PSU Shaping Sustainability Survey Results Winter 2009

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"Sustainability" has become a household word. It seems everyone is talking about being green. Many organizations, large and small, say they want to be more sustainable and a lot of students want to focus their upcoming careers on sustainability. Is this a phase? Is it "trendy" to be green? Or are firms and governments really committed to this idea of treading lighter on the Earth? Will there be the same level of enthusiasm 5 or 10 years from now? Are firms willing and ready to put their money where their proverbial mouth is? What role does a university play in creating a more sustainable community?

Portland State University conducted a survey called the "Shaping Sustainability Survey" in January of 2009. The purpose was to "engage community partners in the future trajectory of PSU's sustainability initiatives". The survey was sent to 1000 e-mail addresses of people who worked at organizations that are already informed about sustainability issues and 11% of those surveyed responded. Because of the low response rate, two focus group sessions were held in February of 2009 as a follow up component. The 13 focus group participants fell into the same general categories as survey respondents; non-profits, for-profits, government and education. The focus group sessions were aimed to clarify issues that arose from the survey. In addition to clarifying responses, the participants were pressed for more details on how PSU can best engage with the sustainability community.

I used the results of the survey to try to answer some of the questions I pose in the introduction. I used descriptive statistics generated from responses of several of the survey questions as well as specific statistical tests such as t-tests, ANOVAs, Chi-Square tests and comparison of two proportions. I also investigated some of the findings of focus groups and the insight that those sessions provided.

I expect to find that sustainability is not a trend and that respondents from all organizations feel sustainability is something they want to be committed to. I expect that my statistical findings will match my observations of the behavior of Portland organizations when it comes to supporting student growth in becoming sustainability experts, through funding student projects and internships.

Table 1 lists the variables used for this analysis. (**Table 1.)** The dependent variable used in most tests is the type of organization that survey respondents work for. Several independent variables were used including opinions on the importance of sustainability over time, how money is currently being allocated as well as how PSU should allocate money in the future.

Table 1. Table of Variables

Variable	Question Wording	Coding	Variable Type
Dependent Variable			
Organization Type	Which of the following best describes the agency you work for? (Please mark one)	orgtype	Discrete category
Nonprofit		1	
Educational/research institution		2	
Forprofit		3	
Local Government		4	
State Government		5	
Other		6	
Independent Variable			
Sustainability Now	On a scale of 1-5, how important is sustainability to your organization now? (With 5 being "essential" and 1 being "not at all")	susimpnow	Discrete category
Sustainability in 5 years	On a scale of 1-5, how important will sustainability be to your organization in 5 years? (With 5 being "essential" and 1 being "not at all")	susimp5yrs	Discrete category
Spending on internal sustainability efforts	What percentage of your current budget goes toward (internal) sustainability practices?	percbudgetint	Continuous
Spending on student internships and projects	If you could recommend PSU spend $100 on any or all of the following areas, how should the money be allocated?	moneystudent	Continuous
Willingness to match PSU funding for student internships and projects	The Miller Foundation grant asks PSU to seek in-kind or cash matches. To which of the following areas would you be willing to dedicate your own organization's resources?	matchstudproj	Discrete category yes/no/not sure

Table 2 lists some descriptive statistics for the variables used in the analysis. **(Table 2.)** The results show that most of the respondents worked for non-profit organizations but across organization types, most respondents feel sustainability is quite important now (rated a 4 on a 1-5 scale) and think it will remain important in the future. The descriptive statistics also show us that state and local governments spend the largest percentage of their budgets on internal sustainability efforts such as reducing waste and increasing energy efficiency (15%), followed closely by non-profits who spend an average of 10%. In contrast, state and local governments don't agree on the amount of money that PSU should spend on student projects and internships. On average, state governments think that 25% of $100 should go for this purpose, followed closely by for-profit firms who think that 20% should be spent on student projects and internships. Local governments think only 17% should be spent on preparing students for careers in sustainability.

