Technical Education for High Performance in Landscaping, Operations, Construction, and Architectural Design/Drafting/Interior Design (LOCATE)

2013 Evaluation Report

Prepared under contract to
Portland Community College

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October 2013

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Executive Summary

Portland Community College's Technical Education for High Performance in Landscaping, Operations, Construction, and Architectural Design/Drafting/Interior Design (LOCATE) project trains educators in the latest advances in high performance and sustainable design and practices. The project is supported by an Advanced Technological Education Program (ATE) grant from the National Science Foundation (NSF). Through externships and summer institutes, secondary and postsecondary faculty members connect with and learn from experts in their teaching fields. Back on campus, project participants integrate what they learned into their syllabi and curricula and share their training experiences with students and colleagues. The following goals guide the project's activities:

- Improve educator's knowledge and understanding of sustainability issues, trends, technologies, and best practices.
- Translate this new knowledge into curriculum changes so that students in a variety of technical programs are better prepared to work in fields where sustainability is emerging.
- Create a community of sustainability-focused technical educators and provide these educators with a venue for scholarly interaction and dissemination of education materials.
- Increase access to and diversity in high performance design building operations (HP-DBO)-related programs for traditionally underrepresented populations.

Project activities in 2013 included six externships completed by faculty from Idaho,[1] a Summer Sustainability Institute in Portland, Oregon (SSI-Portland), and a High Performance Institute: Building Science and Weatherization Boise, Idaho (HPI-Boise). Following participation in these activities, the project requires participants to integrate the information learned into at least one (for the institutes) or three (for the externships) of their courses and submit their syllabi to the project leads.

[1] A seventh externship with a faculty member from the state of Washington was underway at the time of this report and will be included in next year's report.

The evidence collected during the 2012–13 project year suggests that the project has made substantial progress towards meeting its goals. Institute participants reported a greater understanding of sustainability topics and practices and reported specific plans to use this information in their classroom teaching. Follow-up with selected 2011-12 institute participants revealed that all submitted revised syllabi and curricula reflecting project themes and had used information from the project in their teaching. Externship participants related that they were exposed to new technologies and practices, gained insight into essential skills that their students need, and built relationships with experts in their fields. Participant feedback also indicates that both program parts support the third goal of creating a community of sustainability-focused technical educators, through peer-to-peer interactions during the institutes and through new connections with industry for externs. Use of the project website's discussion and information sharing features to extend these connections has, however, been limited. Finally, as regards the fourth goal, the project recruitment efforts include a number of institutions that serve groups traditionally underrepresented in the target fields, such as Hispanic-serving institutions, and participants have represented institutions and programs that serve low-income groups, such as Portland Youth Builders and Habitat for Humanity.[2]

The evaluation team used the Kirkpatrick training evaluation model, which outlines four levels for assessing training program effectiveness, to assess the project's progress toward the first two of the four goals (Kirkpatrick 1994). The levels are:

1. *Reaction*: participants overall impressions of the training.
2. *Learning*: what participants learned through the training.
3. *Behavior*: how the participant's work changed as a result of the training.
4. *Results*: the longer-term impacts of the training, such as sustained changes in classroom practices or student outcomes.

This report focuses on the first three levels. The fourth level will be a focus of evaluation activities in the coming year.

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[2] Hispanic serving colleges included in the LOCATE's recruitment efforts include Los Angeles City College and Chaffey College in California and Columbia Basin College in Washington state. For more information about Portland YouthBuilders, see http://www.pybpdx.org/who.html.

The evaluation found positive results for the LOCATE training program in accordance with the Kirkpatrick model. Faculty participants found the training to be of high quality, engaging, and worth their time (level 1). A pre-/post-knowledge survey and participant reports indicate that the experience expanded their knowledge of high performance/universal design and sustainability (level 2). Past participants shared how they integrated what they learned into their teaching, and those who joined the project in the current year shared concrete plans for integrating what they learned into their teaching (level 3). According to the Kirkpatrick model, the levels are cumulative and the successful achievement of levels 1-3 lays the groundwork for needed to achieve longer-term effects (level 4) (Kirkpatrick 1994), which will be explored during the 2012–13 academic year.

Recommendations

Across all of the data collection approaches, participants were highly positive about their experiences and generally expressed more appreciation for their experiences with the project than suggestions for improvement. When specifically asked, however, the participants did share some ideas for strengthening future activities. The following recommendations reflect suggestions offered by project participants and the evaluation team's analysis and observations.

Faculty Externships

1. **Develop and provide concise information about externships for potential employers.** Several instructors indicated that their employers did not know what an externship was and thought that having standard information in addition to the basic agreement—including expectations for both externs and employers—would be very helpful in smoothing the path to establishing an externship agreement. For example, an information packet that could be shared with candidate employers would help faculty members explain the purpose and structure of the externships. Several also noted the benefit of standard information in minimizing confusion and red tape regarding the process aspects of externships, such as liability and insurance.

Summer Sustainability Institute-Portland

1. **Include more hands-on activities.** The focus group participants expressed appreciation for the several sessions that included hands-on activities that might be adapted for use in the classroom. In the daily feedback and overall evaluation comments, several respondents requested additional hands-on activities to engage students.

2. **Include more time for participant questions and reflections.** In response to feedback on the 2012 institute, the 2013 SSI included more time for participants to reflect upon and discuss what they learned with others. Despite this change, the most common suggestion was again to have fewer presentations and visits and more time to connect with other attendees. Two participants even suggested eliminating one activity per day and instead using the time for discussion. A perfect balance of activity and reflection would likely be difficulty to achieve, but the project leads might consider adding additional discussion opportunities.

3. **Include support for high school teachers.** Although the majority of SSI-Portland participants are college faculty, a small number of high school teachers attended in both 2012 and 2013. The two high school teachers in 2013 appreciated the opportunity to connect with their postsecondary colleagues in their fields and learn about college course content and requirements. They also noted, however, that quite a bit of the SSI content was too complicated for high school students. To address the needs of these teachers, the SSI might offer handouts or lesson plans related on the SSI's topics and geared to the high school level, or invite a past high school teacher SSI participant to relate how she or he used the material in teaching.

4. **Provide facilitators for small group activities, particularly during the summit**. Facilitators for small group discussions can help members stay on task, identify relevant discussion issues, and enhance group productivity. In addition, a neutral facilitator could improve small group interactions by ensuring that all members have opportunities to contribute and that one or two members do not dominate the discussion. If there too few staff members are available to provide a facilitator for each group, a roving facilitator might move from group to group and assist as needed.

High Performance Institute-Boise

1. **Add recruiting strategies.** Participants noted that holding the institute in conjunction with Idaho's Professional Technical Education conference was an effective recruitment strategy, but several related that they learned about the institute by chance and almost missed the opportunity. Current recruitment strategies might be supplemented by expanding efforts to get the word out through e-mail lists and newsletters to attract even more participants to future events.

2. **Include strategies for schools with limited equipment.** Some of the HPI-Boise participants teach in schools (both secondary and postsecondary)

that received a Grow Green grant to purchase equipment related to sustainable building practices and home energy audit training.[3] Others, however, teach in schools that did not receive the grant and expressed concerns about how best to train students without the equipment used during the HPI. Focus group participants discussed possible resources that might help; future events might encourage a similar discussion with the whole group or offer suggestions for accessing resources or devising low-cost substitutes.

All Project Activities

1. **Integrate the project website use into the summer institute and externship activities**: A goal of the LOCATE project is to, "Create a community of sustainability-focused technical educators and provide these educators with a venue for scholarly interaction and dissemination of education materials." To this end, the project team has developed a website that includes a forum section to facilitate ongoing connections between project participants.[4] Online communication tools can be powerful means for connecting individuals with common interests. With the multiple demands on individuals' time, however, many projects struggle to induce participants to use project website resources. To ensure that participants are aware of the resource and know how to use it, the institute might have participants log into the site during the institute to access resources or report information, such as observations or the results of small group discussions. The website resources may be competing with other communication tools, such as Facebook, LinkedIn, e-mail, or even conferences and meetings. The evaluation team will collect additional information on whether and how past participants connect with one another during the coming year.

[3] http://labor.idaho.gov/wia1/meetings/050812/tran8.pdf
[4] For example, see http://www.locate-stte.org/index.php?gtpg=forum#/categories/architectural

Introduction

The Technical Education for Higher Performance in Landscaping, Operations, Construction, and Architectural Design/Drafting/Interior Design (LOCATE) project at Portland Community College (PCC) supports technical educators in undertaking curricular and programmatic changes to reflect the latest advances in sustainability practices. Project activities began in September 2012 and are supported by an Advanced Technological Education Program (ATE) grant from the National Science Foundation (NSF). The project's ultimate goal is to provide educators with the information needed to train and recruit students in these fields.

LOCATE builds upon the Sustainability Training for Technical Educators (STTE) project that was active at PCC from July 2008 to June 2012. The LOCATE project leads have expanded the STTE by including additional technical fields such as landscape design, offering externships to faculty from Washington and Idaho, and offering a second summer institute in Boise, Idaho (HPI-Boise) in June 2013 and 2014. In addition, LOCATE continues to hold the annual Summer Sustainability Institute in Portland (SSI-Portland) that began under STTE.

This report summarizes the evaluation information collected for the faculty externships completed in spring and summer 2013, the 2013 SSI-Portland, and the 2013 HPI-Boise. Collectively, these activities are designed to meet the following project objectives:

- Improve educator's knowledge and understanding of sustainability issues, trends, technologies, and best practices.
- Translate this new knowledge into curriculum changes so that students in a variety of technical programs are better prepared to work in fields where sustainability is emerging.
- Create a community of sustainability-focused technical educators and provide them with a venue for scholarly interaction and dissemination of education materials.
- Increase access to and diversity in high performance design building operations (HP-DBO)-related programs for traditionally underrepresented populations.

The evaluation data presented in this report reflect the project's work towards these objectives during 2012–13. The institutes and the externships are designed to provide educators with the information and support needed to meet the first two of the project's goals and lay the groundwork for the third by providing educators with opportunities to connect with one another and experts in their fields. In addition, the project leads have created and maintained a web-based portal through which institute participants can communicate virtually. For the fourth goal, the project actively recruits faculty participants from community colleges in California, Oregon, Washington, and Idaho that serve student populations that have been traditionally underrepresented in the target fields.

Evaluation Approach

The mixed-methods evaluation employs observations, questionnaires, participant interviews, focus groups, and reviews of project materials, to gather data. The evaluation team meets with the LOCATE project staff several times a year to review data collection plans and instruments, and ensure that the information gathered adequately reflect the project's implementation and intended outcomes.[5] Evaluation activities included the following data collection methods in 2012–13:

For the **faculty externships**, the evaluation team:

- reviewed the employer and faculty members' externship agreements,
- interviewed participating faculty members, and
- interviewed the faculty member's primary contact at their placement organization or business (as available).

For the **SSI-Portland**, the evaluation team:

- reviewed the event documentation, including the curriculum revision plan, agenda, and event descriptions in the proposal and on the project website;
- administered an online Training Needs Assessment (the pre-SSI questionnaire) to collect information on participants' background and familiarity with the SSI topics;
- observed presentations and activities on days 1 and 5 of the SSI in June and during the SSI Summit in August;

[5] The instruments used for data collection in 2013 are included in appendix A.

- developed and administered six daily feedback forms to participants;
- administered an overall evaluation on the final day of the SSI that included a follow-up to the Training Needs Assessment; and
- conducted two focus groups with 6 to 7 project participants each at the end of day 4.

For the **HPI-Boise**, the evaluation team:

- reviewed available event documentation, including the agenda and descriptions in the proposal and on the project website;
- observed presentations and activities on the final day of the SI;
- administered an overall evaluation on the final day of the SI; and
- conducted a focus group with 9 project participants each at the end of the final day.

The evaluation plan and the sections of this report that follow reflect Kirkpatrick's four-level model for evaluating training programs. The Kirkpatrick model was developed in the 1950s for use in assessing the effectiveness of training in organizational contexts, largely in the for-profit sector (Kirkpatrick 1959, 1976, and 1994). The model's emphasis on measurement and outcomes has contributed to its widespread acceptance in contexts that include business, healthcare, and higher education (Bates 2004; Praslova 2010). The model has since been refined and adapted for use with formal training programs like LOCATE and informal learning in a variety of settings.

The Kirkpatrick model has been criticized for insufficiently addressing contextual issues, such as organization's learning cultures and participants' motivation levels. In addition, critics have noted that the model assumes causal linkages between both the levels themselves, as well as between the training evaluated and observed outcomes (Bates 2004). Despite these concerns, the model is still widely used and regarded as an industry standard in many fields (Tamkin et al. 2002). In light of these critiques, the LOCATE project evaluation addresses, where relevant, contextual factors such as participants' teaching levels and motivations for participation.[6]

[6] The authors advise readers to interpret apparent causal relationships with caution since approaches for measuring causal relationships, such as random assignment and control groups, are beyond the scope of this evaluation.

