

# **Making Sustainable Behaviors the Norm at the University of Minnesota Duluth**

Thomas Beery  
Center for Environmental Education  
University of Minnesota Duluth  
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## **Summary**

Interviews with undergraduate students were conducted as part of a follow-up to an Undergraduate Research Opportunity Project survey soliciting information about student engagement in sustainability at the University of Minnesota Duluth conducted during the spring semester of 2012. The Stage 1 survey effort led to an increased interest in the question of student participation in sustainability at UMD and eventually to the student interviews conducted as part of a Strategic Initiative Sustainability Small Grant project presented in this report (Stage 2). Twelve UMD undergraduate students were interviewed with a goal of gaining additional insight into daily student engagement in sustainability. Hycner's (1985) guidelines were used for the phenomenological analysis of the interview data. Data were recorded, transcribed, and analyzed. Data were triangulated with the Stage 1 survey data for additional analysis.

A number of specific and useful ideas to promote sustainability on the UMD campus emerged from the interviews. Two of the examples include the elimination of the sale of bottled water on campus and support for an increase in the composting of food waste from the Food Court and Dining Center. The key finding, however, was an affirmation of the idea that we must identify and eliminate barriers in order to support an increase in daily student participation in sustainability. Participants noted convenience as a key factor to consider. Numerous references to "back home" remind us that we need to make our campus function more like a community with systems that support engagement. Reflective analysis of all of the findings leads to a discussion of how our community can achieve the intent of its core value of sustainability. It is proposed that UMD put more energy into changing norms than changing attitudes. Facilitating sustainability actions as normative behavior may be an effective first step in long-term attitudinal change.

## **Introduction**

"Those are the things I do on a daily basis, to live sustainably and it is really fulfilling I have found. It is a lifestyle and it makes so much sense..." (participant)

Sustainability has become an increasingly important part of the UMD's identity as evidenced, in part, by the UMD Strategic Report of 2011 where

sustainability is recognized as a core value and a key part of the Strategic Plan. For an institution and a community, sustainability can be considered from multiple vantage points, from broad questions of physical infrastructure to specific behavior of community members; all aspects of sustainability must be considered at UMD. This report is designed to contribute toward this campus-wide emphasis on sustainability via a better understanding of student engagement in sustainability behaviors. Specifically, this research set out to better understand the daily experience of sustainability and participation in sustainability at UMD.

## **Background**

### **Sustainability at UMD**

The UMD Office of Sustainability provides the following definition:

Sustainability is “development that meets present needs without compromising the ability of future generations to meet their needs.” Put simply, sustainability is about being responsible with our resources. It is about not using more than our share. It is making sure there is enough, for all, forever. (UMD Sustainability Office, 2012)

Using the above institutional definition, this research defines sustainability behavior as those actions, individual and collective, that support sustainability. Admittedly, this is a broad behavioral spectrum.

This report details the results of 12 interviews conducted with UMD undergraduate students as a part of a follow-up to a student participation in sustainability survey, an Undergraduate Research Opportunity Program project conducted by Jonathan Roatch. Mr. Roatch administered his survey to University of Minnesota Duluth undergraduates during the spring of 2012 in an effort to assess awareness, attitudes, and behaviors regarding sustainability behavior on the University of Minnesota Duluth Campus. Mr. Roatch’s results provided a quality base of descriptive data to explore questions of student behavioral participation in sustainability. Used as a foundation for the research presented in this report, insight into the idea of a sustainable culture has emerged. This report and the research presented are the product of the on-going Strategic Initiative Sustainability Small Grant effort. Appendix 1 provides a results summary of Mr. Roatch’s findings and will be referred to as “Stage 1” throughout this report. The research presented in this report will be referred to “Stage 2.”

### **Theoretical Foundation**

Analysis will use an environmental psychology theoretical foundation. Environmental psychology considers the range of complex interactions between people and the environment (Kollmiss & Agyeman, 2002). Heberlein’s (2012)

presentation of norms as the key to changing environmental behavior will be used in conjunction with the findings of this study to create a general guide for action at the University of Minnesota Duluth.