Table 2. Descriptive Statistics

Variable name	Description	Frequency	Percent
orgtype	Organization type respondent works for		
	Nonprofit	41	27%
	Educational/research institution	14	9%
	Forprofit	33	22%
	Local Government	33	22%
	State Government	7	5%
	Other	20	13%
		Mean	Std. Dev.
susimpnow	Importance of sustainability now	4	1
susimp5yrs	Importance of sustainability in 5 years	4	1
percbudgetint	Percent of current budget for internal sustainability activities		
	Nonprofit	10	15
	Educational/research institution	7	8
	Forprofit	9	12
	Local Government	15	20
	State Government	15	25
	Other	8	9
moneystudent	Money to be spent on student internships and projects		
	Nonprofit	18	11
	Educational/research institution	20	12
	Forprofit	22	21
	Local Government	17	11
	State Government	25	37
	Other	18	8
matchstudproj	Willingness to match money for student internships and projects		
	Nonprofit	2	0.90
	Educational/research institution	2	0.99
	Forprofit	2	0.86
	Local Government	2	0.89
	State Government	3	0.84
	Other	2	0.90

After looking at the descriptive statistics I wanted to get a broad overview of how people felt about sustainability. The first comparison I completed was between how non-profits and for-profit firms responded to the survey question "On a scale of 1-5, how important is sustainability to your organization now? (With 5 being "essential" and 1 being "not at all")

In order to analyze the data between these two organization types I first created an interval scale that would divide the responses into three defined groups that were more appropriate for my particular analysis. I chose the following three category intervals; 1 means no importance, 2-3 means there is low to moderate importance and 4-5 means

there is a high level of importance in their organization. I then looked to the data to find the percentage of non-profit firms that answered in each of these intervals. I repeated the steps with the for-profit firms.

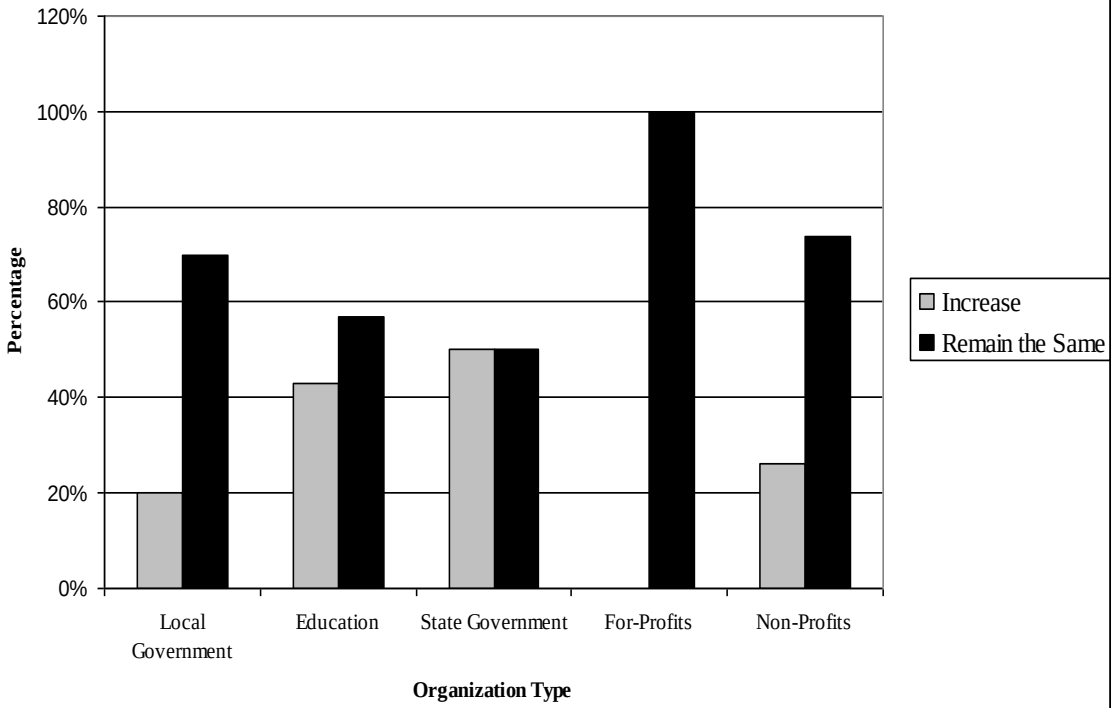
After doing this it was easy to see the answer to my first question. By comparing the responses for both organization types, the data reveals that the non-profit respondents felt sustainability was more important than the for-profit firms. Not only did more non-profits feel sustainability was essential to their organization now (84.2%) but more non-profits also felt sustainability was at least of low to moderate importance (10.5%). For-profit firms seemed to be more polarized in their opinion of sustainability in their organization. Either they felt it was of no importance (37.5%) or they felt it was essential (62.5%). No for-profit respondents felt it was of low or moderate importance. Although more for-profit firms felt sustainability was essential (62.5%) than not important at all (37.5%), there was a smaller percentage than the non-profits who felt it was essential (84.2%).