The Kirkpatrick model's four levels are *reaction*, *learning*, *behavior*, and *results* (Kirkpatrick 1994). The model defines the four levels as follows:

1. **Reaction**: The first level addresses participants' impressions of the training—their reported level of engagement and satisfaction—as well as their response to specific aspects, such as the training's format, topics, and instructors. This level is generally assessed shortly after participants complete an activity or event. Data collected through the focus groups and interviews, daily feedback forms, and overall evaluations address this level.

2. **Learning**: Level 2 addresses the new knowledge, skills or attitudes that participants may have gained through their participation. Much like level 1, the model advises assessing this level soon after a training session or event concludes. The focus groups addressed this level for the SSI-Portland and the HPI-Boise. In addition, SSI-Portland participants completed a pre- and post-assessment of their knowledge of sustainability issues. Faculty externship participants were asked to describe what they learned from their experiences and to provide specific examples of the new skills and information they acquired.

3. **Behavior:** Level 3 addresses participants' behavior and specifically whether and how they applied what they learned to their jobs. For the externships and HPI-Boise, information on course curricula and syllabi changes will be collected over the coming year. The SSI-Portland group reconvened in August 2013 to discuss their course changes, and some initial findings from that event are included in this report. Further data collection for level 3 is planned for the coming year after the participants have had a change to incorporate what they learned into the classroom.

4. **Results:** The final level addresses the achievement of longer-term outcomes associated with the LOCATE project, such as sustained changes in courses and instructional practices. The project might also indirectly affect student outcomes by increasing students' knowledge of and interest in sustainability-related issues and careers. Some limited information addressing this level is included in this report, but this level will be explored through participant follow-up in the coming year.

The model's levels are incremental, and the successful achievement of levels 2 through 4 depends on the achievement of the desired outcomes at the prior levels (Kirkpatrick 1994). For example, participation is unlikely to change what and how participants teach (level 3) if they did not learn new information or strategies (level 2) to incorporate in their classes, and learning is less likely if the participant's reaction to the training (level 1) was negative. Since time is needed

to realize the effects of each level, this report will focus on the first two levels of Kirkpatrick's model, provide some evidence for level 3, and level 4 will be addressed in the final 2014 report. The additional time will allow the evaluation team to collect data on how project participants applied their learning in the classroom and note any resulting effects on their teaching practices and students.

2012–13 Faculty Externships

The LOCATE project supported six high school and college faculty externships in spring and summer 2013.[7] In late July and August 2013, the evaluation team contacted the externs to request their participation in a telephone interview. Five faculty members responded, and project staff conducted interviews with each of the following individuals:

1. *Kyle Brown, Wind and Renewable Energy Lab Aid, College of Southern Idaho* Mr. Brown's five-week, full-time spring 2013 placement was with Terna Energy, a global company headquartered in Greece that develops and operates renewable energy projects, including a wind energy park in Idaho. Mr. Brown shadowed Terna's lead technician, who oversees wind farm operations, and participated in a series of sustainability-related activities and projects including collecting and documenting information, cataloguing repair equipment and use, preparing road repair reports, and developing quality assurance and control documentation. Mr. Brown focused particularly on safety and developed procedures for replacing lighting beacons on the wind turbines and for the periodic inspections of climb and rescue equipment. He also assisted in employee climbing training.

2. *Chris Buselmeier, Carpentry Instructor, Bates Technical College* Mr. Buselmeier had an eight-week winter 2013 placement with Tacoma/Pierce County Habitat for Humanity, a housing nonprofit that partners with families in need of safe and affordable housing. Mr. Buselmeier worked approximately 30 hours per week on the construction of one of the first passive design Habitat houses in Pierce County. His responsibilities included using advanced framing techniques that use less lumber; roofing; insulation; air sealing; and preparing the house for installation of electrical, plumbing, and heating and cooling systems.

3. *Miles Hurley, Teacher, Idaho Falls High School* Mr. Hurley participated in a six-week summer 2013 placement with Engineering System Solutions, a structural, mechanical, electrical, and plumbing engineering firm

[7] One additional faculty member from Washington was completing his externship at the time that this report was written and requested an interview in fall 2013. Information about his externship will be included in next year's report.

headquartered in Idaho Falls, Idaho. Mr. Hurley worked about 30 hours per week designing lesson plans using engineering industry software, designing a sample building, and reviewing his draft lesson plans and the sample building design with company staff.

4. *Kip Morris, Assistant Professor of Wind Energy, College of Southern Idaho* Mr. Morris's eight-week spring 2013 placement also was with Terna Energy. Mr. Morris had similar responsibilities to Mr. Brown, with a particular focus on understanding the work involved in the ownership of a wind energy park. As an extern he observed turbine maintenance; assisted with analysis of needed repairs to high voltage lines and worked with contractors to implement repairs; and assisted with city and county negotiations regarding road repairs.

5. *Ross Spackman, PhD, Professor of Water Resources Management, College of Southern Idaho* Dr. Spackman spent approximately 180 hours during spring and summer 2013 at Idaho National Laboratory, an applied engineering national laboratory that supports the U.S. Department of Energy's (DOE) missions in nuclear and energy research, science, and national defense. Dr. Spackman focused on learning climate change mitigation and renewable energy production research methods and technologies. He served as an assistant to the Biomass group and prepared bio reactors; prepared, grew, and harvested algae; prepared DOE oversight reports; prepared laboratory safety protocols for lab access; and conducted a week-long safety training.

Evaluators contacted the remaining faculty member three times in summer 2013 to request an interview, but were unable to reach her. The evaluation team will follow up with her during fall 2013 and include information about her experiences in next year's report.

6. *Diane Steinbronn, Program Chair of Health and Human Services, College of Western Idaho* According to her externship agreement, Ms. Steinbronn worked approximately 20–40 hours per week for an estimated six weeks, totaling 180 hours, at Earthcraft Construction, Inc., a design-build company in Boise, Idaho, that focuses on green building. The goals for Ms. Steinbronn's externship included gaining sustainability knowledge, interacting with industry partners, and providing support to Earthcraft Construction.

For each faculty member who participated in an interview, evaluators also requested interviews with the primary contact person at the organization in which the faculty member was placed. More than half of those employers were reached and participated in an interview; the remaining employer was not available for an interview.

1. *Justin Judy, Principal Engineer, Engineering System Solutions*: Mr. Judy oversaw Miles Hurley's externship.

2. *Ben Lyons, Terna Energy*: Mr. Lyons oversaw Kyle Brown's and Kip Morris's externships.

3. *Gomer Roseman, Director for Site Development and Construction, Tacoma/Pierce County Habitat for Humanity*: Mr. Roseman oversaw Chris Buselmeier's externship.

In addition, the evaluation team also did a second follow-up interview with the landscape technology faculty member who completed an externship the previous year (spring 2012), Marilyn Alexander. This interview focused on how what she learned in the externship influenced her classroom teaching and how she felt that her externship experience, as shared through her teaching and interactions with students, affected her classes. Ms. Alexander's spring quarter 2012 placement was with DeSantis Landscapes, Inc. a landscape design company in Salem, Oregon that emphasizes sustainable practices. During her externship, Ms. Alexander worked an average of 18 hours per week for 11 weeks on a variety of sustainability-related projects, including analyzing return on investment for water-reducing irrigation systems, developing a cost estimate for a salmon-safe habitat restoration, mapping work sites, and using an AutoCAD program to develop an irrigation zone map.

Level 1: Reaction

The faculty members indicated that their overall externship experiences were very positive, both for individual professional development and for the potential benefits to students. According to Mr. Morris, "I'm very appreciative of all the hard work of everyone who allows this to happen. It's critical to have a connection to the industry and I wish there were more chances like this for educators to go into the field." Mr. Hurley noted that it was a "great opportunity…to develop a program that I can use in our school instead of bringing in a canned program."

Each faculty member had general or specific goals for their externships, and nearly all noted that they modified or expanded their goals based on the opportunities available once the externship started. Dr. Spackman said, "[The goals] on my agreement aren't necessarily what I learned, but I'm not disappointed. This opportunity opened my eyes to areas that I wasn't even aware of." Mr. Brown and Mr. Morris noted that they had hoped to participate in hands-on work on wind turbines, but that the structure of their employer's organization and the involve-

ment of subcontractors prevented them from doing so. According to Mr. Brown, "I wish we could have done a little more working with the [subcontractor] technicians, but company policy didn't allow us up there. Some things exceeded what I expected to do, though, like learning about collection systems."

Faculty members also said that the externships offered them opportunities to build relationships with experts currently working in their fields. Dr. Spackman related that he "interviewed as many [principal investigators at Idaho National Labs] as I could. They knew why I was there and were very willing to talk about directions and trends and…. they helped me understand how to prepare students for careers." Dr. Spackman has invited his externship mentor to be a guest lecturer in a class and he has standing invitations from several researchers to bring students to visit Idaho National Labs. At Habitat, Mr. Buselmeier spoke with multiple project contributors and noted that his conversations with subcontractors were very worthwhile and gave him an opportunity to exchange ideas. Mr. Morris has invited the maintenance and ownership managers of the wind farm to serve on his program advisory board.

The three employers interviewed had positive overall reactions to the externships and would consider hosting externs in the future. Mr. Lyons from the Terna Enegy wind park noted that the externship offered a good sharing opportunity. Mr. Roseman from Habitat for Humanity indicated that his extern "made a valuable contribution because he was capable and skilled. It was an all around positive experience and I'd recommend it to other employers." He also asserted that, "there has to be a reciprocal benefit. I think that's what we had. We both gained something, benefitted as a result of the relationship."

Mr. Judy at Engineering System Solutions who worked with Mr. Hurley indicated that it was a good program and good experience, but that "I don't know that we gained a ton from the experience." According to Mr. Judy, "The way it was presented was kind of that he'd help us out, but that wasn't the case. You take on an extern because you care about local community and schools. I thought maybe he could do the work for us, but that's not the purpose." Mr. Judy indicated that his advice to other employers would be to not expect the externship to pencil out—it would cost the employer more than they got back in return—but that it was worth it.

Mr. Judy's response may be a result of different types of extern engagement in employer projects. In most of the externships, the faculty member participated directly in the work of the placement employer. Dr. Spackman, for example, served as a roving assistant to the biomass group at Idaho National Labs, where

he participated in research, wrote reports, and facilitated safety trainings. Mr. Brown and Mr. Morris shadowed the daily activities of the Terna Energy lead wind park technician; assisted in documentation and reporting; and developed equipment and safety protocols and trainings. Mr. Buselmeier served as a contractor for Habitat for Humanity, where he framed the second story of the passive house and participated in many aspects of the home's construction. Mr. Hurley, in contrast, independently learned the software that Engineering System Solutions uses to develop buildings. After developing a sample house, he met with other employees to obtain feedback on his design and recommendations for incorporating similar project work into his high school curriculum. He did not participate directly in his employer's projects.

Level 2: Learning

Nearly all of the faculty members found the opportunity to learn current industry techniques was highly valuable, including Mr. Buselmeier who appreciated the chance to engage in hands-on building at Habitat for Humanity using new, sustainable construction techniques. Several instructors noted that their original industry experience eventually becomes dated and that the new practices they learned can be infused into the curriculum to ensure it remains relevant for students. As Mr. Brown observed, "This industry changes constantly and it's easy to lose touch with what's current."

In addition, instructors felt that the first-hand experiences would raise their credibility in the classroom. For example, Mr. Brown and Mr. Morris mentioned that students sometimes question the instructors' focus on safety, but both could now share first-hand experiences of the dangers of working on wind turbines and the importance of safety protocols. Mr. Hurley said, "I'm going to be able to give them a first-hand perspective; tell them what works and what's important to know. And my interest and enthusiasm will generate interest and enthusiasm for them."

Employers indicated the externships were learning opportunities for them as well. According to Mr. Lyons, the externs "woke us up on some of the importance of climbing and rescue and the equipment they're using. [It was] neat to have [him] help us set up procedures and write up documents about safety." He also said that he would make changes for any future externs and "have some duties to help avoid downtime and get them started right away. I'd structure it better to get rid of that downtime."

Technical Skills

Faculty members found their experiences highly relevant to what they teach and reported learning about specific new techniques, equipment, or practices that they would like to incorporate into their curricula. Mr. Spackman observed that, "I didn't know what the biomass group was all about in breadth and depth." He related that he planned to introduce a greater focus on biomass and add a section on bio algae to his curriculum as a result.

Mr. Morris noted that his wind energy program is designed to teach students how to become technicians, but his experience suggested that it also is important for students to understand other components of wind energy. He observed that, "A service tech only goes and works on the turbine. On the ownership side, you have a broad spectrum of tasks like maintenance on a meteorological tower, high voltage lines, and road construction with the city or county." Mr. Brown and Mr. Morris both planned to provide more training about high voltage systems and equipment on wind farms as well as tools used on the wind farm that are not currently covered in their programs.

