. As a result, he may test you.

- Many young people lack life skills. Money management and time management may be second nature to you, but may be foreign concepts to your mentee.
- Your mentee may be unfamiliar with hallmarks of the modern world. He may not have the opportunity to access the Internet and computers.

- Successful mentoring relationships are youth-driven. The key is to collaborate on all decisions. This is true when choosing long-term goals and individual activities.
- Unsuccessful mentoring relationships are prescriptive. The mentor is determined to achieve specific goals regardless of what the mentee may want.

- Simple, enjoyable time is a vital part of the relationship. In fact, for some kids the time with you is the only time they get to enjoy the company of an adult.

- Your mentee may not be aware of career possibilities. Friends, family or peers may unintentionally limit your mentee's knowledge of the world.
- Some mentors overdo the role of career counselor. A mentor may make the mistake of trying too hard to push a mentee in a particular direction.
- Your mentee may be interested in a specific career but may not know how to pursue it.

WHAT TO DO ABOUT

- Remember that you are the adult. Base your relationship around clearly defined goals. This ensures that your relationship is purposeful.
- Provide explicit direction. It may be useful to draw up a "contract" for the relationship. Then assess progress and pitfalls every month.
- Reward each accomplishment. You may want to award your mentee a certificate of achievement. Enjoyable activities like eating ice cream are also good treats.
- Be consistent and predictable. Relationships can be damaged by mixed messages. If you once reward your mentee, make sure you do so every time.

- Look for "teachable moments." If your mentee is chronically late, design a plan to help her manage her time. Teach younger children how to plan homework time.
- Improve technology skills. Find out your mentee's interests, and help him gather related information from the Internet.

- Always be open to suggestions. Be sensitive to your mentee's interests. Even if your mentee is shy, include her in the activity-choosing process.
- Realize your limitations. Talk with your mentee and determine his priorities. Then turn those priorities into goals and help actualize them.

- Try to achieve balance. If your program allows for field trips, don't feel guilty about going to the movies instead of a museum. Just don't let goals fall by the wayside.

- Help broaden your mentee's horizons. If you work in an office, bring your mentee in for a tour. Talk to her about your job.
- Don't dictate your mentee's career. Help develop his strengths instead. Does he like to build things? Try to introduce him to an architect or an engineer.
- Help open doors. Use the contacts you have to help expose your mentee to the professional world.

Communications Skills

Examples of “Roadblocks” to Effective Communication

The following, while not always bad to use, have a tendency to “close down” communication rather than “open up” communication, and should be avoided in conversations with mentees.

1. Ordering, directing, commanding

Telling the child to do something; giving the child an order or command

“I don’t care what other children are doing - you have to do the yard work!”

“Now you go back up there and play with Ginny and Joyce!”

“Stop complaining!”

2. Moralizing, preaching - should’s and ought’s

Invoking vague outside authority as accepted truth

“You shouldn’t act like that.”

“You ought to do . . .”

“Children are supposed to respect their elders.”

3. Teaching, lecturing, giving logical arguments

Trying to influence the child with facts, counter-arguments, logic, information, or your own opinion:

“College can be the most wonderful experience you’ll ever have.”

“Children must learn to get along with one another.”

“Let’s look at the facts about college graduates.”

“If kids learn to take responsibility around the house, they’ll grow up to be responsible adults.”

“When I was your age, I had twice as much to do as you.”

4. Judging, criticizing, disagreeing, blaming

Making a negative judgment or evaluation of the child

“You’re not thinking clearly.”

“That’s an immature point of view.”

“You’re very wrong about that.”

“I couldn’t disagree with you more.”

5. Withdrawing, distracting, sarcasm, humoring, diverting

Trying to get the child away from the problem; withdrawing from the problem yourself, distracting the child, kidding the child out of it, pushing the problem aside:

“Just forget it.”

“Let’s not talk about this at the table.”

“Come on - let’s talk about something more pleasant.”

“Why don’t you try burning the school building down?”

“We’ve all been through this before.”

(Excerpted from Parent Effectiveness Training by Dr. Thomas Gordon)

Communications Skills

Open Ended Questions

Open ended questions are intended to collect information by exploring feelings, attitudes and how the other person views a situation. Open ended questions are extremely helpful when dealing with young people. Youth, teenagers especially, tend to answer questions with as few words as possible. In order to maintain an active dialogue without interrogating, try to ask questions which cannot be answered with a “yes”, “no”, “I don’t know”, or a grunt.

Examples:

“How do you see this situation?”

“What are your reasons for . . .?”

“Can you give me an example?”

“How does this affect you?”

“How did you decide that?”

“What would you like to do about it?”

“What part did you play?”

Note: Using the question, “why did you do that?” may sometimes yield a defensive response rather than a clarifying response.

Results:

Since open ended questions require a bit more time to answer than closed ended questions (questions that can be answered by “yes”, “no”, or a brief phrase), they give the person a chance to explain. Open ended questions yield significant information which can in turn be used to problem-solve.

Communications Skills

Active Listening

An attempt to truly understand the content and emotion of what the other person is saying. This is done by paying attention to the verbal and non-verbal messages. The task is to focus, hear, respect, and communicate your desire to understand. This is not the time to be planning a response or conveying how you feel.

Active listening is NOT: nagging, cajoling, reminding, threatening, criticizing, questioning, advising, evaluating, probing, judging or ridiculing.

What skills are used?

1. Eye contact
2. Body language, for example: open and relaxed posture, forward lean, appropriate facial expressions, positive use of gestures, etc.
3. Verbal cues such as “Um-hmmm”, “sure”, “ah”, “yes”, etc.

What are the results of Active Listening?

1. Encourages honesty — helps people free themselves of troublesome feelings by expressing them openly
2. Reduces fear — helps people become less afraid of negative feelings
3. Builds respect and affection
4. Increases acceptance — promotes a feeling of understanding
5. The first step toward problem solving — “negotiating from the heart”

When you actively listen, you cooperate in solving the problem — and in preventing future problems.

SETTING GOALS FOR THE RELATIONSHIP

Once the relationship has been established, and the trust and confidentiality of the relationship are understood, mentor pairs can begin to outline goals for the relationship and the year ahead.

- Mentor pairs can draw up a "contract" for their relationship, outlining each person's personal, social and educational goals for the year.
- Each month the pairs can assess their progress and pitfalls, charting the results, and reaffirming (or reassessing) the value of the goals.
- For each measure of accomplishment, mentors and mentees can reward each other with a certificate of achievement, a special outing, or an ice cream cone!

Mentee's goals must be their own, not goals that others have set for them which they feel obliged to dredge up for you. It doesn't matter how outrageous these goals may seem at first -- we all have outrageous fantasies we would like to live out. What is important is that the goals belong to the mentee. Once they are set out, mentors can show mentees how to break down every large goal into small achievable steps.