Investigation and insight on the role of individual behavior illuminates implications for broader cultural change. Heberlein (2012) identifies norms as “the most useful and powerful concept in the social psychologist’s toolkit for understanding human behavior” (p. 90). Heberlein emphasizes norms as the key concept in environmental behavior given our ability to see norms, i.e. norms equal behavior. The process of talking to students about the behavior they see and participate in speaks, in part, to this norm-based approach to environmental change. Participants in this research have identified a broad spectrum of sustainable behaviors at UMD and in doing so have also illuminated barriers to participation in sustainability behavior. Results of this study will support Heberlein’s (2012) contention that the most successful environmental behavior programs are those that, “grew the norm rather than those that tried to educate the public” (p. 107).

### **Research Assumptions**

Two key research assumptions guide this effort. One, this effort presents an assumed value in the strategic plan at UMD and institutional support for the identified core value of sustainability. A second underlying assumption is a belief in the value of approaching questions from multiple vantage points. The purpose of the application of this mixed methods design is to use qualitative data to better understand and build upon quantitative results from Stage 1.

## **Research Methods**

### **Participants**

The population for this study is the same as Stage 1 of this research effort, full time undergraduate students representing all five colleges at UMD. A request for participation was sent to a randomly generated list of 200 student email addresses supplied by UMD ITSS. The email note requested up to one hour of the recipient’s time to discuss sustainability on the UMD campus. All participants that showed interest via an initial response to the request email and followed up with subsequent scheduling (via email correspondence) were interviewed. Once a random sample of the population was established, self-identification of participants was important so as to allow participants able to articulate their experience of sustainability at UMD. Hycner (1985) reminds us that an element of rigor is the ability of participants to fully describe the experience being researched, therefore it was hoped that using this selection process would combine an element of randomization with appropriate self-selection. The goal was to conduct 10-16 interviews; 12 interviews were completed.

Basic participant demographic information was collected as part of the interview process. Seven of the 12 participants were female and 5 were male. [Note, given that a majority of participants were female, and in keeping with efforts to protect anonymity, all results described will use female pronouns.] Two participants were freshmen, one was a sophomore, 3 were juniors, and 6 were seniors; two of the 12 indicated that they had transferred into UMD. Six of the participants were students in the Swenson College of Science and Engineering, 4 indicated that they were enrolled in the College of Liberal Arts, 1 of the CLA students indicated a double major with the School of Fine Arts, 1 student was enrolled in the College of Education and Human Service Professions; none of the participants were enrolled in the Labovitz School of Business and Economics. Five of the participants lived on campus, 3 lived less than a mile from campus, 1 lived a mile from campus, 1 lived two miles from campus, 1 lived 2-3 miles from campus, and one lived 3-4 miles from campus. The most striking demographic is the lack of participant representativeness by college. While a generalizable representativeness was not the goal, it is interesting to consider just how unrepresentative this distribution was.

It should also be noted that in keeping with Hycner's (1985) self selection notation of rigor, many of the participants had clearly identified associations with the experience of sustainability on campus. Two of the participants indicated that they were environmental sustainability majors, one indicated that she worked for a sustainability program on campus, and one indicated that she worked on the UMD farm with the Sustainable Agriculture Project over the previous summer.

## **Procedure**

All participants were interviewed once during October-November of 2012. Interviews were conducted in the conference room of the Sport and Health Center at UMD. All participants were provided a T-shirt and \$10.00 in gift cards as a thank you for their time. At the start of the interview session, participants were given a synopsis of the Stage 1 survey results and asked to read it to provide a starting point for the interview. Upon participant completion of the review of survey results, interviews were conducted. Interviews lasted for 20-45 minutes. Each interview consisted of a number of open-ended questions beginning with an opportunity for participants to respond to the findings of the Stage 1 survey. After the initial review of the survey, participants were asked to comment in general about anything of particular interest from the survey results. After the initial response, participants were asked to detail the types of sustainability behavior they have noted in their day-to-day experience of campus life. Participants were then asked to provide their thoughts/feeling/opinions about 5 issues that emerged from the Stage 1 data set. Finally, participants were asked to detail their own sustainability behavior and to describe the motivations behind their personal behavior.