At Habitat for Humanity, Mr. Buselmeier learned about advanced framing techniques, insulation systems, and the use of more pervious concrete, which he indicated were becoming mainstream building techniques. As part of introducing those concepts to his classes, he planned to have students estimate the amount of material used by different techniques and investigate the benefits and challenges of different approaches.

Mr. Hurley's externship provided the opportunity for him to learn SolidWorks, a three-dimensional computer-aided design program used in the engineering field. Based on his experience, he planned to introduce a completely new 10-unit course on engineering design with an interactive curriculum that will allow students to design buildings and their component systems and participate in job shadowing and internships.

Employability Skills

Four faculty members also noted general concepts and employability skills that they plan to emphasize in the future. According to Mr. Brown, students need to understand that "when they're working remotely, soft skills are important. They'll be working with small teams in the office, and it's important to gain soft skills and writing skills." Based on his experience writing technical procedures during his externship at Terna Energy, Mr. Morris planned to add a section on creating

technical documentation to his program to help students build their writing and communication skills.

Mr. Hurley agreed with the emphasis on soft skills, noting that while he already focuses on soft skills, students need to understand "how important it is that they learn soft skills. Employers want people with work ethics, people who come in and know how to work."

Mr. Spackman's experience suggested the need to do more to prepare students for higher education beyond a two-year degree. He observed that:

> [Students] need to have more research experience. There are biomass jobs at the lower levels, but it was emphasized to me that if you want to get into this and go the direction it's headed, you really need graduate degrees. Students also need to improve their writing skills and comprehension of technical documents.

Level 3: Behavior

At the time this report was written, Ms. Alexander, who completed her externship in spring 2012, and Mr. Buselmeier (winter 2013) were the only faculty members who had returned to the classroom and taught for at least one term following their externships. Both reported incorporating the results of their externships into their curriculum.

Ms. Alexander used GoogleEarth and AutoCAD during her externship, and she included both tools in her design classes by having students use the software to create digital maps of working irrigation systems. In her grounds maintenance course, she included a greater focus on the business aspects of sustainability and how to talk with clients about those costs and benefits. She reported that her recent industry experience offered "credibility and experience. There's more weight behind what you say if you have industry contracts. Bringing in new technology and showing them things I learned on the job also makes them excited."

Following his externship, Mr. Buselmeier brought his class to a Habitat for Humanity site where they framed an entire house. His students also visited a site where pervious concrete was being used for driveways and the subcontractor later came to speak to the class about concrete techniques.

Level 4: Results

The application of externship experiences in the classroom, as described above, is both an example of how the participants have use what they learned (behavior) and how the project has impacted participants' teaching practices (results). Whether these changes are sustained over the longer term, and how they impact students are more challenging outcomes to assess given the project focus on faculty and the relatively short duration of the project. However, the evaluation team has and will continue to explore how faculty members' LOCATE experiences might impact students and their work over the next few years.

For example, Ms. Alexander related that one of her students interviewed with the company where she conducted her externship, noting that the student "came back and said that classes she'd avoided (estimating/bidding and irrigation) were important." Other students were surprised at Ms. Alexander's emphasis on estimating and bidding, but after hearing about her experiences, the students began to understand that it matters. The evaluation team will seek similar information from this year's faculty externship participants in the coming year.

2013 Summer Sustainability Institute, Portland

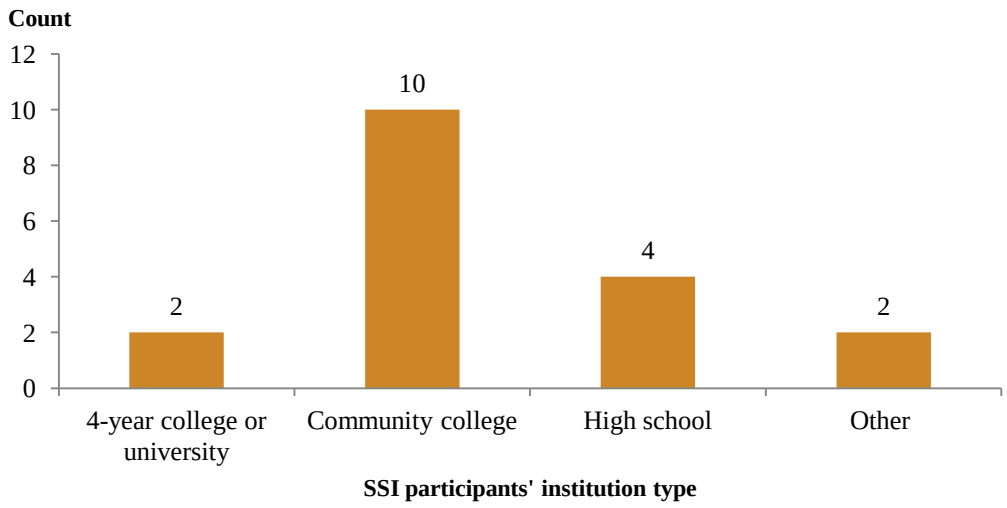
The 2013 five-day Summer Sustainability Institute (SSI) entitled *Universal Design Environments: Best Practices in Sustainability* took place from June 24 to June 28 at PCC. The institute included classroom lectures, discussions, social activities, and tours and site visits to various locations in the Portland, Oregon metro area. SSI participants gathered again in Portland on August 23 for a day of presentations and activities on integrating the SSI themes and information into their course curricula and teaching. A total of 17 individuals registered for the SSI (completed the registration questionnaire), and each day's sessions had from ?? to ?? participants. The SSI evaluation summary starts with a description of the participants, including where they work, the subjects they teach, and some basic demographic information. This information is followed an analysis of the data from the SSI evaluations.

Participant Profile

Prior to the institute, individuals registering for the SSI were asked to complete an online questionnaire. The questionnaire collected basic demographic information and also asked about registrants' previous experience sustainable practices and universal design. Respondents also rated their familiarity with universal design and sustainability topics and their importance for their teaching and work.

Fifteen of the 17 respondents reported that they had not attended any prior SSIs. Over three quarters of respondents represented either community colleges or high schools (Exhibit 1), two were from 4-year colleges or universities, and two participants chose "other." The two respondents who identified their institution type as "other" indicated that they worked for the Bonneville Power Administration.

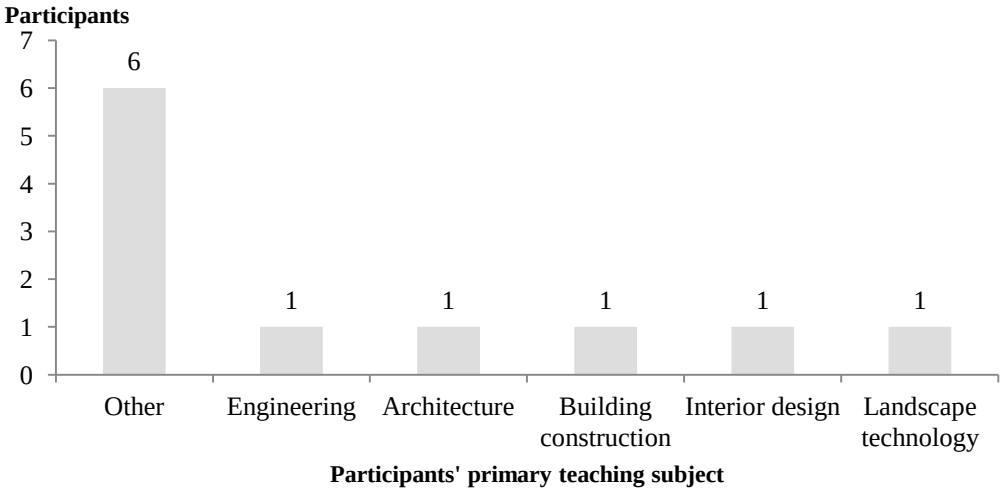
Exhibit 1: SSI Participants by Institution Type



NOTE: N=17. Participants could choose more than one institution type.
SOURCE: LOCATE SSI 2013 Overall Evaluation questionnaire.

One respondent each selected engineering; architecture; building construction; interior design; and landscape technology as their primary teaching subject (Exhibit 2). The majority (six) of the respondents to this question, however, indicated their primary teaching subject as "other", and reported the following subjects: energy efficiency, math, science, sociology (global social problems), environmental science, occupational therapy, and "how to live or work in your space."

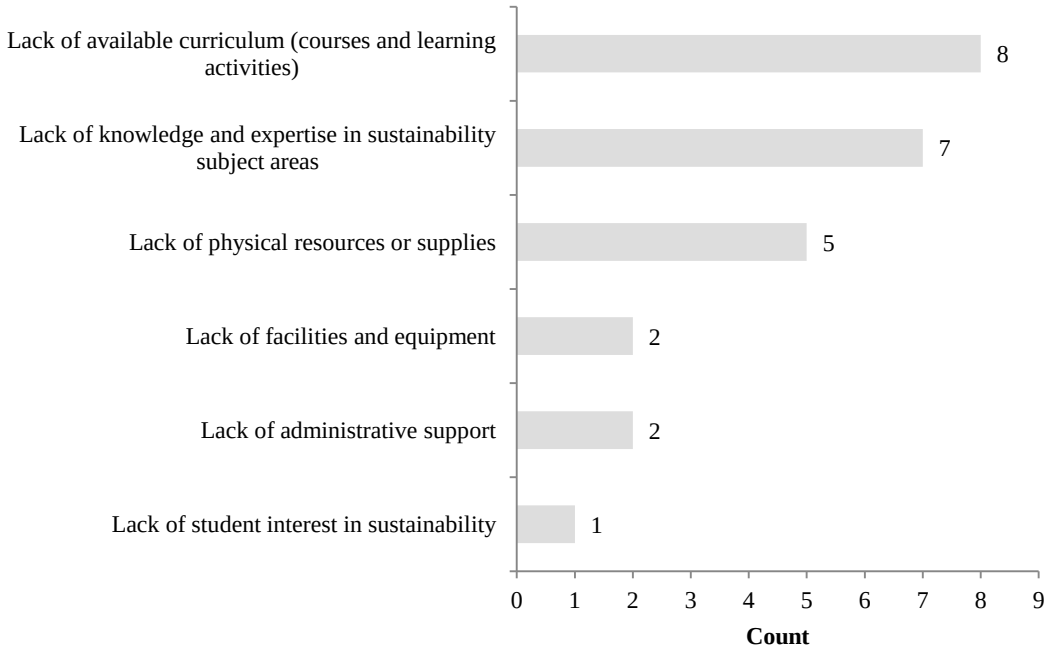
Exhibit 2: SSI-Portland Participants' Teaching Subjects



NOTE: N=11.
SOURCE: LOCATE SSI 2013 Overall Evaluation questionnaire.

The pre-SSI questionnaire included a list of challenges that might limit participants' current capacity to teach sustainability topics. Respondents were asked to mark "yes" for each factor that they felt had affected their teaching (Exhibit 3). Similar to the results from the 2012 pre-SSI questionnaire, the most common response was lack of available curriculum (8 responses), followed by lack of knowledge and expertise in sustainability (7 responses).

Exhibit 3: Factors limiting respondents' capacity to teach sustainability topics



NOTE: N=16. Respondents could choose more than one factor.
SOURCE: 2013 Pre-SSI Questionnaire.

The questionnaire also asked participants to describe any high performance, green building, or sustainability-related projects or curriculum development that they had led or participated in previously. A total of 7 respondents reported prior participation in these activities. Four of the respondents noted that they had incorporated sustainability concepts into existing curricula or student projects (Exhibit 4). For example, one respondent wrote, "Environmental issues and sustainable architectural design and building construction practices have been an integrated component of all my architecture and interior design studios in the last 10 years at least. The curriculum aspects have been in the design project selected, sitting issues, student research into sustainable issues using LEED and Living Building criteria, and collaborative studio project development using rule-of-thumb parameters."

Exhibit 4: Respondents' previous participation in sustainability-related activities

Participant response	Number of responses
Incorporated sustainability concepts into existing curricula or student projects.	4
Built a house or building that incorporated sustainability practices, but was not a project for a class.	2
Developed new curricula related to sustainability in their field of instruction.	1
Took *Sustainable Washington County Course* through PCC.	1

NOTE: N=7. Respondents could list more than one activity.
SOURCE: 2013 Pre-SSI Questionnaire.

Level 1: Reaction

The evaluation team, in accordance with the Kirkpatrick guidelines, assessed participants' reactions to the SSI immediately after they completed the activities. During the SSI, participants shared their reactions to each day's training in daily feedback forms, and more general responses through focus groups and an overall evaluation administered at the end of the SSI's final day. The following sections describe what the evaluation team learned regarding participants' reactions to the SSI from each of these resources in turn.

Daily Feedback Forms

The daily feedback forms asked participants to rate each of the day's sessions and identify the aspects of the presentations that they felt would be most useful for their teaching and work with students. Participants were also asked to provide suggestions for improving the day's presentations and activities. Full summaries of each day's questionnaire responses are included in Appendix B.