For instance, a mentee who decides that she wants to live in a mansion one day can learn how a good education will lead to job opportunities in which she could earn enough money to live in a mansion. The mentor pair could explore careers and the education required for these career choices. In this way, a goal that may seem unrealizable can be transformed into smaller, realizable goals; and the mentee still feels that they are hers. Mentors can use every goal set down by the mentee as an access to learning.

A goal should be:

Conceivable: You must be able to conceptualize the goal so that it is understandable and then be able to identify clearly what the first step or two would be.

Believable: In addition to being consistent with your personal value system, you must believe you can reach the goal. This goes back to the need to have a positive, affirmative feeling about oneself. Bear in mind that few people can believe a goal that they have never seen achieved by someone else. This has serious implications for goal-setting in economically-depressed areas.

Achievable: The goals you set must be accomplishable with your given strengths and abilities. For example, if you have never exercised regularly, it would be foolish for you to set the goal of running the four-minute mile in the next week -- that simply would not be achievable.

Controllable: If your goal includes the involvement of anyone else, you should state it so that at least your part is achievable, and that another person's cooperation -- or lack of it -- won't interfere with your achievement. For example, if your goal were to get a paper route, you might find that there are no routes available now, or that your parents object. However, if your goal is to state the case to your parents for getting a paper route, or to find out what part-time jobs are available in your area for someone your age, you can achieve either goal regardless of the ultimate outcome.

Measurable: Your goal must be stated so that it is measurable in time and quantity. For example, if your mentee's goal is to pass English, the goal should include components necessary to pass the class: the number of assignments to be completed, when the quizzes are and how much time is needed to study for them, which chapters should be read and by when. That way, the mentee can gage her progress day by day or week by week.

HANDOUT GS-1

Desirable: Your goal should be something you really want to do. Whatever your ambition, it should be one that you want to fulfill, rather than something you feel you should do. Of course, there are many things in life we have to do -- earn a living, provide for a family if we choose to have one -- but to be highly motivated, we must commit a substantial percentage of our time to doing things we want to do. In other words, there should be a balance in life, but the "want" factor is vital to changing our style of being and living.

Stated with No Alternative: You should set one goal at a time. Our research has shown that a person who says he wants to do one thing or another -- gives himself an alternative -- does neither. This does not imply inflexibility. Flexibility in action implies an ability to be able to make a judgment that some action you are involved in is either inappropriate, unnecessary, or the result of a bad decision. Even though you may set out for one goal, you can stop at any time and drop it for a new one. But when you change goals, you again state your goal without an alternative.

Growth-Facilitating: Your goal should never be destructive to yourself, to others, or to society. A student recently set a goal to break off fourteen car antennas before 9:00 a.m. the next day. The goal was certainly believable, achievable, measurable, and so forth, but obviously such a goal cannot be supported. If a student is seeking potentially destructive goals, mentors should encourage her to consider different ones.

Adapted from Choose Success: How to Set and Achieve All Your Goals, by Dr. Billy B. Sharp with Claire Cox (New York: Hawthorne Books, 1970).

HANDOUT GS-2

THE BENEFITS OF GOAL SETTING

LONG-TERM GOAL SETTING

SELF PROGRAMMING:

- * Encourages a problem-solving approach to obstacles
- * Tempers choice between life options
- * Makes you clean up your act
- * Draws information
- * Encourages development of discipline
- * Forces clear conceptualization of what you want to do

SHORT-TERM GOAL SETTING

- * Encourages opportunism
- * Mobilizes energies -- immersion
- * Organizes performance behavior

MODULE 2: GOAL SETTING

A GOOD GOAL SHOULD HAVE THE FOLLOWING CHARACTERISTICS

- * It should be realistic (if it is too difficult, it will lead to frustration and defeat).
- * It should be challenging (if it is too easy, there is little incentive to achieve it and little reward in getting there).
- * It should have a deadline (or there may be a tendency to put off completing it).
- * It should be specific (so that you know what it is you want to do).
- * It should be obtainable (so that you know when you have gotten there).

You must be committed to your goal. The best-laid plans in the world will never be achieved unless there is a real commitment.

From Partners for Success, Volunteer Mentor Orientation and Training Manual, Module 2: Goal Setting, published by The Enterprise Foundation.

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These are some great websites to check out with you mentee:

College/Financial Aid

www.kaplan.org

www.collegebound.com college info, brochures, scholarships...

www.collegesurfing.com college profiles and research

www.collegescholarships.com

www.collegenet.com

www.ed.gov/pubs/YesYouCan

Career Search

www.mapping-your-future.org

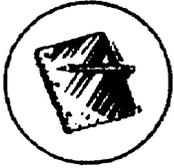
www.myriad.com

Also, be sure to check out “How to be a Great Mentor” at www.mentoring.org. This site has great mentoring tips, chat rooms and links, including the links listed on the next page.

Be sure to take the “Mentor Skills” quiz!

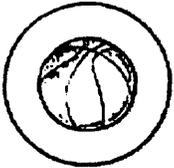
Links

Here are some sites for you to explore interests with your mentee on the world wide web!



College

- Scholarships: www.fastweb.com
- 2001 Colleges: www.college-scholarships.com
- Scholarly Stuff: www.scholarstuff.com
- Test Preparation & Educational Services: www.kaplan.com



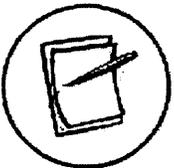
Sports

- Sports reporting and web pages by fans: www.Allsports.com
- ESPN SportsZone: www.espn.go.com
- Sports Illustrated: www.cnnsi.com
- CBS SportsLine: www.sportsline.com
- Fox Sports: www.foxsports.com



Resumes/Internships

- Resume and Interviewing Information for Teens: www.bygpub.com
- Teen Resumes: www.teenresumes.com
- Intern-NET: www.InternshipPrograms.com
- National Interships: www.internships.com



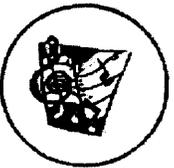
Newspapers/Magazines

- A Journal for Teenagers: www.technoteen.com
- LA Times: www.latimes.com
- NY Daily News: www.nydailynews.com
- The Washington Post: www.washingtonpost.com
- Vibe Magazine: www.vibe.com



Encyclopedia/Information

- Electronic Library: www.elibrary.com
- Internet Encyclopedia: clever.net/cam/encyclopedia.html
- Encarta: www.encarta.com
- Biography: www.biography.com



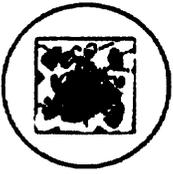
Movies/Music/General Interest

- Mr. Movie Phone: www.moviephone.com
- Movie Reviews, News and Trailers: www.film.com
- Bolt: www.bolt.com
- Rolling Stone: www.rollingstone.com



Astronauts/Space Exploration

- Astronauts: www.nauts.com
- Space Exploration: www.NASA.gov



Fashion

- Fashion Live: www.worldmedia.fi/fashion
- Fashion Icon: www.fashion-icon.com

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Activities

Here are some activities for you and your mentee to explore!