Each interview was digitally recorded with the permission of the participant. To protect participant privacy and maintain anonymity, all participants were given an alias. The recordings were then transcribed and analyzed using Hycner's (1985) guidelines for the phenomenological analysis of survey data. The aim of the analysis process was to explore a deeper understanding of student engagement in sustainability at UMD. In addition to the phenomenological analysis, the use of Stage 1 quantitative results (descriptive statistics) allowed for application of a mixed method explanatory design, participant selection model (Creswell & Clark, 2007). The analysis of survey results in Stage 1, provided questions to be explored in Stage 2. Further, a part of the analysis allowed for triangulation of some of the results for an outcome informed by both stages.

### **Credibility, Dependability, and Transferability**

Qualitative research terms including "credibility, neutrality or confirmability, consistency or dependability and applicability or transferability are the key criteria for quality (Lincoln & Gruba, 1985). In this study, the terms credibility, dependability, and transferability are presented as concepts of quality applied to this particular process (Hoppe, 2011). Bloomberg & Volpe (2008) describe six key strategies for credibility in a study, four of these strategies have been employed in this study. One, the researcher must present his bias and note any assumptions underlying the research. Two, the researcher must declare himself an observer and non-participant in the participant experience. Three, multiple data collection methods will allow for triangulation of the data; and four, any negative or discrepant findings must be presented.

Dependability is determined, in part, though the detailed explanation of the analysis process (Bloomberg & Volpe, 2008). It is the responsibility of the researcher to carefully document procedures and demonstrate that coding and categorizing have been consistent (Bloomberg & Volpe, 2008). As previously noted, this research utilized Hycner's (1985) guidelines for phenomenological analysis.

This study does not claim to present findings generalizable to the entire undergraduate population at UMD; the goal was to develop a better understanding of a complex phenomenon. As previously noted there may be an inherent pro sustainability behavior bias via the participant self-selection process. Despite the lack of generalizability, it is presented that the findings here have a level of transferability given the amount of detail provided to the reader to establish relevance (Bloomberg & Volpe, 2008).

### **Limitations**

At the beginning of each interview, the researcher presented his research bias of support for the UMD Strategic Initiative Plan as the source of this study. That said, while communicating support for the UMD identified core value of

sustainability, the researcher attempted to clarify that he was not searching for certain responses or any agreement with the researcher's viewpoints, i.e. responses of support for certain actions or ideas. The research attempted to stress the desire for participant observation, opinion, and experience.

## **Results and Discussion**

### **Surprise**

Given that the first interview questions allowed participants to express anything that generally interested or surprised them from their review of Stage 1 survey results, many of the initial responses were comments about results that were unexpected. Five participants registered surprise over transportation statistics from the Stage 1 survey. Four of the 5 indicated that they thought more people rode the bus than the descriptive statistics indicated (28% statistic for those who rode the bus 2-4 times per week or daily and the statistic that 61% never ride the bus). For example, one participant commented, "I thought more kids rode the bus. I ride the bus. It's pretty packed." One participant was surprised at how few people drive everyday. She commented, "A lot of my friends drive to school every day or at least every day they have class." (31% of Stage 1 participants indicated that they are regular drivers to UMD.)

### **Sustainability Behavior**

A key finding of this study is respondent awareness and participation in sustainability efforts on the UMD campus, both on individual as well as an institutional level. See Table 1 for a list of all of the sustainability-related behaviors noted that participants and/or others around them are engaged in. This information came from responses to the direct question of what sustainability behaviors participants see and participate in on campus, as well as gleaned from responses to other questions. The list is not necessarily exhaustive, but includes the items that emerged during the interviews. Participants indicated a high level of awareness and engagement in the behaviors noted.

### **Addressing Specific Recommendations From Stage 1**

This next section of results presents the five specific recommendations that were outcomes from the results of the Stage 1 survey. The 5 items all represent possible action steps and include: increase in local food sales on campus; removal of the sale of bottled water on campus; development of a battery recycling program on campus; development of the Lowell to Lakewalk bike corridor through campus; and, expansion of composting on campus to include the Food Court. Each item will be presented based on both Stage 1 and Stage 2 results. Further recommendations are presented based on a triangulation of data.