The feedback forms ask them to rate each session using the following scale: excellent (5); very good (4), satisfactory (3); unsatisfactory (2); and poor (1). Overall, average ratings were uniformly high, with a minimum of 3.6 (between "satisfactory" and "very good"), although the relatively lower-rated sessions might merit consideration, particularly since a number of sessions received near-perfect average scores of 4.9, and one an average score of 5.0.

On June 24, the session that received the highest average rating was "Sustainable materials" (4.9) and the lowest-rated session was "Intentional communities" (4.2). On June 25, the highest-rated activity was the garden tour (4.9) and the lowest-rated the "7 Corners New Seasons Market Tour" and the "Sustainable Materials Site Tour" (3.8 each).

For June 26, the highest-rated activity was the "Columbia Eco-Village Tour" (4.3) and the lowest-rated the "NE Ainsworth Walking Tour" and the "Hollywood Senior Center Tour" (3.6 each). All three of the activities on June 27 received an average rating of 4.9 (or "Excellent"). The highest-rated session on the last day, June 28, was "ReFit Portland, Renovating for Special Needs" (4.7) and the lowest-rated session "Universal Design & Remodeling" (4.1). The August 23 summit participants gave "Neighborhood and Community Environments for an Aging Society" the highest possible average score of 5. The curriculum revision presentations were received favorably and were rated, on average, 4.4 (between very good and excellent) or above.

Overall comments to the SSI-Portland praised the event and are exemplified by the following feedback, "[The SSI was made to feel] seamless…whatever painstaking processes [the organizer went through] this week, it was hidden from us. With everything [the organizer] did from the speakers to the site visits, the snacks on the bus to the elaborate dinners…she made it happen in such as classy, informative, fabulous way." Respondents' other comments were generally session-specific and also uniformly positive.

Participants generally had few suggestions for improving each day's activities. The most common suggestion was to allow more time for presentations, questions and answer periods, participant reflection and interaction, and transportation between SSI sites.

Focus Groups with SSI Participants

The evaluation team conducted informal focus groups with SSI participants at the end of the institute's fourth day. Focus group participants were asked to share their thoughts about the SSI's sessions, activities, and content, in terms of their quality and usefulness for their own work.[8] Overall, the focus group respondents felt that the institute had been a valuable experience and their participation worthwhile.

The setting for the focus groups had considerable background noise, and audio recording was not possible. The following comments are therefore not direct quotes, but paraphrase some of the most common comments from participants:

- I really appreciated how the institute has taken a lot of really big topics and has brought them down to a smaller, more manageable scale, and in this way shown us how we might do the same in our teaching.
- I learned a lot about several topics that will be useful for my classes that I have not addressed before, such as lighting for a universal design project and the potential of intentional communities.

[8] The focus group protocol is included in Appendix A.

- The SSI offers a lot of tangible materials that I can use in my teaching – everything from printed materials to web resources. Several of the speakers said that we [the SSI participants] can contact them if we need or want to.
- The SSI has expanded my professional network and [the attendees] are a diverse group of people in and out of my field. I have enjoyed the variety of participants in terms of backgrounds and professional fields.

The focus groups participants were asked if they had any suggestions for how they might improve the institute. As was the case last year, several participants felt a need for more "down time" to digest and discuss the information learned, and suggested replacing one tour with discussion time instead. Several also acknowledged and expressed appreciation for the discussion times included in the week's schedule. One instructor noted that there were no commercial buildings this year [all residential] and would have appreciated some examples of commercial design and architecture to share with her students.

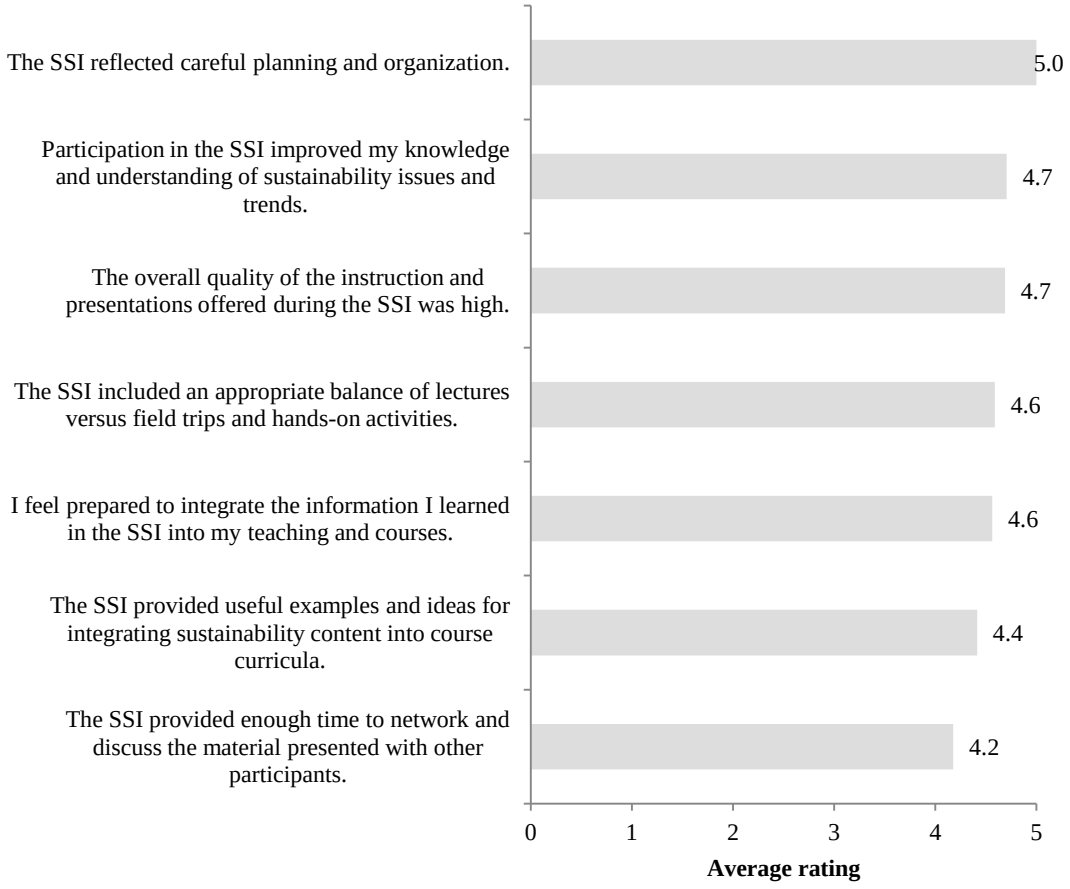
In addition, the high school and college faculty had somewhat different reactions to the SSI's content. The high school teachers expressed a wish for more concrete examples and hands-on activities that might be used in a high school classroom. A high school teacher related that the first presentation of the week was highly technical and therefore difficult to translate for high school students. In contrast, a couple of the postsecondary faculty felt that the SSI could go more in-depth than it does, since most of the attendees are already familiar with the basic ideas and issues covered.

Several of the suggestions also addressed the SSI's logistics. A group of five participants noted that they were unprepared for the amount of walking required during the neighborhood walking tour. One person in the group noted that some of the participants were older and struggled with the uneven ground, particularly since there was nowhere to sit. Another person felt unclear about the intent/purpose of the session. The only comments addressing the logistics of the SSI concerned the hotel's "party" atmosphere that some felt was not a good fit with a study group. In addition, the lighting in the rooms was inadequate for reading.

Overall Evaluation Questionnaire

In the overall evaluation questionnaire, participants indicated their level of agreement with a set of positive statements using the following scale: strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), and strongly disagree (1).

Exhibit 5: Average respondent ratings of their SSI experiences on a five-point scale [strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), and strongly disagree (1)]



NOTE: N=17.
SOURCE: SSI 2013 Overall Evaluation questionnaire.

The questionnaire respondents reviewed their SSI experiences favorably. Average scores for all but two of the statements were 4.6 or higher (closer to "strongly agree" than "agree"). Planning and organization received a rating of 5 ("strongly agree"), the highest possible rating. The lowest ratings (4.4 and 4.2, or closer to "agree" than "strongly agree") were for the statements, "The SSI provided useful examples and ideas for integrating sustainability content into course curricula" and "The SSI provided enough time to network and discuss the materials presented with other participants."

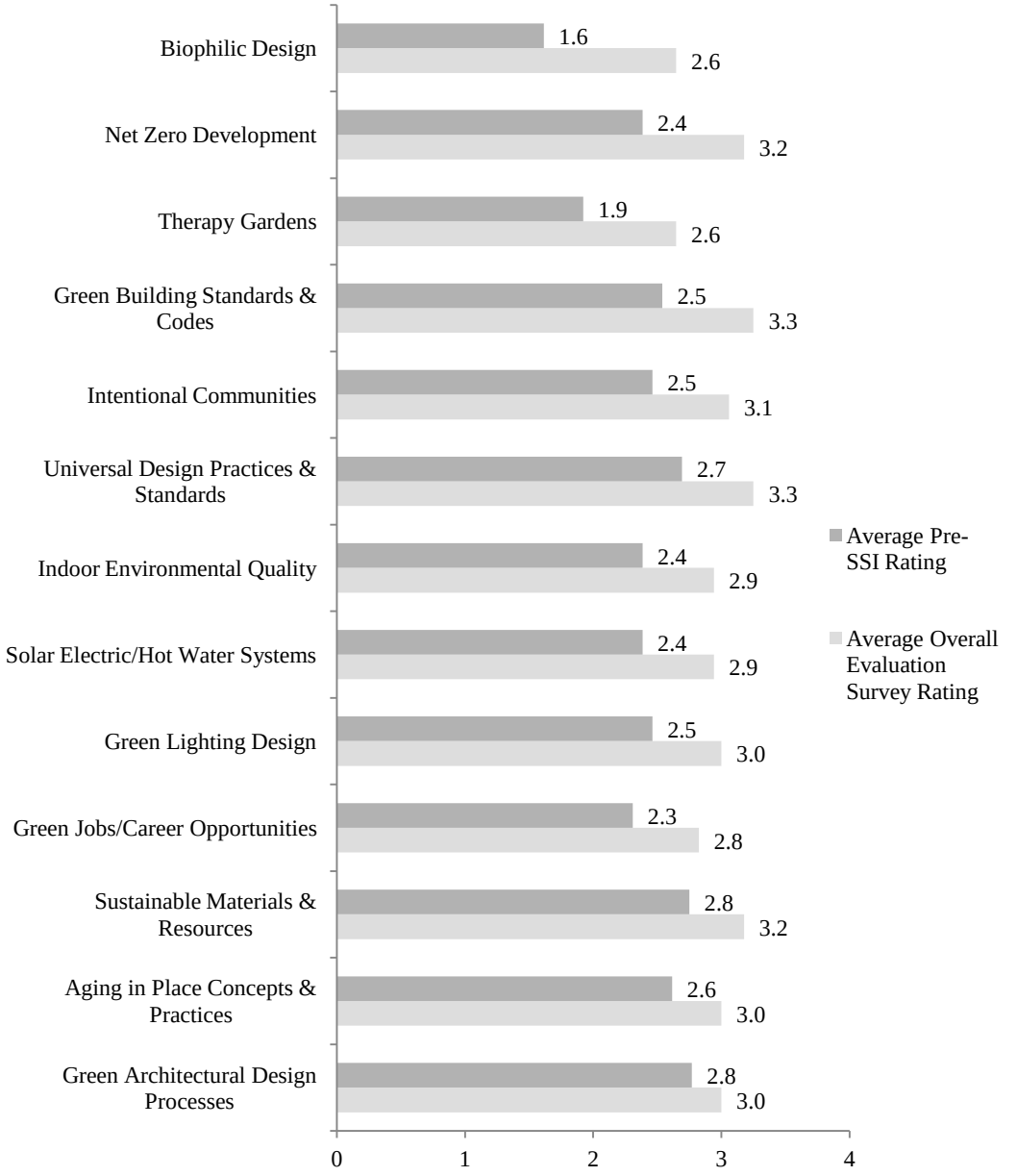
Finally, the evaluation team observed a high degree of engagement and enthusiasm among SSI Summit participants. In fact, the level of engagement was so high that the keynote presenter was unable to finish his full presentation due to the

wealth of questions, comments, and compliments from the group. This observation was reinforced by the evaluation responses, in which participants rated the keynote presentation the most valuable session of the day. Participants frequently commented about how pleased they were with the Summit and with the information they gained from presentations and discussions.

Level 2: Learning

One approach to measuring learning, according to the Kirkpatrick method, is through a pre- and post-questionnaire that assesses participants' knowledge and attitudes (Kirkpatrick, 1994). SSI-Portland participants were asked to rate their knowledge on a set of sustainability and universal design topics at registration and again on the last day of the SSI. The ratings used the following four-point scale: much knowledge (4), some knowledge (3), little knowledge (2), and no knowledge (1). On average, the results indicate that participants felt that their knowledge level of each topic increased after attending the SSI (Exhibit 7).