- Investigate new things that will be happening in the community in the new millennium. Discuss what will affect each of you.

- Do a service project together, serving lunch in a soup kitchen or collecting cans of food for a food drive.

- Go ice-skating (or in milder climates) roller-skating!

- Take in a high school basketball game.

- Create a time capsule. What would each of you want future generations to know? Pick a place to bury it with instructions for when it should be opened.

- Build a birdhouse or bird feeder for the winter birds.

- Visit your local cider mill for fresh cider and doughnuts.

- Check your local parks and recreation department for fall foliage walks or activities.

- Research political positions and candidates who will be on the ballot in November.

- Explore your community on bikes. Take a picnic lunch and enjoy the fall weather.

- Learn how to make bread from scratch.

- If your mentee has begun attending a new school, talk about what is different and what is the same. Share your own experiences with new schools and settings.

- Check local college and high school sports schedules and choose an event to attend.

- Check out lesser-known sports such as field hockey, rugby or rowing. Some colleges may have youth days or special activities through their athletic departments for community members.

Fly a kite.

-

Help your mentee look for an after-school job.

-

- Visit antique, costume or second-hand stores and brainstorm ideas for Halloween costumes.

- Visit your city's web site for a list of free summer activities like concerts or plays in the park, festivals and fairs. See who can come up with the longest list of activities.

- Pretend you are tourists in your city. Visit the typical sites and write a letter to the editor of the local paper or city magazine about the experience.

- Go to a baseball game. If your workplace has a softball team, invite your mentee to a game.

- Initiate a discussion with your mentee about dream vacations. Describe your dream vacation and ask him to do the same.

- Visit the site of your first job, or a place that reminds you of that first job and discuss it with your mentee.

- Ask your mentee what she is looking forward to most during the school year and to describe the one thing she most wants to accomplish. Tell her what you want to accomplish during the same time period.

Visit your state or county fair.

-

Volunteer together to mow an elderly or disabled person's yard.

-

If you like to plan ahead, invite your mentee to help you make holiday gifts for friends and relatives.

-

Visit a "You Pick it Farm," to pick the latest vegetables and fruits.

-

- Check out United Airlines' new VolunteerMilessm program offering college students 5,000 Mileage Plus points as incentive and reward for mentoring a young person in their community.

- Develop a story for a contest featured on the Straight Scoop News Bureau www.straightscoop.org. Mentor and mentee pairs can enter a contest to win a trip to interview the L.A. Lakers or visit the set of the hit teen T.V. show Dawson's Creek.

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Emergency Help Numbers

Carmen Melendez-Quintero

(508) 929-2766

EcoTarium Youth Coordinator

Carmen@ecotarium.org

Emergency:

Emergency

911

Worc. Police Dept.

799-8600

Abuse:

Child Abuse and Neglect Report Line

800-543-7508

Mass Dept. of Social Services (DSS)

929-2000

Children's Services:

Worcester Youth Center

791-4701

Crisis Intervention:

National Runaway Hotline

800-621-4000

Rape Crisis Center

799-5700

Emergency Mental Health

856-3562

Health:

AIDS Project Worcester

755-3773

National AIDS Hotline

800-342-2437

YO Line (Teen AIDS Info)

800-235-2331

STD Testing

854-3300

Mental Health/Counseling:

Children's Friend

753-5425

Worcester Youth Guidance Center

791-3261

YOU Inc.

849-5600

Worcester Pastoral Counseling Center

757-0376

Education:

Worcester Public Schools

799-3116

Colleges of Worcester Consortium

754-6829

Employment/Training

Career Counseling Center

767-2505 x3010

Mass. Division of Employment & Training

791-8551

References

1. The Mass Mentoring Partnership's Mentoring Institute. "Mentoring A-Z Training Manual". 2000.
2. The Mentoring Center web page. <http://www.mentor.org>. November 2000.
3. Partners for Success, Volunteer Mentor Orientation and Training Manual, Module 2: Goal Setting.
4. Rizio-Hamilton, John. "It's a Match" Newsweek: How to be a Great MentorGuide 2000.
5. United Way web page. "How to Find Help". <http://www.unitedwaycm.org>. November 2000.
6. Youth Alive! Directory of Programs. Association of Science-Technology Centers, Inc. 1999.

Evaluation Form for Mentors

1. How would you rate the mentoring program as a whole?

Excellent Very good Good Poor

2. Would you volunteer again as a mentor at the EcoTarium?

Yes Probably Not sure No

3. How would you describe the relationship between mentor and mentee?

4. What did you like and what didn't you like?

5. What would you suggest to improve the mentoring program?

Appendix B – EcoTarium Mentor Application and Mentee Questionnaire

EcoTarium Mentor Application

General Information

Name: _____ Date: _____

Home Address: _____

Home Phone Number: () _____ Business Phone Number: () _____

E-Mail Address: _____ Best Place of Contact: _____

Occupation: _____

Male Female

Race (optional) Asian/Pacific Islander

African American

Hispanic

Religion (optional): _____

Caucasian

Native American

Southeast Asian

Languages: _____

Other _____

Personal Information

1. List any experience with mentoring and volunteering, particularly youth.

2. Why are you interested in mentoring?

3. List education.

4. Please List Job Experience

Employer _____

Address _____

How long have you worked there? _____

Employer _____

Address _____

How long have you worked there? _____

Employer _____

Address _____

How long have you worked there? _____

5. How would you describe yourself?

Outgoing Shy Funny Serious

Loud Quiet Creative Logical

6. What qualities/experiences do you possess that would be beneficial to the mentees?

7. How do you like to spend your free time? (helps with our matching process)

Read What type of books _____

T.V. Which T.V. programs _____

Exercise What type of exercise _____

Sports Which sports do you like _____

Music What type of music _____

- Go to the Arcade/Video Games
- Movies What type of movies _____
- Collections What type of collection (ex. baseball cards) _____

- Shop Where do you like to shop _____

8. Please list any preferences you have concerning your mentee:

- Mentee: Male Female
- Same Race as you
- Same activities as you
- Same personality as you

References:

Name _____

Address _____

Phone (H) _____ Phone (W) _____

Name _____

Address _____

Phone (H) _____ Phone (W) _____

EcoTarium Mentee Questionnaire

General Information

Name: _____

Date: _____

Home Address: _____

Home Phone Number: () _____

Male Female

Languages: _____

Religion (optional): _____

- Race (optional) :
- Asian/Pacific Islander
 - African American
 - Hispanic
 - Caucasian
 - Native American
 - Southeast Asian
 - Other _____

Personal Information

1. As a mentee, how would you like to benefit from a mentoring program.

2. How would you describe yourself?

- Outgoing Shy Funny Serious
 Loud Quiet Creative Logical

3. Do you have any education or career goals? If so, list them.

4. How do you like to spend your free time? (helps with our matching process)

- Read What type of books _____
- T.V. Which T.V. programs _____
- Exercise What type of exercise _____
- Sports Which sports do you like _____
- Music What type of music _____
- Go to the Arcade/ Video Games
- Movies What type of movies _____
- Collections What type of collections _____
- Shop Where do you like to shop _____

Appendix C – Surveys

Recycling Surveys

Survey 1

Thank you for filling out the recycling survey! This is just a way for us to learn how our recycling efforts at the EcoTarium are doing. The answers to these questions will help us design a new recycling program for the center. Please answer all these questions to your current knowledge. Please return the survey to Sarah Cross (x752) and if you have on a questions feel free to contact Sarah. Thank you.