Table 1

*Sustainability Behavior at UMD Reported by Participants*

Use of water bottle refill stations and regular use of refillable water bottles	Reuse of food containers for transport of meals (bags, Tupperware, etc.)
Water conservation, including “short showers”	Composting
Recycling (numerous materials)	Monitor of electricity use and turning off of unnecessary lighting
Choice of light bulbs	Commitment to not use plastic bottles
Commitment to use as little paper as possible	Use of motorcycle for transportation (noted gas mileage)
Use of surge strips to better regulate electricity use	Local food buying, e.g. CSA, Whole Foods Coop, Farmer’s Market
Plastic wrapping of windows for heat conservation	Use of the bus
Walking to campus and other destinations	Biking to campus
Ride sharing	Use of re-usable batteries
Edible gardening on campus	

Table 1

**Increase in local food sales on campus.** Support for the sale of local foods on campus was high in the Stage 1 survey with 85% of respondents indicating support. This high level of support carried over into the second stage interviews as well with all participants indicating support for an increase in local food sales on campus. Five participants noted specific examples of local food effort that is currently underway, with one participant indicating that apples in the Dining Center had come from the UMD Farm and another participant indicating that a “big chunk” of the produce raised on the farm was supplied to the UMD kitchens. Three other participants commented upon the UMD Farmer’s Market as a positive local food option on campus; one participant indicated that she purchased locally produced goods at the Market and another emphasized that despite her lack of purchases, it was a “good option” for students.

Results of both stages indicate that this is a positive opportunity to promote sustainable behavior by students at UMD. For more discussion of this item as a part of a theme of convenient and systematic response to making sustainability accessible, see conclusion of this report.

**Removal of bottled water sale on campus.** The results of the Stage 1 survey indicated that 54% of respondents supported the removal of the sale of

bottled water from the UMD campus, 25% opposed the removal, and 21% indicated that they needed more information. Interestingly, the Stage 2 interviews seem to match the initial results with 6 of the 12 participants indicating support for the removal of the sale of plastic water bottles; two of these participants expressed very strong opinions about the need for removal, including the statement, "This should have happened a long time ago!" One participant opposed the removal outright, 1 indicated favoring removal from the stores, but not from vending machines in the Sport and Health Center; her rationale was that these vending machines could provide access to water in conjunction with fitness activity. Three of the participants had serious questions about removal; one of these three characterized the removal as "extreme;" another, who claimed to have never purchased bottled water herself, was concerned about friends' negative reactions to the elimination of bottled water sales. Another concern voiced was the worry that students will only have pop as an option if bottled water is removed.

One respondent was very vocal and detailed in her support for removal of the sale of bottled water on campus; her ideas provide a glimpse into the complexity of the issue. She characterized the issue as a "control thing" and described a climate where students do not want options taken away. However, in defense of the idea of removing this option, she noted that other institutions have effectively removed the sale of bottled water and argued both for education to "help them understand the impact that a bottle of water has" and the role of policy, "You need to protect people from themselves... and just do it." Finally, she emphasized the role of UMD in regard to difficult social issues when she stated, "... this is a higher education institution and we are trying to help foster change."

Results from both stages would suggest that the removal of the sale of plastic water bottles on the UMD campus would be controversial. Creative suggestions from participants, from inexpensive sale of reusable bottles and bottle give-a-ways, might help facilitate a transition to the elimination of the sale of bottled water on campus. Additionally, participants noted that infrastructural change, e.g. more water bottle filling stations, and education, e.g. the use of the stations to educate users about sustainability, water quality, and water sourcing may facilitate a transition. For more consideration of such an action step see the conclusion discussion of norms as one of the key concepts in facilitating behavioral change at UMD.

#### **Development of a battery-recycling/disposal program on campus.**

Battery recycling emerged as an interview question based on the discrepancy between recycling behavior for batteries as compared to other items; 74-92% respondents of the Stage 1 survey indicated that they recycled cardboard, paper, metal cans, glass, plastics, and plastic bottles. The battery recycle rate was 26%. Results from the interviews indicate that while most participants are positive to the idea of battery recycling, the problem is confusion, including the key questions of where to recycle batteries ("I've never seen a battery recycling



bin on campus”) and which batteries can and should be recycled. Participants noted the following behaviors in regard to their waste batteries including recycling, saving batteries to recycle “back home,” saving batteries indefinitely, throwing batteries away, and using rechargeable batteries.