Exhibit 7: Average respondent ratings of their level of knowledge on a four-point scale [much knowledge (4), some knowledge (3), little knowledge (2), and no knowledge (1)] of sustainability-related topics before and after the SSI



NOTE: 13 participants completed the pre-SSI questionnaire, while 17 participants completed the overall evaluation questionnaire. Since responses to the overall evaluation questionnaire were anonymous, the four individuals who responded only to the overall questionnaire could not be excluded from the analysis. Results are shown in descending order from largest to smallest pre-post change.
SOURCE: 2013 Pre-SSI Questionnaire and the SSI 2013 Overall Evaluation questionnaire.

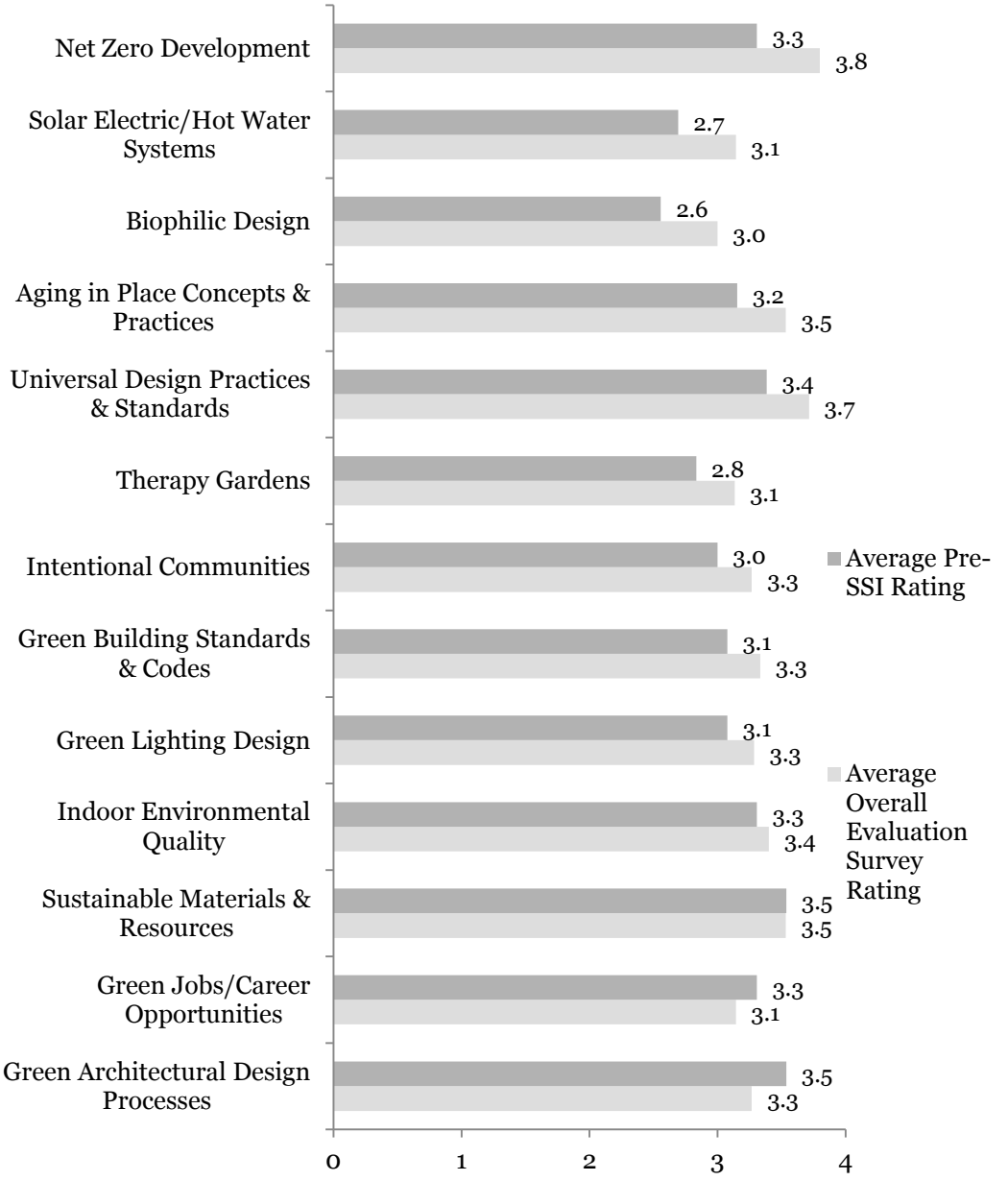
Prior to the SSI, average ratings ranged from 1.6 (between no and little knowledge) for biophilic design to 2.8 (close to some knowledge) for green architectural design processes and sustainable materials and resources. After the SSI, the average ratings ranged from

2.6 (biophilic design) to 3.3 (green building standards and codes and universal design practices and standards), or between some and much knowledge. The average pre- and post-SSI difference in ratings across the topics was 0.59 points. The rating increases were greatest for biophilic design (1.0), net zero development (0.8), therapy gardens (0.7), and green building standards and codes (0.7).

In addition to knowledge, SSI participants also rated each topic's importance for their work before and after the SSI on a four-point scale (very important (4), important (3), somewhat important (2), and not important (1)). Although the average rating for all but two of the topics increased after the SSI, the differences were generally smaller than the pre- and post-knowledge ratings, with an average ratings change across topics of .21 points. Prior to the SSI, for all but three of the subjects, the importance rating was about 3.0 (important) or higher. The items with ratings below 3.0 were "Biophilic Design" (2.6), "Solar Electric/Hot Water Systems" (2.7), and "Therapy Gardens" (2.6). These items also received ratings below 3.0 (little knowledge) on the pre-SSI knowledge question (Exhibit 7, above). After the SSI, ratings of importance for "solar electric/hot water systems" increased by .45 points, "biophilic design" increased by .45 points, and "therapy gardens" increased by .30 points.

Importance ratings for two of the topics were lower after the SSI than before. Specifically, small decreases were seen for "Green Architectural Design Processes" (3.5 to 3.3) and "Green Jobs/Career Opportunities" (3.3 to 3.1). There was no change for "Sustainable Materials & Resources" (3.5 before and after the SSI).

Exhibit 8: Average respondent pre- and post-SSI-Portland ratings of the importance of SSI topics on a four-point scale [very important (4), important (3), somewhat important (2), and not important (1)] of sustainability-related topics before and after the SSI



NOTE: 13 participants completed the pre-SSI questionnaire, while 17 participants completed the Overall Evaluation questionnaire (though 2 respondents did not rate any items that asked about importance of topics). Since responses to the overall evaluation questionnaire were anonymous, the four individuals who responded only to the overall questionnaire could not be excluded from the analysis. Results are shown in descending order from largest to smallest pre-post change.

SOURCE: 2013 Pre-SSI Questionnaire and the SSI 2013 Overall Evaluation questionnaire.

In addition, the focus groups and overall evaluation questionnaire asked participants to self-assess their SSI learning. Questionnaire respondents gave an average rating of 4.7 (closer to "strongly agree" than "agree") to the statement, "Participation in the SSI improved my knowledge and understanding of sustainability issues and trends." In the focus groups, participants reported that they had learned a great deal about universal design as it relates to their own and related fields. Several appreciated the challenge of learning about new issues and materials and working to apply the information in their own work.

During the Summit, several participants mentioned specific topics or teaching strategies from presentations that they planned to apply to their own curricula. The SSI alumna presentation in particular generated comments and excitement from participants, who requested that she share syllabi, graphics, and other learning materials. Participants had similar reactions to Bob Mandy's presentation about his planned curriculum changes, and several mentioned that they would like to use his model for describing course objectives in their own syllabi.

Level 3: Behavior

Kirkpatrick's third level addresses the effects of training on participants' behavior. For the LOCATE program, this level addresses specifically, whether (and how) the information learned found application in their work. In the coming year, the evaluation team will collect data to assess this level with a survey of past SSI participants and follow-up interviews. However, the evaluation team did collect some interim measures of how the project has, or might, affect the work of participants during 2012–13.

First, during the SSI focus groups, several of the participants described how they planned to share what they had learned with others, including faculty and students, and also outlined plans for integrating what they learned into their courses. In contrast to the prior year, the 2013 participants spoke more about the SSI content in terms of their teaching and applying what they learned to the classroom. Although this evidence is anecdotal, the observed differences may relate to the discussion of curriculum planning expectations on the first day of the 2013 SSI, a topic that was not addressed until the last day of the 2012 SSI.

When asked if they felt prepared to integrate what they learned into their teaching, several participants described specific plans for using what they learned in the SSI. Their comments included:

- I've been teaching architecture for over 25 years. Sustainability used to be a side or separate issue that students would get a lecture and some reading on, but wasn't core coursework. I am now teaching an intro class

and am excited to change that, and put sustainability at the foundation of curriculum along with other key factors. It's just something that should be taught along with everything else that is essential.

- I plan to share the material with other fields and organizations that I work with—it can cross many disciplines—by creating a matrix of what I learned so I can share it.
- [In response to the Bridge Meadows tour] I plan to include a requirement that my students design for three or four generations in my classes. It used to be an option that they could take, but now I feel that this needs to be something that they do.

At the HPI-Boise, the evaluation team also conducted a brief interview with a participant from the 2012 SSI-Portland. The instructor noted that the experience had enhanced his teaching of sustainability-related topics, but reported that the presentation of information through guest speakers and field trips was the biggest inspiration. The instructor has since brought speakers from the community to his classroom to speak on topics such as straw bale construction and storm water management. These presentations included opportunities for students to meet the presenters and discuss what they have learned.

At the 2013 summit, a 2012 Portland SSI participant, Susan Mangin, shared how she changed her curriculum based on her SSI experience. As a co-instructor of an intensive summer program, Ms. Mangin teaches several weeks of a six-week intensive science laboratory course for high school students. She has modified and expanded her curriculum to include several concepts and teaching strategies she learned through the SSI. This year she introduced a weeklong module that requires student teams to design a net zero house on a suitable location they identify and survey. The project requires students to consider issues like orientation, airflow, size, and water recapture and reuse. She also introduced a weeklong section on designing a community space on an unused lot in Vancouver, Washington. Next year she intends to introduce designing for aging.

2013 High Performance Institute: Building Science and Weatherization, Boise, Idaho

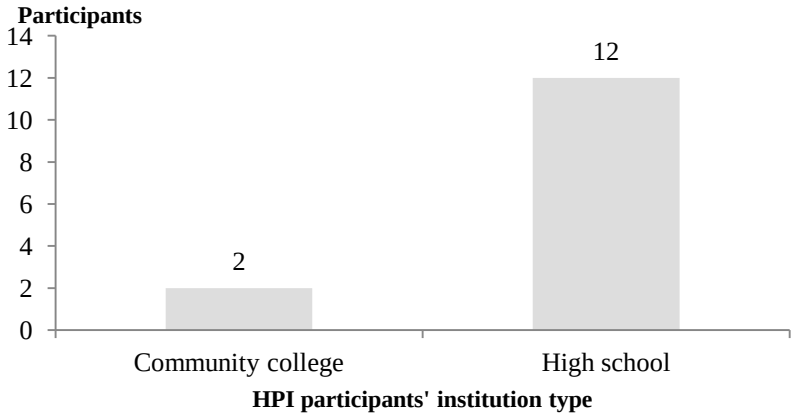
The project presented the 3-day High Performance Institute (HPI) for Idaho educators in Boise, Idaho from June 19 to 21. The institute addressed home energy audits, alternative energy systems and energy/water efficiency, residential green building and remodeling, and changing industry standards through a series of presentations and site visits to locations in the Boise metro area. About 15 participants attended each day's activities. The evaluation findings are based on observations, a focus group with 9 attendees, and an evaluation questionnaire from the final day of the institute. Because the program did not have an online registration system and only an abbreviated agenda was available prior to the event, the evaluation did not include a pre-survey or daily feedback questionnaires.

The evaluation reflects levels 1 and 2 of the Kirkpatrick model (reaction and learning), and also includes participants' suggestions for improving the HPI experience. Since participants are not required to submit their curricula and syllabi changes until September 25, 2013, these will be reviewed to assess level 3 (behavior) in the final 2014 report. The information on behavior included in this report reflects participants' plans to adjust their teaching in response to what they learned.

Participant Profile

The evaluation questionnaire collected information on participants' teaching positions. Thirteen of the 14 respondents reported that the HPI-Boise was their first event with the LOCATE program (one respondent had attended a prior SSI-Portland). Over three quarters of respondents represented high schools, and the remaining two were from community colleges (Exhibit 9).