1. For which products are there separate recycling containers available in your department?
2. Where are these containers located?
3. Are they clearly marked?
4. Which product is recycled the most by your department?
5. How much of the product from question 4 is produced each month?
6. Who is in charge of recycling in your department?
7. How often is the recyclable material picked up?

8. Where do the recyclable materials go after pick up from your department?
9. What is difficult to recycle in your department?
10. Are there any special costs associated with recycling in your department?
11. Are there any special recycling concerns in your department?
12. Is the waste management procedure difficult in your department?
13. How many pieces of paper per day do you use?
14. Do you recycle all of your paper?
15. How many cans or bottles per day do you produce?
16. What other items would you like to see recycled?
17. Is access to the recycling bins limited?

Jen

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: Jen

Department: Wildlife

General Questions

1. For which products are there separate recycling containers available in your department? Please list: we have one trash barrell, but do seperate paper/cardboard into the other dumpster.
2. Where are these containers located?
front animal room.
3. Are they clearly marked and organized?
4. What recyclable product is most generated by your department?
card board boxes
cans
food scraps
5. Approximately how much of this product is generated each month?
depends on the month.
6. Who is in charge of recycling in your department?
Staff and volunteers/interns
all dump garbage.

7. How often are recyclable materials picked up?

w^o. dump our own.

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

cans
food scraps

9. What is difficult to recycle in your department?

10. Are there any special costs associated with recycling in your department?

no

11. Are there any special recycling concerns for your department?

no

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

Department Specific Questions

1. What is done with animal waste? bagged and dumped.

2. What is done with extra animal food? bagged and dumped.

3. What is done with the paper used to line carriers when animals are on the floor?

papers covered in waste are dumped.
(along w/ shavings and hay that are dirty).

4. Do you use any recyclable products in enrichment activities?

cardboard tubes (toilet paper/ paper towels).
milk cartons

5. Please offer any final comments you might have about recycling in your department or the EcoTarium.

Composting animal waste is not an option due to USDA regulations.

The possibility of food scrap composting is good as long as it's emptied daily.

A container for paper recycling, cans (tuna, sardines) would be nice too.

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name:

Department:

General Questions

1. For which products are there separate recycling containers available in your department? Please list:

paper

2. Where are these containers located?

in each office

3. Are they clearly marked and organized?

no

4. What recyclable product is most generated by your department?

white paper

5. Approximately how much of this product is generated each month?

2-3 reams

6. Who is in charge of recycling in your department?

no one

7. How often are recyclable materials picked up?

2-3 weeks

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

don't know

9. What is difficult to recycle in your department?

Soda cans Cardboard

10. Are there any special costs associated with recycling in your department?

don't think so

11. Are there any special recycling concerns for your department?

we hate wasting so much paper
but it comes with the territory

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

no space

Department Specific Questions

1. How much paper do we order each year?

don't know

2. What types of paper products are most used?

white + stationery

3. Do we use any recycled paper? How much post consumer waste does it contain?

I believe it all is - don't know

4. How much paper containing dyes is used?

10%

5. What company do we order the majority of our paper products from?

?

6. How many brochures are produced each year?

?

7. What products are recycled at birthday parties?

?

8. Do we supply cups, napkins, and plates? Are they made with recycled materials?

?

9. What is done with decorations and wrapping paper?

?

10. How is recycling at special events handled? Are we responsible for cleanup?

not separated as far as I know

11. Do we provide separate containers for recyclables at these events?

not usually

12. What is done with the maps and daily schedules available at the visitors center?

?

13. Please offer any final comments you might have about recycling in your department or the EcoTarium.

we could be more careful!

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: *Sandy Congdon*
Department: *V.S*

General Questions

1. For which products are there separate recycling containers available in your department? Please list:

Paper, Cans

2. Where are these containers located?

Paper containers are in the copy room and in most people's offices. Soda Cans are put in a basket near the

3. Are they clearly marked and organized?

Yes

4. What recyclable product is most generated by your department?

Paper

5. Approximately how much of this product is generated each month?

2

6. Who is in charge of recycling in your department?

No one

7. How often are recyclable materials picked up?

2-3 times a week for paper

Soda Cans - once every 2-3 wks

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

Who knows? The only thing I'm sure about are the Soda Cans because I take Wally to cash them in.

9. What is difficult to recycle in your department?

Plastic.

10. Are there any special costs associated with recycling in your department?

No

11. Are there any special recycling concerns for your department?

No

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

Only that I'm not sure it's really being done.

Department Specific Questions

1. How much paper do we order each year?

?

2. What types of paper products are most used?

Paper for the printer

3. Do we use any recycled paper? How much post consumer waste does it contain?

Yes, we do. ?

4. How much paper containing dyes is used?

?

5. What company do we order the majority of our paper products from?

?

6. How many brochures are produced each year?

?

7. What products are recycled at birthday parties?

paper, soda cans - but again, plastic is a problem.

8. Do we supply cups, napkins, and plates? Are they made with recycled materials?

Yes - probably not

9. What is done with decorations and wrapping paper?

decorations are saved for reuse.

~~Decorations are saved for reuse.~~ Wrapping paper is probably not recycled.

10. How is recycling at special events handled? Are we responsible for cleanup?

Poorly.

- Yes

11. Do we provide separate containers for recyclables at these events?

Sometimes

12. What is done with the maps and daily schedules available at the visitors center?

Recycled

13. Please offer any final comments you might have about recycling in your department or the EcoTarium.

I feel we don't do enough recycling and although I try to separate items I feel unsure of how they're handled after they leave my hands.

At Jazz we used to toss wine bottles into the general trash until I asked to have a special barrel labeled "glass." It looks good to our visitors but I bet it gets tossed in with everything when the event is over.

Regarding plastic - I often take plastic home to recycle it there because I don't want to throw it away here.