Next I wanted to look to the future and find out how all the respondents felt the importance of sustainability would change five years from now. I analyzed the responses from all organization types (except those describing their type as "other") to the survey question "On a scale of 1-5, how important will sustainability be to your organization in 5 years?" (With 5 being "essential" and 1 being "not at all")

I first grouped the data from the survey by organization type and then totaled the number of respondents for each type. This gave me the total sample size of each group (n). I then compared the responses from the first part of the survey that asked their opinion of the level of importance of sustainability today, with their rated level of importance 5 years from now. By comparing the two results side by side, I was easily able to count the number of respondents who expected sustainability would become more important and the number of respondents who expected it to remain the same. I then simply found the percentage in each category, increase or remain the same, and graphed the results.

Figure 1 shows something that may be surprising to researchers who expect sustainability to become more and more important over time. The data, when graphed, appear to show that the majority of the organizations surveyed feel sustainability will not increase in importance the future. (**Figure 1.)** The most divided group is the state government respondents. Half of these respondents think it will become more important and half think it will remain the same.

Figure 1: Change in Level of importance 5 years from now (by organization type).



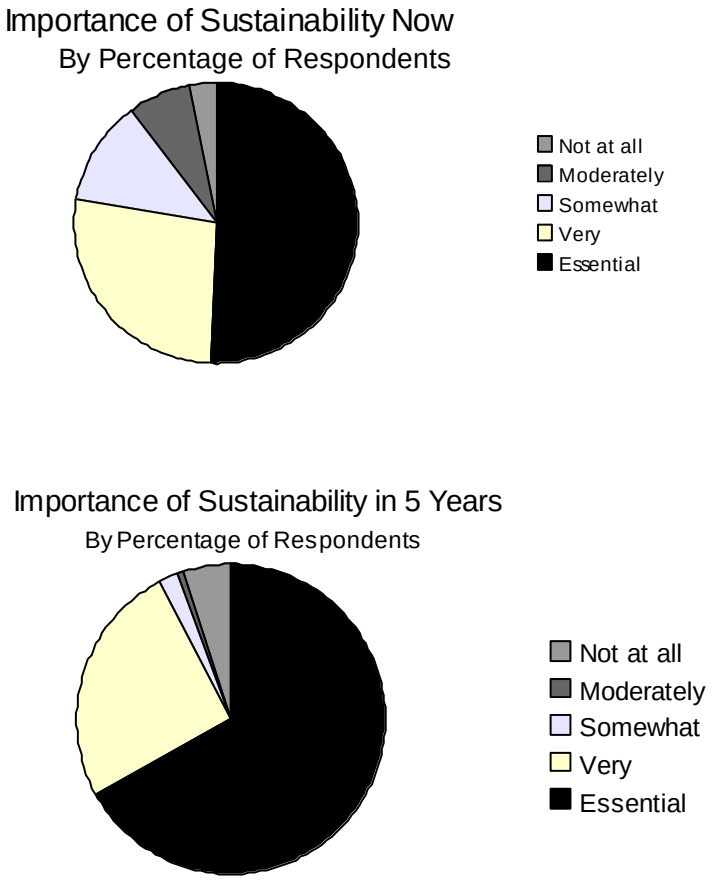
It is important to evaluate these two categories together and consider modifying the survey questions. By looking only at figure 1 it would appear that people may not feel sustainability is an increasingly important issue. However, table 3 and figure 2 show responses from all organization types and clearly show that most respondents already rate sustainability at a 4 or 5. (**Table 3. Figure 2.)** The second survey question should be modified to directly ask whether respondents feel sustainability will become increasingly important over time. For those respondents who felt sustainability was essential today, can it become any more essential in the future or is it already as important an issue as it will be for them? The data we currently have may not accurately reflect this information. What our data does tell us is that an increasing number of people think sustainability will be very important or essential in the future.