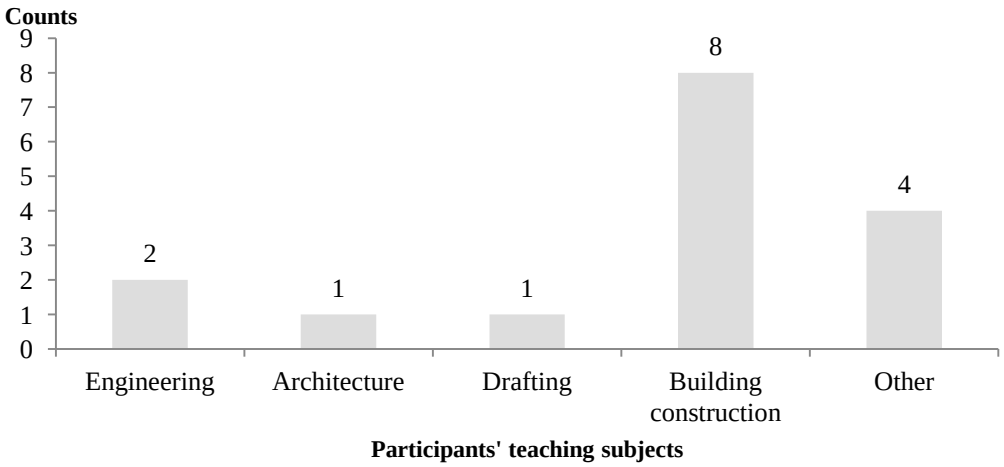
Exhibit 9: HPI Participants by Institution Type



NOTE: N=14.
SOURCE: LOCATE HPI-Boise 2013 evaluation questionnaire.

Questionnaire respondents were asked to select their primary teaching subject from a list or describe their primary teaching subject if not listed; several chose or described more than one. The majority of the respondents selected building construction as their primary teaching subject (Exhibit 10), two respondents chose engineering, and one respondent each chose architecture and drafting. Four respondents selected "other" and described primary teaching subjects that were not listed in the questionnaire: wind energy, renewable energy, electronics, and welding.

Exhibit 10: Boise HPI Participants' Teaching Subjects



NOTE: N=14. Participants could choose more than one subject.
SOURCE: LOCATE HPI-Boise 2013 evaluation questionnaire.

Level 1: Reaction

A focus group with nine participants at the end of the last day captured participants' overall reaction to the institute. Focus group participants were asked to evaluate the quality of the institute's sessions, activities, and content and assess how useful they feel that the information presented will be for their teaching. Overall, the group's reaction to the institute was highly favorable. Participants reported that the information was effectively presented and applicable to their teaching. In addition, they appreciated the opportunity to come together with colleagues from around the state and share their experiences and teaching strategies. Representative comments included:

> "What is taught here is really valuable and is essential to what is going on in construction."

> "I appreciate the networking here – I appreciate learning all of the names for the businesses and organizations relevant to this field, such as Northwest Energy Star, since I am new to this field."

> "Coming and seeing some of these things – that gives me the 'aha' moments. This [the institute] has been great for explaining methods to show people how this stuff works. Get a lot of the technical aspects."

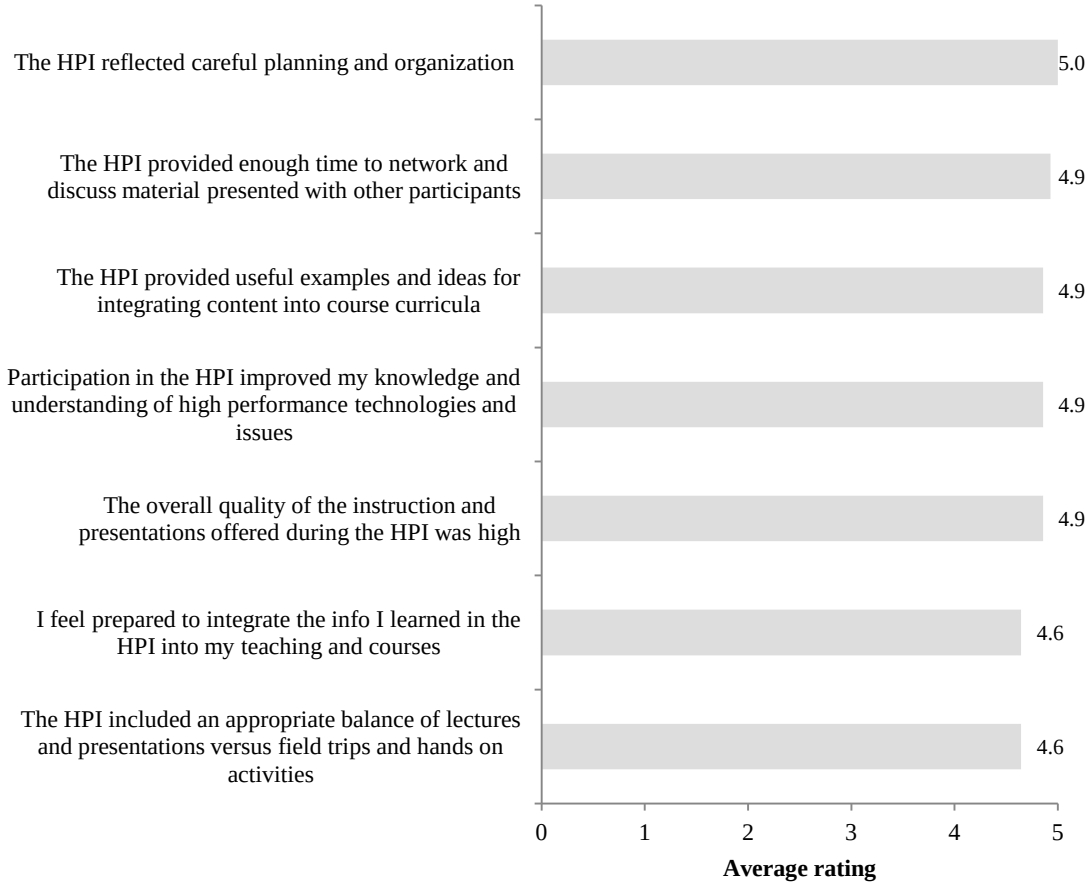
> "[The institute is] almost overwhelming in a good way- going to the demonstration house was valuable for showing us what we might share with students."

> "Dan [Cote, the presenter] was good at making the experience interactive from the get go – having us asking questions from the start."

The evaluation questionnaire asked participants to indicate their level of agreement with a set of positive statements using the following scale: strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), and strongly disagree (1). A total of 14 participants responded to the overall questionnaire.

Respondents' questionnaire responses echoed the appreciation and praise shared during the focus group. Average scores for all of the statements were 4.6 or higher (closer to strongly agree than agree) (Exhibit 11). Planning and organization received a rating of 5 (strongly agree), the highest rating possible.

Exhibit 11: Respondents' average ratings of their HPI experiences on a five-point scale [strongly agree (5), agree (4), neither agree nor disagree (3), disagree (2), and strongly disagree (1)]



NOTE: N=14.
SOURCE: LOCATE HPI-Boise 2013 evaluation questionnaire.

The relatively lower average ratings of 4.6 were for the statements, "The HPI included an appropriate balance of lectures and presentations versus field trips and hands on activities" and "I feel prepared to integrate the information that I learned in the HPI into my teaching and courses." In absolute terms, however, these two items received high ratings.

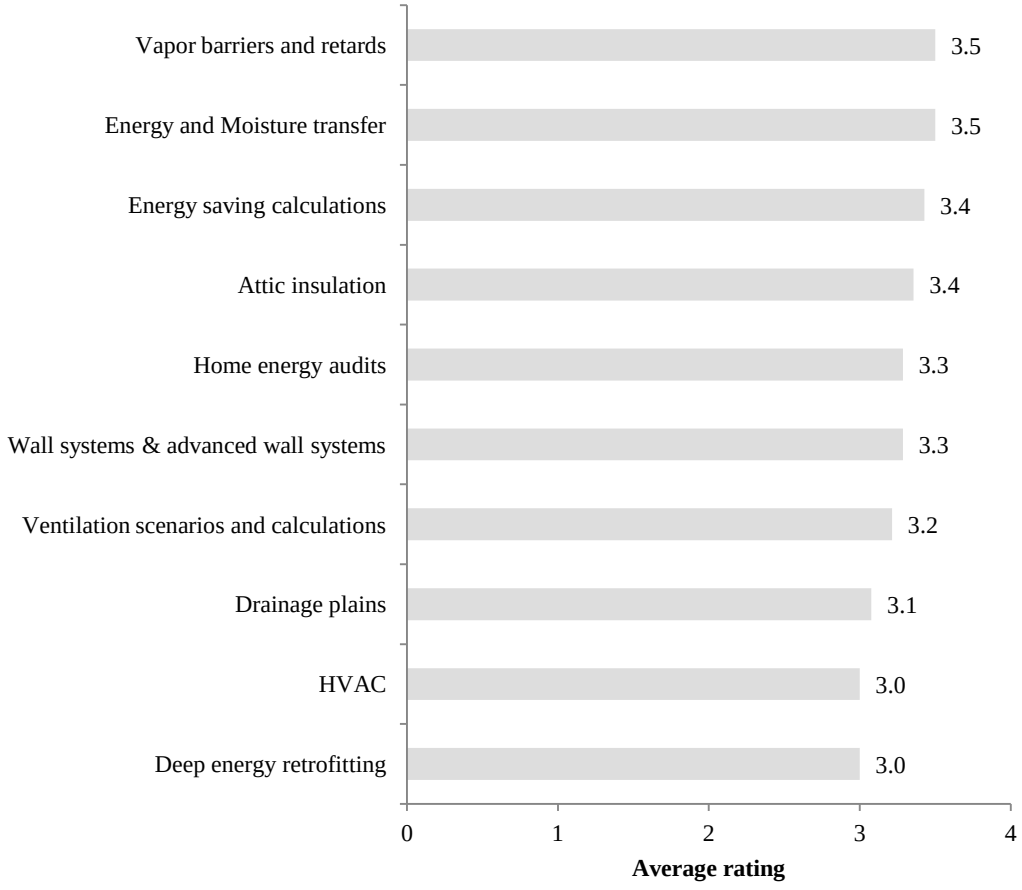
Level 2: Learning

Focus group participants were asked to estimate how much of the information presented in the institute was new to them. For one participant, about 90 percent of the information was new, while the proportion of new material for others ranged from about 50 to 80 percent. Several noted that the institute's topics were of interest to students and that they had already introduced some related material into their courses.

The evaluation questionnaire included questions to measure the effects of the HPI on participants' knowledge and attitudes. Specifically, the questionnaire asked participants to self-rate their level of knowledge on a number of sustainability-related topics and the level of importance they ascribed to each topic.

The ratings used the following four-point scale: much knowledge (4), some knowledge (3), little knowledge (2), and no knowledge (1). On average, the results indicate that participants felt that they had at least "some knowledge" of each topic after attending the HPI (Exhibit 12). However, it should be noted that the ratings were post-only, since participants were not asked to assess their knowledge levels before the event.

Exhibit 12: Boise respondents' average ratings of their level of knowledge of high performance topics on a four-point scale [much knowledge (4), some knowledge (3), little knowledge (2), and no knowledge (1)] of sustainability-related topics

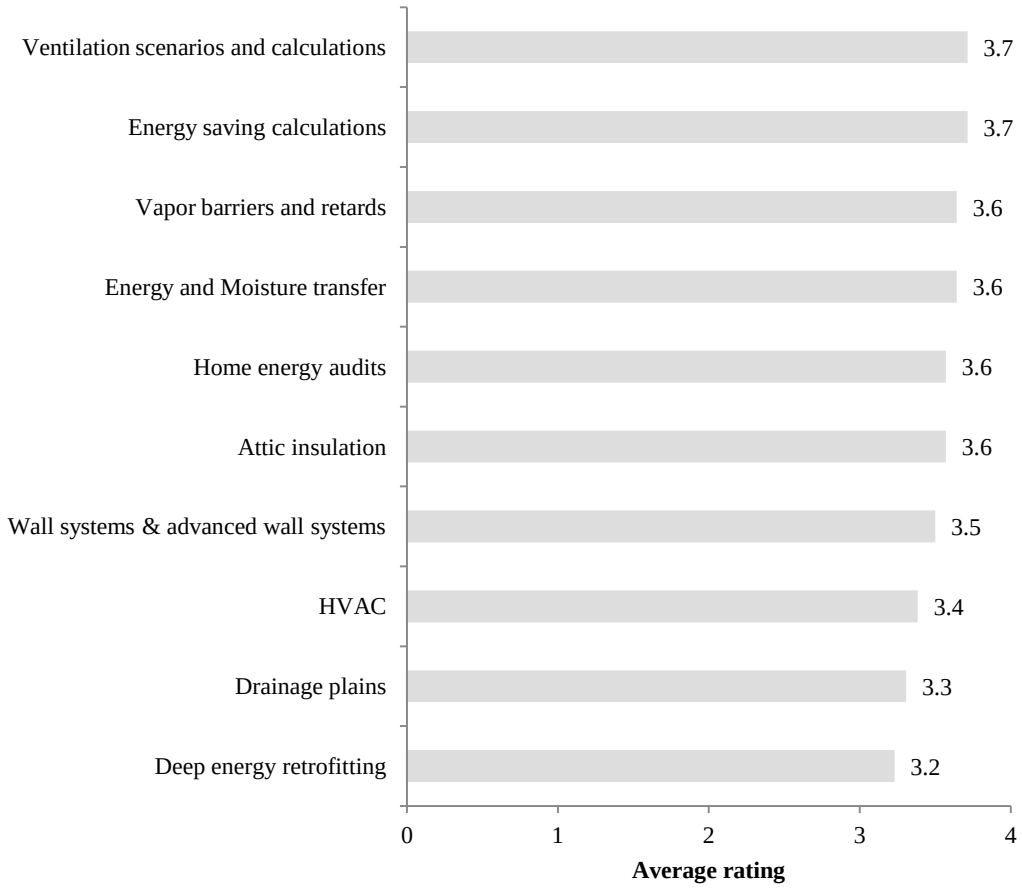


NOTE: N=14. Results are shown in descending order from largest to smallest average rating.
SOURCE: LOCATE HPI-Boise 2013 evaluation questionnaire.