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: Carol Lucke
Department: Programs

General Questions

1. For which products are there separate recycling containers available in your department? Please list: I ~~believe~~ believe just paper. I just moved over to a new location
2. Where are these containers located?
outside ~~ee~~ my office
3. Are they clearly marked and organized?
no
4. What recyclable product is most generated by your department?
paper
5. Approximately how much of this product is generated each month?
maybe 50 sheets
6. Who is in charge of recycling in your department?
no one that I know of
7. How often are recyclable materials picked up?
every couple of days
8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?
I dont know.

9. What is difficult to recycle in your department?

*I am not sure my needs are different
mine are mostly paper*

10. Are there any special costs associated with recycling in your department?

Don't know

11. Are there any special recycling concerns for your department?

not that I am aware

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult? *no*

Department Specific Questions

1. How much paper do we order each year?

I use a lot of paper

2. What types of paper products are most used?

Copier paper

3. Do we use any recycled paper? How much post consumer waste does it contain?

yes - ?

4. How much paper containing dyes is used?

not sure

5. What company do we order the majority of our paper products from?

?

6. How many brochures are produced each year?

?

7. What products are recycled at birthday parties?

?

8. Do we supply cups, napkins, and plates? Are they made with recycled materials? *yes - I don't know if they are made w/ recycled materials*

9. What is done with decorations and wrapping paper? *?*

10. How is recycling at special events handled? Are we responsible for cleanup? *?*

11. Do we provide separate containers for recyclables at these events? *?*

12. What is done with the maps and daily schedules available at the visitors center? *?*

13. Please offer any final comments you might have about recycling in your department or the EcoTarium.

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: Christene F.
Department: Programs

General Questions

1. For which products are there separate recycling containers available in your department? Please list:

In the curator's offices, we have one recycling bin for paper.

2. Where are these containers located?

in office area of curator's offices.

3. Are they clearly marked and organized?

NO

4. What recyclable product is most generated by your department?

Paper, cardboard

5. Approximately how much of this product is generated each month?

Lots!!!!

6. Who is in charge of recycling in your department?

I do not know.

7. How often are recyclable materials picked up?

It is very random - sometimes every week, other times, a few weeks can pass. (But our trash is picked up every night).

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

I don't know.

9. What is difficult to recycle in your department?

paints, glue, batteries, cans, paper

10. Are there any special costs associated with recycling in your department?

Don't know?

11. Are there any special recycling concerns for your department?

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

Not knowing what can be recycled, where to bring it.

Department Specific Questions

1. Are our brochures made with recycled paper?

? (I think so).

2. What is done with the paper generated by the table activities?

?

3. How is recycling at special events handled? Are we responsible for cleanup?

?

4. Do we provide separate containers for recyclables at these events?

?

5. Have any programs on recycling been developed in the past?

?

6. Has there ever been a recycling exhibit?

?

7. How are art supplies such as paint and glue disposed of?

?

8. Are the containers refilled?

?

9. Are there any products unique to the Planetarium which are recycled or difficult to dispose of?

10. Please offer any final comments you might have about recycling in your department or the EcoTarium.

- we need more information about current recycling.
- we need to also think about re-using + not only recycling
- incentives for recycling?

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: Dolores Root
Department: Exhib. Progs

General Questions

1. For which products are there separate recycling containers available in your department? Please list:

Paper
aluminum & glass

2. Where are these containers located?

education office
admin kitchen
Admin - mail room

~~per~~ indiv. offices - Paper

3. Are they clearly marked and organized?

~~Yes~~ Some

4. What recyclable product is most generated by your department?

Paper!

5. Approximately how much of this product is generated each month?

haven't a clue

6. Who is in charge of recycling in your department?

indivs → Pick up by Maintenance

7. How often are recyclable materials picked up?

don't know

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

I'm told they are put in separate bins, but the outdoor trash containers indicate cardboard & waste

9. What is difficult to recycle in your department?

absence of a clear system

10. Are there any special costs associated with recycling in your department?

none I am aware of

11. Are there any special recycling concerns for your department?

- for ex. fabrication materials that can't be recycled e.g. Paint, fuel containers

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

absence of a clear system

Department Specific Questions

1. Are our brochures made with recycled paper?

generally, no

2. What is done with the paper generated by the table activities?

don't know

3. How is recycling at special events handled? Are we responsible for cleanup?

depends - if our event, yes
if facility rental food waste is caterers

4. Do we provide separate containers for recyclables at these events?

don't know

5. Have any programs on recycling been developed in the past?

Beer's got us to recycle glass, aluminum & plastic!

6. Has there ever been a recycling exhibit?

~~no~~ we had the ~~trash~~ tower of trash & recycling days. - Tower of trash was

7. How are art supplies such as paint and glue disposed of?

limited in ~~amount~~
thrown in package & suspect 1, ink, p

8. Are the containers refilled?

?

9. Are there any products unique to the Planetarium which are recycled or difficult to dispose of?

10. Please offer any final comments you might have about recycling in your department or the EcoTarium.

I don't see the issue as departmental but institutional.

What practices do we ~~should~~ we employ across-depts?

- are there specific dept needs?

- Develop a system, identifying who is resp
i.e. indiv's
maintenance

By in large maintenance is responsible for taking met'ls from building to dumpsters.

- Here, we need policy + protocols

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: *Gene Malpene*
Department: *Museum Store Dept of Finance + Operations*

General Questions

1. For which products are there separate recycling containers available in your department? Please list:

All use containers located at visitors desk and lobby

2. Where are these containers located?

Main entrance lobby + visitors desk

3. Are they clearly marked and organized?

Yes

4. What recyclable product is most generated by your department?

Boxes

5. Approximately how much of this product is generated each month?

unknown

6. Who is in charge of recycling in your department?

no one

7. How often are recyclable materials picked up?

unknown

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

Boxes are brought down to the delivery area and maintenance + cleaners crew dispose of them - I assume in the appropriate recycle bin.

9. What is difficult to recycle in your department?
10. Are there any special costs associated with recycling in your department?
11. Are there any special recycling concerns for your department?
12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

Department Specific Questions

1. What is done with the boxes that products from the store are shipped in? Are they reused, recycled? *Some are re-used. Most are thrown out - I assume they are thrown in the appropriate recycle bin.*
2. What is done with other shipping materials? *Plastic bags are re-used. Other materials are used if possible (such as bubble paper), most is thrown out.*
3. Are the bags used by the store made with recycled materials? *The bags we use are made partly with recycled materials, I was not able to find out a percentage.*
4. Do we sell any products or books that educate about and encourage recycling? *Nothing specific about recycling, but we do sell books about the environment in general, global & New England.*
5. Please offer any final comments you might have about recycling in your department or the EcoTarium.