Results from both stages indicate that there is a lot of confusion regarding battery disposal and inaction regarding battery recycling. A convenient system for collection of all nonfunctioning rechargeable batteries, lithium batteries from cameras, calculators, and other electronic devices and button batteries from watches, hearing aids and other small devices is needed. Also needed is effective communication to remind students that regular alkaline batteries (AA, AAA, C, D, 9 volt) can be placed in household trash.

**Development of the Lowell to Lakewalk bike corridor.** Participant response regarding the development of this trail system was solicited based on Stage 1 survey results indicating very low bike use on campus, 88% of respondents indicating that they have never biked to campus. While few people reported biking to school, 78% of Stage 1 respondents indicated support for the inclusion of bike lanes in future development on and around UMD. Similarly, all interview participants indicated support for such trail development (one participant added the caveat of support for trail development only if the bike routes were off road). There was additional detailed information about possible bike trail development shared by participants and it will be incorporated into a third stage of this process; Strategic Initiative support has been secured to look specifically at the question of the Lowell to Lakewalk bike corridor development during Spring Semester 2013. Results from both Stage 1 & 2 will be incorporated into the on-going research as part of an effort to engage the student community in that project.

**Expansion of composting on campus to include the Food Court.** In the Stage 1 survey, respondents indicated a high level of support for composting at UMD (80%). This high level of support for composting was also found in the Stage 2 interviews with all participants making positive statements about composting on campus. Three participants indicated a high level of knowledge and experience and indicated that they currently compost their daily food waste; one of these participants indicated knowledge of community resources that support composting, including the option of leaving household compost at a UMD neighborhood restaurant (At Sara’s Table). Another provided detailed knowledge of the composting program developed to transfer food waste from the UMD kitchens to the UMD Farm. Numerous participants shared awareness and experience of composting in other settings. For example, compost systems were described at a restaurant in Duluth (Tycoons), a summer camp program, a former middle school, and at the generic “back home” site. One respondent expressed a real concern over the idea of compostable cups at the UMD Northern Grounds coffee shop. She pondered the question of the value in compostable cups if coffee drinkers were not necessarily disposing of them

properly. She characterized the compostable cup use as a largely feel-good, but ineffective program.

Results from both stages would suggest that students would support an expansion of composting on campus. Results support the idea that a composting system for the Food Court must be designed to be easy and convenient. See conclusion for additional discussion of this item.

## **Motivations**

Participants were asked to share why they participate in sustainability behavior and to describe their motivations. Similar in breadth to the sustainability behaviors, the list of motivations is also extensive, from personal health to “making the world a better place.” See Table 2 for a listing of many of the motivations participants noted. Two motivations emerged with repeated and detailed reference: cost saving and upbringing. Five participants indicated that saving money was a big motivator for their sustainability-oriented behavior. Avoiding the cost of operating a motor vehicle to travel to and from campus and paying for parking, were provided as examples of this cost saving motivation. Four of the participants discussed upbringing; participants noted how they were raised was a prime motivator for current sustainability oriented behavior. Statements such as “Ah, it probably has to do with my upbringing...” and “...because that’s just the way I’ve been brought up to do it and so, that’s what I do” were common in the data.

Participant relationship to the natural world was another motivation theme of noteworthiness. While responses in this broad grouping ranged from “a love of nature” to concern for Lake Superior, the common thread of connection to nature seemed to emerge. Consider the following responses to the question of motivations for sustainability behavior:

- “I am a very nature-y person...I really love nature. I hate deforestation. I hate thinking about little animals getting trapped in our waste.”
- “I just want to have my children know what trees are and my grandchildren know the smell of fresh air.”
- “Then I come up here and it is Lake Superior and the North Shore and there is all this beauty.”
- “I like seeing Earth green.”

One unique response to the question of motivation was the respondent that used the question of “why not?” as her motivator. She stated, “Well it is kind of like the argument for global warming, why do anything about that? But like, why not? Even if global warming is a myth and nothing is going to happen why not be more sustainable in general or like helpful to the earth in general?” Another interesting response to the question of motivation had to do with the idea of efficiency. This respondent described herself as “all about efficiency” and went

on to raise concerns about the irrational behavior of using more resources than necessary. She detailed a high level of awareness of built environment infrastructure efficiency and land use efficiency concerns as her motivation to behave more sustainably. For example, she commented, “If we have a yard, why do we have grass in it when we could have a garden and get food from it?”