Participants rated each topic's importance after the HPI on the following four-point scale: very important (4), important (3), somewhat important (2), and not important (1). The av-

erage rating across all topics was 3.5 and all of the topics received a rating of 3.2 (important) or higher. The highest rated items were "ventilation scenarios and calculations" and "energy saving calculations" (both received an average rating of 3.7). The lowest rated item was "deep energy retrofitting," which received an average rating of 3.2 (Exhibit 13).

Exhibit 13: Boise respondents' average ratings of the importance of selected high performance topics on a four-point scale [very important (4), important (3), somewhat important (2), and not important (1)] of sustainability-related topics



NOTE: N=14. Results are shown in descending order from largest to smallest average rating.
SOURCE: LOCATE HPI-Boise 2013 evaluation questionnaire.

Level 3: Behavior

Participants did not submit their curriculum revisions until after data collection for this report closed late. The focus group participants were asked to describe their plans for using the information in their courses. One participant noted that he will teach a brand new course on sustainability in the fall, and that the institute's topics would fit well into this class. Another participant stated that he would use the energy audit spreadsheets presented during the institute with his students. Another planned to contact HVAC business in his area to see if they might be able to meet with students or offer classroom demonstrations.

During the discussion of classroom applications, several of the participants noted that accessing the equipment needed for the demonstrations would be a challenge in their schools. The group discussed strategies for addressing this potential barrier, which the teachers felt would pose a significant challenge to the effective presentation of the materials to students.

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Appendix A: Data Collection Instruments

2013 Portland Summer Sustainability Institute Participant Assessment

Please complete all items in the following survey. Your input is very important to us! It will help us determine the level and type of training that best meets your needs. *The survey takes 5-10 minutes to complete.*

1. Please place a check next to the appropriate choice in the tables below.

a. Please identify your institution.	University	2-Year College	High School
Other (specify) →			

b. Check off any subjects that you teach.	Engi-neering	Facilities Maintenance	Architecture
	Drafting	Bldg Construc-tion	Interior Design
Other (Specify) →			

c. Please indicate your years of teaching experience in the subject or subjects selected in the previous question (1b).	1 - 2 years	3 - 6 years	7 - 10 years	Over 10 years

2. In the table below, place an X in each box to designate your current level of knowledge from *no knowledge* (not familiar with the topic) to *much knowledge* (am prepared to teach the topic to others) and the importance of each topic to you from *not important* to *very important*. Be sure to rate both your knowledge and the importance of each topic.

Topic Area	**Current Level of Knowledge**				**Importance to You**			
	Much	Some	Little	None	Very Important	Important	Somewhat Important	Not Important
Green Building Standards &								

Codes								
Green Architectural Design Processes								
Universal Design Practices & Standards								
Net Zero Development								
Aging in Place Concepts & Practices								
Biophilic Design								
Solar Electric/Hot Water Systems								
Green Lighting Design								
Sustainable Materials & Resources								
Indoor Environmental Quality								
Intentional Communities								
Therapy Gardens								
Green Jobs/Career Opportunities								

3. Place an X in front of each factor that limits your current capability to teach sustainability topics.

	Lack of knowledge and expertise in sustainability subject areas
	Lack of available curriculum (courses and learning activities)
	Lack of administrative support
	Lack of physical and/or financial resources or supplies
	Lack of facilities and equipment
	Lack of student interest in sustainability

4. **Please describe any high performance, universal design or sustainability-related projects or curriculum development that you have led or participated in.**

5. **Please share any other high performance, green building or sustainability-related topics or skills not addressed in this survey that are of interest to you.**

LOCATE 2013 Portland SSI Daily Feedback Questionnaire
Monday, June 24, 2013

Please rate today's presentations:

	Excellent	Very good	Satisfactory	Unsatisfactory	Poor
1. Hi Performance Design & Trends *Sam Hagerman, President, Hammer & Hand*	❑	❑	❑	❑	❑
2. There's More to Light Than Vision, *Robert Dupuy IALD, LC, Creative Lighting Director, Interface Engineering*	❑	❑	❑	❑	❑
3. Sustainable Materials, *Dorothy Payton, PCC Architectural & Interior Design*	❑	❑	❑	❑	❑
4. Intentional Communities, Jan Abushakrah, PCC Gerontology and Amanda Ferroggiaro, PCC Interior Design	❑	❑	❑	❑	❑

1. Among the sessions in today's program, which provided the most useful information for your teaching and work with students?

   ☐ High Performance Design and Trends
   ☐ There's More to Light Than Vision
   ☐ Sustainable Materials
   ☐ Intentional Communities

2. Which aspects of the day's presentations and activities did you find most useful?

3. Please share your suggestions for improving today's presentations and activities:

LOCATE 2013 Portland SSI Daily Feedback Questionnaire
Tuesday, June 25, 2013

Please rate today's activities and presentations:

	Excellent	Very good	Satisfactory	Unsatisfactory	Poor
1. Portland Memory Garden Tour- *Patty Cassidy, Director, Portland Memory Garden*	❑	❑	❑	❑	❑
2. 7 Corners New Seasons Market Tour - *Joan Corella, Elders in Action, Age-Friendly Business Certification*	❑	❑	❑	❑	❑
3. Net Zero Home Tour - *Matt Briggs, Producer & Film maker, Deep Green Films*	❑	❑	❑	❑	❑
4. Sustainable Materials Site Tour- *Patrick Rutledge, Green Depot Portland*	❑	❑	❑	❑	❑

1. Among the sessions in today's program, which provided the most useful information for your teaching and work with students?

   ☐ Portland Memory Garden Tour
   ☐ New Seasons Market Tour
   ☐ Net Zero Home Tour
   ☐ Sustainable Materials Site Tour

2. Which aspects of the day's presentations and activities did you find most useful?

3. Please share your suggestions for improving today's presentations and activities:

LOCATE 2013 Portland SSI Daily Feedback Questionnaire
Wednesday, June 26, 2013

Please rate today's activities and presentations:

	Excellent	Very good	Satisfactory	Unsatisfactory	Poor
1. Columbia Eco-Village Tour – *Pam Leitch*	❑	❑	❑	❑	❑
2. Cully Grove Co-Housing Tour - *Eli Spevak, CEO, Orange Splot LLC*	❑	❑	❑	❑	❑
3. NE Ainsworth Walking Tour - *Denise Roy, PCC Architecture*	❑	❑	❑	❑	❑
4. Hollywood Senior Center Tour - *Amber Kern-Johnson, Executive Director and Amanda Ferroggiaro, PCC ID*	❑	❑	❑	❑	❑

1. Among the sessions in today's program, which provided the most useful information for your teaching and work with students?

   ☐ Columbia Eco Village Tour
   ☐ Cully Grove Co-Housing Tour
   ☐ NE Ainsworth Walking Tour
   ☐ Hollywood Senior Center Tour

2. Which aspects of the day's presentations and activities did you find most useful?

3. Please share your suggestions for improving today's presentations and activities:

LOCATE 2013 Portland SSI Daily Feedback Questionnaire
Thursday, June 27, 2013

Please rate today's activities and presentations:

	Excellent	Very good	Satisfactory	Unsatisfactory	Poor
1. Emanuel Hospital Burn Center & Children's Therapy Gardens - *Teresia Hazan, Director, Legacy Health Therapy Gardens*	❑	❑	❑	❑	❑
2. Randall Children's Hospital Tour - *ZGF Architects*	❑	❑	❑	❑	❑
3. Bridge Meadows- 3 Generation Housing Tour - *Renee Moseley, Deputy Director, Bridge Meadows*	❑	❑	❑	❑	❑

1. Among the sessions in today's program, which provided the most useful information for your teaching and work with students?

   ☐ Emanuel Hospital Burn Center & Children's Therapy Gardens Tours

   ☐ Randall Children's Hospital Tour

   ☐ Bridge Meadows - 3 Generation Housing Tour

2. Which aspects of the day's presentations and activities did you find most useful?

3. Please share your suggestions for improving today's presentations and activities:

LOCATE 2013 Portland SSI Daily Feedback Questionnaire
Friday, June 28, 2013

Please rate today's activities and presentations:

	Excellent	Very good	Satisfactory	Unsatisfactory	Poor
1. ReFit Portland, Renovating for Special Needs – *Laurey Masylk, Exec. Dir.*	❑	❑	❑	❑	❑
2. Curriculum Planning by Discipline – *SSI Facilitators*	❑	❑	❑	❑	❑
3. Universal Design & Remodeling – *Karen Richmond, Neil Kelly*	❑	❑	❑	❑	❑

4. Among the sessions in today's program, which provided the most useful information for your teaching and work with students?

   ☐ ReFit Portland

   ☐ Curriculum Planning by Discipline

   ☐ Universal Design & Remodeling

5. Which aspects of the day's presentations and activities did you find most useful?

6. Please share your suggestions for improving today's presentations and activities:

2013 Portland Summer Sustainability Institute: Overall Evaluation

1. **Was this your first Summer Sustainability Institute (SSI)?**
   - ☐ Yes
   - ☐ No

2. **Your institution type**:
   - ☐ 4-year college or university
   - ☐ Community college
   - ☐ High school
   - ☐ Other (Please indicate: _____)

3. **Primary teaching subject**:
   - ☐ Engineering
   - ☐ Architecture
   - ☐ Drafting
   - ☐ Building construction
   - ☐ Interior design
   - ☐ Facilities maintenance
   - ☐ Landscape technology
   - ☐ Other (Please indicate: _____)

4. **Please indicate your level of agreement with the following statements regarding your SSI experiences:**

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The SSI reflected careful planning and organization.					
The overall quality of the instruction and presentations offered during the SSI was high.					
The SSI included an appropriate balance of lectures and presentations versus field trips and hands-on activities.					
The SSI provided enough time to network and discuss the material presented with other participants.					
Participation in the SSI improved my knowledge and understanding of sustainability issues and trends.					

Question 4, continued—Please indicate your level of agreement with the following statements regarding your SSI experiences:

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
The SSI provided useful examples and ideas for integrating sustainability content into course curricula.					
I feel prepared to integrate the information I learned in the SSI into my teaching and courses.					

5. **Reflecting on your experiences this week, please indicate your level of knowledge of the following topics and their importance to you**:

Topic Area	**Current Level of Knowledge**				**Importance to You**			
	Much Knowledge	Some Knowledge	Little Knowledge	No Knowledge	Very Important	Important	Somewhat Important	Not Important
Green Building Standards & Codes								
Green Architectural Design Processes								
Universal Design Practices & Standards								
Net Zero Development								
Aging in Place Concepts & Practices								
Biophilic Design								
Solar Electric/Hot Water Systems								
Green Lighting Design								
Sustainable Materials & Resources								
Indoor Environmental Quality								
Intentional Communi-ties								
Therapy Gardens								
Green Jobs/Career Opportunities								

Which SSI experiences do you feel best prepared you to integrate high performance, universal design, or sustainability concepts and issues into one or more of your existing courses?

6. **What suggestions do you have for improving the content and format of future SSIs?**

7. **Please share your recommendations for improving the planning and logistics of the SSI, including registration, facilities, food and lodging, and transportation:**

2012 SSI Summit Feedback Questionnaire
Friday, August 24, 2012

4. Please rate the usefulness of the following sessions for enhancing your knowledge and understanding of sustainability issues, trends, technologies, and best practices on a 5-point scale (were 5=Very useful and 1=Not at all useful). Please circle your response:

	Very useful	Useful	Moderately useful	Somewhat useful	Not at all useful
Session:					
▪ Small group discussions by discipline (9:45–10:30 am)	5	4	3	2	1
▪ Teaching demonstrations (10:45 am –12:00 pm)	5	4	3	2	1
▪ Sustainability Leadership (Angela Hamilton; 1:00-2:00 pm)	5	4	3	2	1
▪ Be the Change (Maureen Jack-LaCroix; 2:10–3:00pm)	5	4	3	2	1
▪ Small group work (3:00–3:45pm)	5	4	3	2	1

5. Please briefly describe at least two aspects of today's program that you found particularly valuable. These might be sessions, activities, or information shared within sessions.

   a.

   b.

   c.