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Name: Holly Hunt
Department:

General Questions

1. For which products are there separate recycling containers available in your department? Please list:

Program - paper, cans + bottles

2. Where are these containers located?

near bridge

3. Are they clearly marked and organized?

yes, but not organized due to construction

4. What recyclable product is most generated by your department?

boxes, cardboard products

5. Approximately how much of this product is generated each month?

5-6 boxes each

6. Who is in charge of recycling in your department?

I have it over to plant room

7. How often are recyclable materials picked up?

As often as I can

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

Old equipment is brought to EcoTarium via boxes and put in cardboard dumpsters

9. What is difficult to recycle in your department?

old computers

10. Are there any special costs associated with recycling in your department?

yes - about 50 bucks I would need approx.

11. Are there any special recycling concerns for your department?

-equipment

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

SPACE AND CONSISTENCY

Department Specific Questions

1. How are computers recycled?

brought to Ren (renewed)

2. What about cable and wiring?

Re-used

3. Are there any products unique to your department that are recycled?

Cables

4. Please offer any final comments you might have about recycling in your department or the EcoTarium.

would like to see how dialogue w/ Dore looks like +
1+

Recycling Survey

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Name: Walter Murzycki
Department: Jumper

General Questions

1. For which products are there separate recycling containers available in your department? Please list: Paper

Cans
Bottles

2. Where are these containers located? 3 on each floor
also in the copy room out back

3. Are they clearly marked and organized? YES

4. What recyclable product is most generated by your department? Paper

5. Approximately how much of this product is generated each month? 30 to 40
pounds

6. Who is in charge of recycling in your department? Walter

7. How often are recyclable materials picked up? 2 Day A week

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

Bin out back then they get picked
up once a month

9. What is difficult to recycle in your department? glass
10. Are there any special costs associated with recycling in your department? NA
11. Are there any special recycling concerns for your department? keep all separate
12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult? people mixing it together

Department Specific Questions

1. Who is in charge of recycling? walter
2. Where do we send our recyclable materials? out back to Bin
3. How much does recycling cost the EcoTarium? ? N.A.
4. How often are recyclable materials collected from the EcoTarium? 1 per month
5. Does your department have to further separate recyclables before they are collected? yes
6. Do you find that the public separates their trash according to the containers located on the floor of the museum? some times
7. What amount of paper products such as paper towels and toilet paper do we use in a month at the EcoTarium? un sure

8. Are these products made from recycled paper? *yes*

9. Do we refill containers for cleaning products? *yes*

10. How do we recycle construction materials? *? N.A.*

11. Are there any hazardous materials generated by the EcoTarium? *N.A.*

12. How do we dispose of or recycle hazardous materials? *N.A.*

13. Are there any products needed to run the train that are recycled or require special disposal? *yes*

14. Please offer any final comments you might have about recycling in your department or the EcoTarium.

Recycling Survey

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Name: *Lili Ott*
Department: *Marketing/Communications*
General Questions

1. For which products are there separate recycling containers available in your department? Please list:

paper

2. Where are these containers located?

In my office & in the copy room

3. Are they clearly marked and organized?

yes

4. What recyclable product is most generated by your department?

Paper!

5. Approximately how much of this product is generated each month?

Can't give approximation - very different each month

6. Who is in charge of recycling in your department?

na

7. How often are recyclable materials picked up?

Whenever Wally comes by - usually weekly

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

don't know -

9. What is difficult to recycle in your department?

Paper is really our only item

10. Are there any special costs associated with recycling in your department?

no

11. Are there any special recycling concerns for your department?

no

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

no

Department Specific Questions

1. How much paper do we order each year?

Varies enormously

2. What type of paper products are most used?

Letterhead, copy paper, card stock,

3. Do we use any recycled paper? How much post consumer waste does it contain?

all of our printed materials are on 25% recycled

4. How many brochures are produced each year?

— see Sarah —

5. Are they made from recycled paper?

yes

6. What types of dye is used to make our brochures?

standard — soy is considerably more expensive

7. Please offer any final comments you might have about recycling in your department or the EcoTarium.

Recycling Survey

Thank you for filling out the Recycling Survey! This is just a way for us to learn how different departments here at the EcoTarium use and recycle materials. The answers you give will help in designing a Recycling program for the TASC teens. Please answer these question according to your current knowledge in these areas. If you run out of space please complete the question on the back of this paper. If you have any questions please contact, Sarah (x752, scross@ecotarium.org) or Carrie (carrie@ecotarium.org)

Name: Peg K. Mutton
Department: Volunteer Services
General Questions

1. For which products are there separate recycling containers available in your department? Please list:

(1) Paper (3) cardboard

2. Where are these containers located?
(2) plants (4) cans
(Packing) (5) bottles

(1) under my desk and bench

3. Are they clearly marked and organized?
(2) back hall by exit door (3) beside recycle paper bin
No (4)+(5) by the sink

4. What recyclable product is most generated by your department?

paper

5. Approximately how much of this product is generated each month?

1/2 basketful. at least

6. Who is in charge of recycling in your department?

(1)+(3) Me, who then gives it to Maintenance

7. How often are recyclable materials picked up?
(2) Me (4)+(5) wally M. (volunteer - sandy) takes him down to the recycling center.
once per week

8. Where do recycled materials go after your department? Are they further separated at the EcoTarium or directly taken to a recycling center?

paper + cardboard
plants go to a recycling center
Bottles + cans " " " "

9. What is difficult to recycle in your department?

Plastics, batteries

10. Are there any special costs associated with recycling in your department?

Not that I am aware of.

11. Are there any special recycling concerns for your department?

None right now

12. Is there anything about the waste management procedure in your department or the EcoTarium that makes recycling difficult?

Need "recycle" paper bin at old copier in hallway

Department Specific Questions

1. How much paper do we order each year?

Don't know - I don't order it.

2. What types of paper products are most used?

The copier paper.

3. Do we use any recycled paper? How much post consumer waste does it contain?

? Don't know

4. How much paper containing dyes is used?

I use very little, other than stationery.

5. What company do we order the majority of our paper products from?

Don't know

6. How many brochures are produced each year?

*6 newsletters (2-3 pages each for 100 vol's)
for volunteer Dept.*

7. What products are recycled at birthday parties?

Don't know - don't do birthdays

8. Do we supply cups, napkins, and plates? Are they made with recycled materials?

9. What is done with decorations and wrapping paper?

10. How is recycling at special events handled? Are we responsible for cleanup?
yes, if our own event
no, if external event, believe
It seems to just get dumped into the nearest container.

11. Do we provide separate containers for recyclables at these events?
I don't think so - other than the 1 or 2 sets usually out on the floor.

12. What is done with the maps and daily schedules available at the visitors center?
Don't know for sure, but I believe they are put into recycling.

13. Please offer any final comments you might have about recycling in your department or the EcoTarium.

People are not rinsing their cans + bottles before recycling, and the cans + bottles on deposit are getting mixed up with other stuff. Also, the extra containers for overflow are not marked.

More emphasis on recycling cardboard (corrugated) and packing materials is needed, as well as a better method of collecting them.

A better method for collecting plastics.