**Key Themes**

Two broad or overarching themes emerged from responses to all of the interview questions with strong ramifications for the UMD community: education and convenience. Ideas about how UMD can do a better job of educating community members about sustainability and sustainability related behavior was

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Table 2

*Motivation for Sustainability Behavior Reported by Participants*

[1]

Enjoyment, e.g. the joy of motorcycle use	Quality of bus system
Need for waste reduction	To benefit the local economy
To benefit the local ecosystem	Make the world a better place
Sustain what we already have	Opposition to privatized water
Relationship with Lake Superior	Give back
Personal health	Resource conservation
Avoiding hypocrisy	Love of nature
Concern about animals trapped in waste	Beauty of “up North”
Happy lifestyle	Efficiency
Convenience	Why not?

Table 2

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a common strand throughout the interviews. From participants’ stories of their own education to suggestions for how the community can be more effective in raising awareness and educating its own members, the idea of education as a tool to support sustainability was key. Three participants indicated that the stickers on the lights urging energy conservation were helpful reminders to engage in sustainable behavior. Two students indicated a need for a course designed for freshman and transfer students to introduce them to sustainability at UMD and to encourage student participation in the various sustainability programs on campus. One respondent questioned the waste generated in the chemistry and biochemistry labs and stated, “If there was a way to figure out how we can make like chemistry and biochemistry labs more sustainable, I think that

would be really helpful.” One participant, confident and articulate about the proper recycling/disposal of batteries, shared a story about a battery recycling training that she participated in. She described an activity based battery sorting activity where she learned which batteries could be thrown away and how to sort other types of batteries; this experience was noted to have made a significant impact on her behavior. Other education oriented suggestions/inspirations included:

- Use of the water filling stations to educate users how water station use was a positive contribution to the UMD community.
- Educational sessions needed to help students feel more comfortable using the bike racks on the bus.
- Use of media sources, e.g. video “No Impact Man.”
- Use of quality course related textbooks, e.g. an advanced placement environmental science textbook.
- Peer modeling and educating, e.g. friend’s high school presentation on the impacts of bottled water use providing inspiration to avoid purchase of bottled water.
- Positive role modeling of instructors sharing sustainability oriented behaviors.

The other overarching theme emerging from the interviews was convenience, with 8 participants addressing this idea from various angles. Personal convenience was often stated as a motivating factor behind certain behaviors, for example bus use was characterized as “convenient.” Numerous participants urged making sustainable behavior the convenient option. Another theme of convenience was systems-oriented, the idea that convenient systems are necessary to make sustainability behavior more widespread on the UMD campus; for example, one participant noted that if systems were “easy,” she would definitely participate. Many participants noted that they engage in behavior “back home” because as one participant put it, “Everything is set up already.” This “back home” vs. UMD idea was clearly evident in student description of dorm/apartment living at UMD in regard to sustainability, for example:

- Two participants indicated that composting was not possible for students living in the dorms.
- One participant noted that residents cannot easily remove leftover food from the Dining Center; she went on to suggest a system of reusable Tupperware or Gladware to prevent waste.
- One participant noted the absence of water bottle filling stations in the dorms.
- One participant noted that dish washing is difficult in some of the dorms making paper plate product use more widespread.

- Numerous participants urged development of a composting system for the apartments that is as easy as throwing garbage away.

### **Infrastructure**

Despite the emphasis of this research upon student behavioral participation in sustainability on the UMD campus, many students wanted to discuss infrastructure-oriented aspects of sustainability on the UMD campus. Such interest reflected a high level of awareness and consideration for the broad question of sustainability. Examples of participant comments regarding UMD infrastructure include:

- One respondent noted various LEED certifications for campus buildings.
- The Bagley building was noted by 2 participants as a part of UMD sustainability, the building was characterized by one participant “as good as it gets.”
- One participant noted that solar paneling should not be used with inefficient buildings. If so, it is simply a “good feeling” type of action, but is “pretty much useless.”
- The UMD steam plant was characterized as being very inefficient according to one participant based on her understanding from an engineering course on campus, “...you have one point in the process where you have high pressure steam and you have to go to low pressure steam and there is an expansion valve there and basically high pressure steam is very energetic and low pressure steam is less energetic, you have all that energy being wasted through that expansion valve...”