Table 3.

Importance of sustainability now		
All organization types	Frequency	Percent
Not at all important	5	3%
Moderately Important	10	7%
Somewhat important	19	12%
Very Important	40	27%
Essential	75	50%

Importance of sustainability in 5 years		
All organization types	Frequency	Percent
Not at all important	8	5%
Moderately Important	1	1%
Somewhat important	3	2%
Very Important	38	25%
Essential	99	66%

Figure 2.



Now that I can tell that most of the respondents do think sustainability is a priority now and will still think so in five years, I wanted to compare the groups to see if there was a difference in mean level of importance within and between groups in terms of how important sustainability would be in the future. To do this I calculated the F-statistic for a one-way analysis of variance (ANOVA) for the survey question regarding importance of sustainability in five years. (**Table 4.)**

Table 4.

One-Way ANOVA In 5 Years

Source of variance	Sum of Squares	df	Mean Square	F	Significance
Between Groups	10.16	5	2.03	2.35	0.04
Within Groups	122.83	142	0.87		
Total	132.99	147			

Table 4 shows an obtained value for the F-statistic of 2.35. There were 5 degrees of freedom between groups and 142 degrees of freedom within groups. The significance level of .04 is lower than my .05 level indicating that there is a significant difference in the mean level of importance of sustainability in the future between organization types. The ANOVA does not indicate where the difference lies, only that there is a difference.

After analyzing the data up to this point, it is clear that sustainability is important to respondents from all organization types and that it will still be important in the future. Now it is important to ask, if it is important, what percentage of an organization's budget is actually being spent on sustainability initiatives? I specifically chose to look at internal efforts such as reducing office waste, encouraging employees to carpool, bike or take transit, and reducing energy consumption. I also focused my analysis on the budgets of local governments and for-profit firms because I expect that one spends more on these efforts than the other.

I used the T-Test for independent samples because the budgets of local governments are independent from the budgets of for-profit firms. I ran the test to compare the two mean responses to the survey question "What percentage of your current budget goes toward internal sustainability practices?" I set my level of risk at .05 and calculated the T-statistic. The critical value is 2.009. **(Table 5.)**

Two-Tailed T-test for Equality of Means

t	Degrees of Freedom	Significance
-1.34	48	0.19

Table 5

My results show that there is not a significant difference between local governments and for-profit firms when it comes to the percentage of their budgets they spend on internal sustainability efforts. The obtained value is -1.34. The significance level of this finding is .19 which is greater than my level of risk of .05. Therefore, there is a 5% chance of there actually being a statistically significant difference in their spending.