Survey 2

For the TASC recycling project, I'd like to gather some information from all of the staff. Your answers will be useful and appreciated. Please answer by replying to this e-mail.

1. How many pieces of paper do you use in a day (your best guess)?
Two-Three pieces.
2. Do you recycle your used paper? Yes.
3. How many drinks in cans or bottles do you consume in a day (or week)?
One per day, about five per week.
4. Do you recycle the cans and bottles? I either recycle them or reuse them.
5. What other product(s) do you use a lot of that you want to see recycled? Batteries, computer cartridges (we do not use a lot of these products, but we should recycle them).
6. Do you think access to recycling bins is limited? No - not for the basics.

1. How many pieces of paper do you use in a day (your best guess)? 10 -15
2. Do you recycle your used paper? Yes
3. How many drinks in cans or bottles do you consume in a day (or week)? 0
4. Do you recycle the cans and bottles?
5. What other product(s) do you use a lot of that you want to see recycled? cardboard boxes
6. Do you think access to recycling bins is limited? Yes

1. How many pieces of paper do you use in a day (your best guess)? Some days could be 10 others could be a hundred, depending on how much copying I do.
2. Do you recycle your used paper? Yes
3. How many drinks in cans or bottles do you consume in a day (or week)? None
4. Do you recycle the cans and bottles? N/A
5. What other product(s) do you use a lot of that you want to see recycled?

6. Do you think access to recycling bins is limited? No

1. How many pieces of paper do you use in a day (your best guess)? 100

2. Do you recycle your used paper? yes

3. How many drinks in cans or bottles do you consume in a day (or week)?
two per day

4. Do you recycle the cans and bottles? The returnable ones get recycled -
the others get thrown out unless I take them home to recycle.

5. What other product(s) do you use a lot of that you want to see recycled?
plastic milk bottles that we use for coffee

6. Do you think access to recycling bins is limited? yes

1. How many pieces of paper do you use in a day (your best guess)? Best guess
(average) -- 18.

2. Do you recycle your used paper? Not as often as I should. I do use the recycling bin in
the copy room, but not in Education.

3. How many drinks in cans or bottles do you consume in a day (or week)? I produce 1
or 2 cans and bottles a day.

4. Do you recycle the cans and bottles? I take them home.

5. What other product(s) do you use a lot of that you want to see recycled?
Packaging -- cardboard, packing pellets (aka popcorn), etc.

6. Do you think access to recycling bins is limited? Yes. I would definitely recycle
every scrap of paper I no longer need if I had a bin visible from my desk.

1. How many pieces of paper do you use in a day (your best guess)?100

2. Do you recycle your used paper? 100

3. How many drinks in cans or bottles do you consume in a day (or week)? 1 per day

4. Do you recycle the cans and bottles? yes

5. What other product(s) do you use a lot of that you want to see recycled? here...I don't use much else

6. Do you think access to recycling bins is limited? for drink cans in our area

1. A lot - very hard to tell because of all the admin. work I do including timesheets, staff manuals, etc.

2. yes

3. 0

4. yes if I had a drink

5. NA

6. yes

1. How many pieces of paper do you use in a day (your best guess)? -probably somewhere between 8 and 10

2. Do you recycle your used paper? I try to...large pieces of paper, I do. Smaller pieces like post-it notes, not usually.

3. How many drinks in cans or bottles do you consume in a day (or week)? 2 or 3/week.

4. Do you recycle the cans and bottles? YES!

5. What other product(s) do you use a lot of that you want to see recycled? Can't think of anything right now...

6. Do you think access to recycling bins is limited? Recycling bins seems pretty accessible in the program office area, as well as on the floor of the museum. If every staff member had their own (paper) recycling in their office, that might make them remember to recycle more often(?)

1. How many pieces of paper do you use in a day (your best guess)? 6-10

2. Do you recycle your used paper? Yes

3. How many drinks in cans or bottles do you consume in a day (or week)? 1-2
4. Do you recycle the cans and bottles? Yes
5. What other product(s) do you use a lot of that you want to see recycled? Food waste--compost
6. Do you think access to recycling bins is limited? I'd like a bottle/can bin on the first floor in the office area.

1-20 sheets

2-yes

3-none, usually

4-yes

5-cardboard needs some known, designated collection areas; packing

peanuts; plastic grocery bags

6-yes

1. How many pieces of paper do you use in a day (your best guess)? printer 20, copier 15-50
2. Do you recycle your used paper? Yes, in recycle basket or by using the back as scrap.
3. How many drinks in cans or bottles do you consume in a day (or week)? 2-3 mini cans of V8 juice
4. Do you recycle the cans and bottles?

1. I use (on an average day) probably 25 pieces of paper.

2. I recycle everything I can.

3. I reuse a water bottle every day so I discard no cans or bottles.

4. NA

5. I'd like to see plastics recycled.

6. For me, no. For the public, yes.

1. How many pieces of paper do you use in a day (your best guess)? Anywhere from 5-500 (the latter if I'm sending out press releases).

2. Do you recycle your used paper? Mostly.

3. How many drinks in cans or bottles do you consume in a day (or week)? 3-5 per week

4. Do you recycle the cans and bottles? Always

5. What other product(s) do you use a lot of that you want to see recycled? Non-refundable cans and bottles, such as soup cans or large water bottles.

6. Do you think access to recycling bins is limited? Yes. The only place to recycle cans and bottles (refundable only!) in the admin office area is in a small basket the kitchen--which fills (and overfills) quickly. I use a cardboard box under my desk for paper, but it would be nice to have a special basket at each desk for paper

1. I guess that I'd use about 20 sheets of paper a day average

2. Yes, I recycle all the office paper

3-4. One can of beverage per day and I recycle the cans

5. Paper and aluminum are all I use here

6. No

1. How many pieces of paper do you use in a day (your best guess)? 3

2. Do you recycle your used paper? Yes

3. How many drinks in cans or bottles do you consume in a day (or week)? 2

4. Do you recycle the cans and bottles? Yes

5. What other product(s) do you use a lot of that you want to see recycled? At home we recycle (pick-up on Fridays) everything permissible.

6. Do you think access to recycling bins is limited? In side no; outside yes.

Appendix D – Brochure

TASC WASTE MONITORING PROGRAM

The TASC ambassadors, along with Sarah and the WPI Interns, have developed a waste monitoring system for the EcoTarium.

Items being monitored... ..

- MIXED OFFICE PAPER
- CARDBOARD
- PLASTIC BOTTLES
- ALUMINUM CANS

Monitoring occurs... ..

- In the Program office
- Main museum floors

Done by... ..