### **Positive Change**

In review, the results present broad student interest, awareness, and positive outlook regarding sustainability on the UMD campus. It should be noted that at least 3 of the participants articulated a sense of pride or opportunity in the question of sustainability at UMD, “It’s obvious that the school is making an effort to do something...” and “I am proud of all the different little things that they do.” Another participant included students in this opportunity for positive effort when she stated, “students can have a voice in what happens.” One additional participant negatively compared UMD’s efforts to that of Lake Superior College, and yet in doing so communicated a sincere and earnest desire for positive change at UMD.

### **Conclusion**

One of the key findings of this research is an affirmation of the idea that “sustainable behavior is most likely when there are few barriers...” (Manning, 2009, p. 4). The findings emphasizing convenience, comparing “back home” to UMD, concerns about dorm/apartment life at UMD, and participant comments on

the potential larger scale composting at UMD are all examples of eliminating barriers. This basic conclusion, *to make participation simple*, is an important reminder to members of the UMD community working to achieve the intent of UMD's core value of sustainability. Continual reminders that we need to address barriers (physical, social, cultural) in order to create easy access to systems that support sustainability is a key outcome of this study and supported by the sustainability behavior literature (McKenzie-Mohr, 2011). It may be that we do not need to change attitudes or perceptions about sustainability per se, we simply need to make the behavioral component easy and accessible; in other words, we need to change the social and physical default. One participant addressed this idea of a change in the social default at UMD when she noted that, "humans are a very social species, we like to follow the group, we like to be a part of the majority if we can. So, if we have the majority doing it, there's going to be a lot more people willing to do it themselves...other people are gonna want to be a part of it too."

Heberlein (2012) details how attitudes often lag in regard to social-behavioral change campaigns and uses the anti-smoking and recycling campaign histories as evidence of the relationship between behavior and attitude. An effective first step in long-term attitudinal change at UMD is facilitating sustainability behavior as the social default, the norm. For a tangible UMD example, consider a simplified food system (cycle) that speaks to the possibility of changing the food waste norm at UMD:

- Food is prepared and consumed at UMD.
- Food related waste is both eliminated and recycled at UMD via deliberate systems—these systems can be further developed to support a reduction in non-reusable waste and an increase in available organic matter. For example, food composting systems for consumers in the Dining Center and Food Court.
- Available food waste can be used to create organic matter to facilitate soil conditioning at the UMD Farm.
- Food is grown at the UMD Farm.
- Locally raised food from the UMD Farm can be an increasing part of the food options sold in the Dining Center and Food Court.

Composting can very clearly be compared to the recycling norm via institutional structuring. We have systems for the reclamation of recycle goods, and we have a farm capable of the reclamation of food waste; the behavioral leap between recycling a pop can in Kirby and composting an apple core in the Food Court is not a great stretch if the infrastructure supports it. And if the action required by any one member of the UMD community is easy, say convenient, then compliance may follow, and with time and broad participation, a norm may change. A change in norms may ultimately help facilitate attitudinal change.

In conclusion, Using Heberlein’s (2012), review of research as guide, UMD is a prime candidate for positive change. See Table 3 for a consideration of Heberlein’s (2012) behavior change guidelines coupled with an assessment of UMD’s opportunity. As noted earlier in this report, sustainability must be considered on multiple levels, from infrastructure to individual behavior. The results presented here indicate that there is much to learn from consideration of the daily experience of sustainability by UMD students.

Table 3

*Behavior Change Guidelines and UMD Opportunity*

<b>Heberlein’s (2012) Behavior Change Guidelines</b>	<b>Assessment of UMD’s Opportunity</b>
Clear and specific behavior	Systems like composting of food waste or elimination of the sale of bottled water from UMD stores can focus upon clear and specific behavior.
High-status public leadership	The entire Strategic Initiative process is championed by UMD Chancellor Lendley Black. In addition, UMD has an office of Sustainability—providing visible and tangible leadership for sustainability on campus.
Norms consistent with values	UMD Core Value Sustainability: <i>We balance current environmental, economic, and social needs with those of future generations.</i>
Time	Great efforts on behalf of institutionalizing sustainability were taken at UMD in 2009—this represents a significant time investment already in place.

Table 3

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