Since organizations are spending money on making their own internal processes more sustainable, I wanted to find out how they felt PSU should allocate funding for sustainability projects. I chose to analyze the survey question "If you could recommend PSU spend $100 on any or all of the following areas, how should the money be allocated?" First I ran some descriptive statistics on the question to see how respondents from all organizations answered. I found that on average respondents felt that about 30% of $100 should go toward enhancing partnerships with community organizations, 23% should go toward faculty research, 20% should be used to expand course offerings in sustainability, 20% should be given to student internships and projects and 17% should go toward technology transfers.

Next I zeroed in on the "student internships and projects" response to see how important this option was to local governments and for-profit firms specifically. I wanted to see if there was a significant difference in how important these two organizations see student internships. To compare these two proportions I needed to find the z-score between the them. Comparing proportions was the appropriate test for this research question because I wanted to compare two groups and my dependent variable was categorical data given in a percentage. I set my level of risk at .05 and computed my z-statistic. (**Table 6.)**

Table 6.

	For-Profits	**Local Governments**
% of $100 PSU should spend on student internships and projects	23%	17%
Sample (n)	32	30
Z-score	0.276	

As table 6 shows, the z-score is .276 which means that there is not a significant difference at the .05 level between the for-profit firms and local governments when it comes to the amount of money that should be allocated for student projects and internships. However, although not statistically significant, for-profit firms do feel money should be allocated toward this important area more than local governments do.

Finally, if organizations are committed to sustainability and think PSU should fund student internships and projects, I felt it was important to ask how much they are willing to match PSU funding for these projects and internships. Do they only support it if it's someone else's money?

Again I compared local governments and for-profits on their willingness to match PSU funding for sustainability projects. I used the survey question "The Miller Foundation grant asks PSU to seek in-kind or cash matches. To which of the following areas would you be willing to dedicated your own organization's resources?"

I extracted the data for the "student internships and projects" response and set the level of risk at .01 Next I ran a Chi-Square cross tab for these two organization types against the three possible responses "yes, no or not sure". (**Table 7.)**

Table 7.

Chi-Square Cross Tab

	Willingness To Match PSU Funding For Student Internships And Projects			
	Yes	No	Not Sure	Total
For-Profit	18	4	7	29
Local Government	20	4	9	33
Other	12	2	5	19
Total	50	10	21	81

The findings were significant at the .996 level with 4 degrees of freedom. Therefore, I found that there is not a statistically significant difference between organization types when it comes to willingness to match PSU funding for student internships and projects. Both local governments and for-profit firms are willing to match PSU funding for student internships and projects.

After the analysis of the survey responses, I looked to the results of the focus group sessions to evaluate the feedback received there. Several topics were discussed during the focus group but I first analyzed the responses to a topic related to the information gathered from the survey about student projects and internships. Focus group respondents were asked to comment on a survey finding that PSU is not producing graduates ready to lead in the sustainability field. Facilitators asked why satisfaction with PSU graduates in leadership roles may be low. Participants stated that there is a difference between hiring interns and hiring graduates for leadership positions. Participants felt that although graduates were well prepared for entry level positions where they could use the skills they learned while in school to eventually rise to leading roles, graduates were not prepared to step right into leadership roles immediately after graduation.

Participants also felt the definition of "sustainability field" was ambiguous and that at the present time, sustainability as its own field remains unclear. Instead of being a autonomous field, sustainability should be integrated into every field. One attendee from a for-profit organization also added that because PSU does not offer a specific degree in sustainability, the university is not doing a good job highlighting graduate's expertise in sustainability topics which would help prepare them for leadership roles.

Finally, because one of the purposes of the survey was to find out how PSU could best engage community partners in leading sustainability initiatives, I analyzed the focus group question "How could PSU help your organization move forward with its sustainability goals?" Many things were mentioned in response to this question. Participants seemed ready to take further steps toward sustainability but seemed to recognize that barriers existed. Some of the barriers they encounter include outdated regulations that prohibited people from implementing innovative sustainable infrastructure such as creative reuse of storm-water. Further, participants seemed to feel

that lack of knowledge was a barrier. They wanted to see PSU develop programs as a resource to build a knowledge base about sustainability, help educators develop a sustainability curriculum for K-12 students, and build a testing lab or research center for building materials and systems that could help PSU become a center for standards in building science.