- TASC Ambassadors
- WPI Interns

RESULTS FROM THE ECOTARIUM RECYCLING SURVEY

Produced by

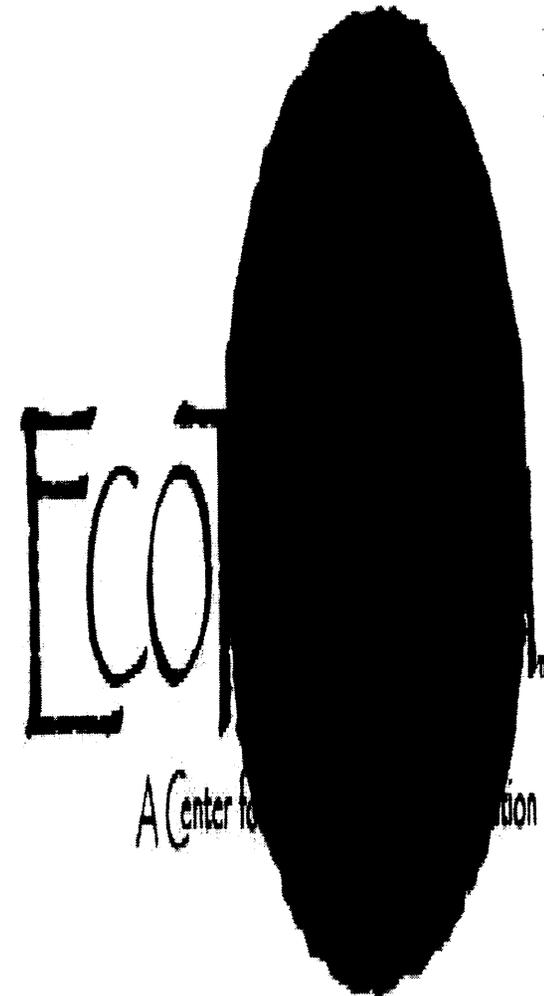
William Shaw & Melissa Dragon

March 15, 2001

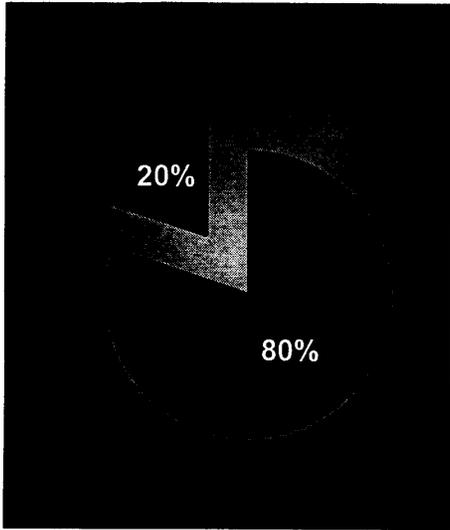
FOR AN IQP RESEARCH
PROJECT AT

WPI

Worcester Polytechnic Institute, 100
Institute Road, Worcester, MA 01609-2280
Worcester: (508) 831-5000



IS EVERYONE RECYCLING AT THE ECOTARIUM?



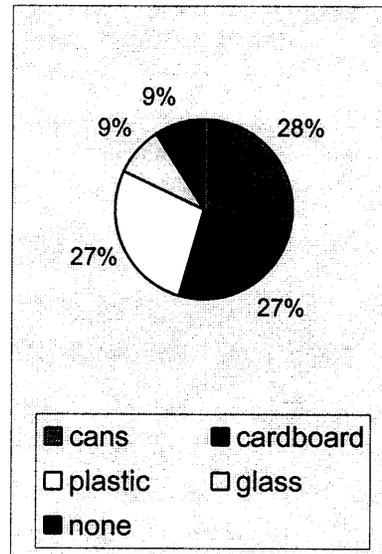
According to a survey taken at the EcoTarium in January of 2001 only 80% of its employees recycle all of the time.

WHY IS THE RECYCLING RATE ONLY 80% AT THE ECOTARIUM?

Only half of the employees surveyed believe that

the recycling containers are clearly marked. Only 25% know who picks up the recycling and when.

There are a number of items that the people surveyed believe are hard to recycle at the EcoTarium:



People felt access to the recycling bins is limited. Overall recycling knowledge, how it all works, was mentioned as another problem for recycling at the center.

HOW MUCH RECYCLEABLE MATERIAL IS PRODUCED?

The EcoTarium's current recycling program allows for the recycling of mixed office paper products, cardboard, plastic bottles, and aluminum cans.

Based on the survey each person at the EcoTarium uses approximately 35 pieces of paper, one plastic bottle or aluminum can, and 1/2 a box per day.

Product	Used	Not Recycled
Paper	2450	490
Bottles and Cans	70	14
Cardboard Boxes	35	7

Based on 70 Employees/Volunteers per day

This means in one year the EcoTarium does not recycle 178,850 pieces of paper, 5,110 plastic bottles and cans, and 2,555 boxes are not recycled per year.

Appendix E – Monitoring Data

Office

<u>Date</u>	<u>Time</u>	<u>Trash (lb)</u>	<u>Trash (in)</u>	<u>Paper (lb)</u>	<u>Paper (in)</u>	<u>Cans (# recycled)</u>	<u>Cans (# thrown away)</u>
5-Mar	3:00	nr	31	nr	36	nr	nr
8-Mar	3:00	nr	22	nr	12	nr	nr
12-Mar	3:00	nr	32	nr	14	nr	nr
15-Mar	3:00	11.5	42	2	10	10	1
19-Mar	3:00	9.5	46	2.5	11	13	2
22-Mar	3:00	9.3	36	1.8	12	10	1
26-Mar	3:00	12.5	68	2.5	13	15	3
29-Mar	3:00	9.1	44	2.2	27	9	2
5-Apr	3:00	5.8	12	0.5	18	9	1
9-Apr	3:00	10.3	43	1.4	7	10	2
12-Apr	3:00	9.4	40	1	5	12	3
16-Apr	3:00	6	24	0.75	14	14	1
Totals		83.4	440	14.65	179	102	16

Visitor

<u>Date</u>	<u>Time</u>	<u>Trash (lb)</u>	<u>Trash (in)</u>	<u>Paper (lb)</u>	<u>Paper (in)</u>	<u>Cans (# recycled)</u>	<u>Cans (# thrown away)</u>
5-Mar	3:00	nr	22	nr	5	nr	nr
8-Mar	3:00	nr	26	nr	20	nr	nr
12-Mar	3:00	nr	12	nr	12	nr	nr
15-Mar	3:00	6.25	34	0.3	29	4	3
19-Mar	3:00	7	36	0.25	14	12	2
22-Mar	3:00	0.75	5	1.25	24	1	3
26-Mar	3:00	1.75	4	2.5	17	21	4
29-Mar	3:00	0	0	1.75	24	1	1
5-Apr	3:00	2	19	1.25	12	2	0
9-Apr	3:00	2.5	13	1.6	12	4	0
12-Apr	3:00	3	19	1	15	6	2
16-Apr	3:00	6	18	1.25	13	15	2
Totals		29.25	208	11.15	197	66	17