According to the focus group summary, participants also noted that although Portland is a leader in sustainability, the suburban areas such as Beaverton, Tigard and Lake Oswego have not had the same successes. They would like to see PSU help the suburbs increase their sustainability strategies like building more bike facilities, increasing walk-ability, green land development and strengthening local businesses. More generally, there was a desire to integrate quality of life measures, including cultural and health issues, into sustainability work in order to broaden its applicability. Specific requests were made including help defining what an eco-district is, monitoring and providing feedback on existing systems, integrating long-term health concerns into the built environment, exploring how green buildings can leverage social sustainability and increasing alternative transportation for youth.

After analyzing the results of the 2009 Shaping Sustainability survey and the follow up focus group summary, several things are clear. "Sustainability" truly is becoming a household word and nearly everyone who responded to the survey is trying to take steps toward reducing their organization's environmental impact. Across organizations today and in the future, respondents are truly committed to this new environmental ethic we call "sustainability".

Learning how sustainability is prioritized among different organizations is important because it tells PSU who is making the biggest commitment and which organizations are in the greatest need of partnerships to overcome barriers to the effort. The data validated the expectation that governments are taking a leading role in implementing sustainable strategies, although they don't seem to value student projects and internships as much as other organizations. As a public institution, PSU should work to develop a closer partnership with government and work together to become a more powerful leader.

The focus groups were important in my analysis because they revealed specific tasks that PSU could undertake to become an asset to the community during this important learning curve. As a university, PSU's role should be one of a source of knowledge. By developing curriculum that better reflects sustainability principles for college students and even K-12, PSU could set the standard for expertise in this new, emerging field of sustainability. Curriculum should include all aspects of sustainability, not just environmental. Cultural, health, social justice, equity, local businesses, green building materials and ethical land use should all be included in the curriculum so that students will develop systems thinking when solving tough real world problems in the future. PSU should develop a testing lab and become a resource for professionals to measure the effectiveness of new products and systems.

Also, PSU should continue partnering with local organizations to invest in student projects and internships. Investment in these areas will produce higher skilled and more experienced graduates which will in turn benefit the organizations that they will work for.

Bringing more skill to local governments and for-profit organizations in terms of sustainability will enhance Portland's edge as a leader in sustainability initiatives.

Although the survey provided helpful insight into the opinions of people in Oregon on topics of sustainability, there are some limitations. First and most importantly, because our sample was not randomly selected, our results cannot be used to make predictions about the larger population. The respondents from our survey already had ties to PSU and were already involved in sustainability. The survey was sent to a list of e-mails obtained from the Institute of Portland Metropolitan Studies because it provided access to potential respondents for a project that had limited resources. Since respondents already had knowledge of PSU and likely had knowledge of sustainability, the data do not reflect the opinions of the general population.

Also, the survey questions themselves were targeted toward an audience who had some knowledge of sustainability terms and practices. Therefore, the data do not include organizations who may not have tried to become more sustainable yet and may actually present the largest opportunity for reducing their environmental impact.

The method used to disperse the survey also limited respondents at organizations that had an e-mail account. Therefore, individuals who may have important feedback for PSU were excluded as well as smaller organizations such as non-profits who may not be connected electronically to PSU yet.

The 2009 Shaping Sustainability survey was a great starting point for collecting data regarding opinions of sustainability and how successful PSU has been up to this point. It also gave important insight into how PSU can improve. More research should now be done to include a wider audience. We should target industries that aren't very sustainable to find out how we can assist them in joining the effort. We should reach beyond those that are already familiar with PSU and work to be a resource to those who don't know we are one. In order for sustainability to be most effective, everyone has to do their part. With emerging issues like climate change, poor air quality and it's health effects and food scarcity, creating a more sustainable world will benefit everyone in this generation and beyond.