6. Please list any questions regarding your curriculum revision plan that were either not addressed or about which you would like more information:

7. What topic(s) not included in the SSI or Summit would you recommend be added?

8. Please share your suggestions for improving today's presentations and activities:

LOCATE Summer Sustainability Institute 2013, Boise: Evaluation

1. Was this your first Summer Sustainability Institute (SSI)?

☐ Yes

☐ No

2. Your institution type:

☐ 4-year college or university

☐ Community college

☐ High school

☐ Other (Please indicate: _____)

3. Primary teaching subject:

☐ Engineering

☐ Architecture

☐ Drafting

☐ Building construction

☐ Interior design

☐ Facilities maintenance

☐ Landscape technology

☐ Other (Please indicate: _____)

4. Please indicate your level of agreement with the following statements regarding your SSI experiences:

	Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
The SSI reflected careful planning and organization.					
The overall quality of the instruction and presentations offered during the SSI was high.					
The SSI included an appropriate balance of lectures and presentations versus field trips and hands-on activities.					
The SSI provided enough time to network and discuss the material presented with other participants.					
Participation in the SSI improved my knowledge and understanding of high performance technologies and issues.					

Question 4, continued—Please indicate your level of agreement with the following statements regarding your SSI experiences:

	Strongly agree	**Agree**	**Neither agree nor disagree**	**Disagree**	**Strongly disagree**
The SSI provided useful examples and ideas for integrating content into course curricula.					
I feel prepared to integrate the information I learned in the SSI into my teaching and courses.					

5. **Reflecting on your experiences this week, please indicate your level of knowledge of the following topics and their importance to you**:

Topic Area	**Current Level of Knowledge**				**Importance to You**			
	Much Knowledge	Some Knowledge	Little Knowledge	No Knowledge	Very Important	Important	Somewhat Important	Not Important
Energy and moisture transfer								
Vapor barriers and retards								
Drainage plains								
Wall systems & advanced wall systems								
Attic insulation								
Deep energy retrofitting								
Energy savings calculations								
Ventilation scenarios and calculations								
HVAC								
Home energy audits								

6. **Which SSI experiences do you feel best prepared you to integrate high performance or sustainability concepts and issues into one or more of your existing courses?**

7. **What suggestions do you have for improving the content and format of future SSIs?**

8. **Please share your recommendations for improving the planning and logistics of the SSI, including registration, facilities, food and lodging, and transportation:**

Appendix B: Detailed Evaluation Data

This report summarizes respondents' responses to the evaluation questionnaires administered during and immediately after the SSI-Portland, the SSI-Portland Summit, and the HPI-Boise. This appendix presents respondents' complete responses to the questionnaires' multiple choice and open-ended questions.

SSI-Portland

At the end of each of day of the SSI, participants were asked to complete an evaluation of the day's activities. In addition to rating each of the day's sessions, the questionnaire also included the following three short-answer questions:

1. Among the sessions in today's program, which *most* enhanced your knowledge and understanding of sustainability issues, trends, technologies, and/or best practices? Which aspects of these presentations or activities did you find most useful?
2. Which topic(s) covered in today's sessions would you most like to learn more about?
3. Please share your suggestions for improving today's presentations and activities.

The number of respondents varied from 16 to 18, depending on the number attending the day's sessions (which varied) and, of those attending, the number completing the questionnaire. The following sections summarize the results for each day.
The overall evaluation questionnaire on the final day asked participants to indentify the SSI activities that they felt best prepared them to integrate high performance, universal design, or sustainability concepts and issues into one or more of their existing courses. Five participants indicated that all of the sessions prepared them to integrate sustainability content into coursework. Specific sessions received the following numbers of responses (respondents could name more than one):

- Bridge Meadows-3 Generation Housing Tour (5 responses)
- Emanuel Hospital Burn Center and Children's Therapy Gardens (5 responses)
- Net Zero Home Tour (4 responses)
- Columbia Eco-Village Tour (4 responses)
- High Performance Design and Trends (3 responses)
- Intentional Communities (3 responses)
- 2 responses each: There's More to Light Than Vision; ReFit Portland, Renovating for Special Needs; Cully Grove, Co-Housing Tour; Sustainable Materials

In addition, two participants indicated that the discussions and feedback sessions had best prepared them to integrate sustainability content into their courses. Multiple other sessions received one response.

Day 1: Monday, June 24

Sixteen SSI participants completed the June 24 daily feedback questionnaire. Figure 1 presents participants' ratings of the activities and table 1 summarizes the sessions that participants felt most enhanced their knowledge and understanding of sustainability issues, trends, technologies, and best practices. The table also includes related comments on the aspects of these sessions participants felt were most useful. Comments have been minimally edited for readability.

Figure 1. Ratings for June 24 presentations

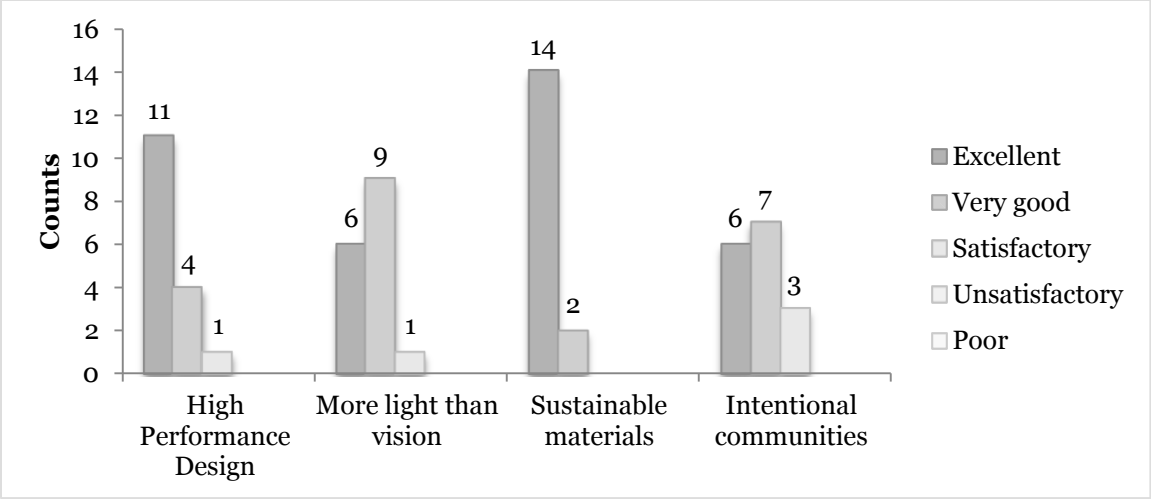


Table 1: June 24 Sessions that Provided the Most Useful Information for Teaching and Work with Students

Session	No. of Responses	Responses to the question: What about this session was most useful?
There's More to Light Than Vision, *Robert Dupuy IALD, LC, Creative Lighting Director, Interface Engineering*	8	The order of the presentations was very good to build my understanding. All 4 will be helpful. Lighting is immediately most applicable, but the others are great.
		Evaluating products
High Performance Design & Trends *Sam Hagerman, President, Hammer & Hand*	7	Personally, the intentional communities are very useful for me as I research housing options for my daughter who is on the autism spectrum.
		1- availability to question - informal presentation. 2- Small group discussion w/ sustain. Networks
		I really felt like Sam's presentation was a great source of info. What a great way to launch this week.
		Envelope design and lighting design
Sustainable Materials, *Dorothy Payton, PCC Architectural & Interior Design*	6	Sustainable materials – involving students in case study hands on.
		Hands-on group activity & worksheet (Dorothy's presentation). I learned a lot of new information from all of the presenters that will supplement my curriculum.
Intentional Communities, *Jan Abushakrah, PCC Gerontology and Amanda Ferroggiaro, PCC Interior Design*	2	

N=16
Note: Respondents could list more than one session and some did not provide comments. The table does not include sessions receiving fewer than two responses and excludes comments unrelated to specific sessions.

Participants had the following suggestions for improving the June 24 presentations and activities:

- Would like to see more ways of applying the info to activities with students. More hands-on engagement would be great! (2 responses)
- More breakout sessions
- The order (flow) is confusing…We're getting hit with a lot of ideas.
- Intentional communities was somewhat rambling. It was less visual - needs images of communities or other presentation of good information
- Could be helpful to pick up hotel people. A lot to do getting here on the bus.

Day 2: Tuesday, June 25

Eighteen participants completed the June 25 daily feedback questionnaire. Figure 2 presents participants' ratings of the activities and table 2 summarizes the sessions that participants felt most enhanced their knowledge and understanding of sustainability issues, trends, technologies, and best practices. The table also includes participants' comments on the aspects of these sessions that they found to be most useful; the comments have been minimally edited for readability.

Figure 2. Rating of June 25 presentation

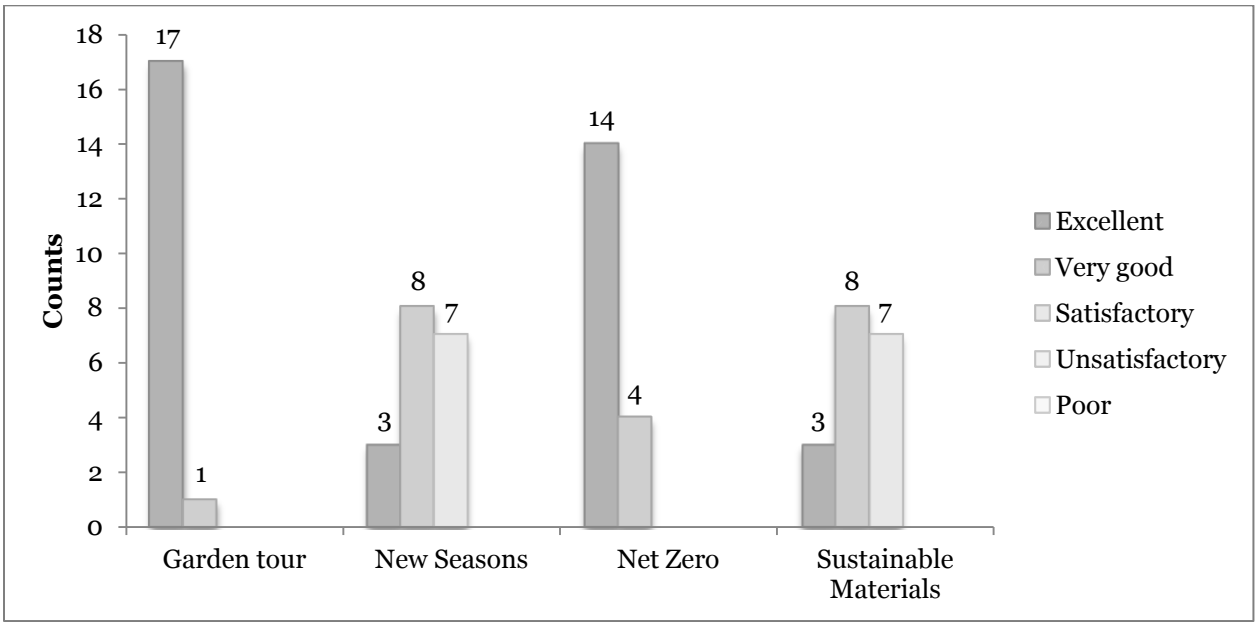


Table 2: June 25 Sessions that Provided the Most Useful Information for Teaching and Work with Students

Session	Number of Responses	Responses to the question: What about this session was most useful?
Net Zero Home Tour - *Matt Briggs, Producer & Film maker, Deep Green Films*	15	Patty & Matt's passion and experience
		Discussion on what it takes to create a net Zero home
		Techniques for achieving net zero.
		The tour by Matt Brigs helped me translate the information from day 1. Nice memory and application tool.
		Lecture & Q&A at the net zero; great overview of content with details about usage and planning, lessons learned and Q&A.
		Net zero tour presentation - seeing it hands on.
		I was really happy with Matt's presentation! What a wonderful speaker & such a wealth of knowledge
		Matt Briggs' tour gave me the most ideas for engaging my students - good concrete info.
Portland Memory Garden Tour- *Patty Cassidy, Director, Portland Memory Garden*	7	How to get the garden from concept to complete
		The memory garden. I hope to incorporate a...nature garden or similar in our program
		Hard spaces in memory garden, way finding, horticultural therapy. Indoor air quality, HRV- heat recovery vent, ERV- energy recovery vent.
		Memory garden walkthrough with questions.
		I really enjoyed the memory garden and am now motivated to work on our courtyard at school.
Sustainable Materials Site Tour- *Patrick Rutledge, Green Depot Portland*	5	Access to info that can be accessed later. Comfortable environment
7 Corners New Seasons Market Tour - *Joan Corella, Elders in Action, Age-Friendly Business Certification*	1	

N=18

Note: Respondents could list more than one session and some did not provide comments. The table does not include sessions receiving fewer than three responses and excludes comments unrelated to specific sessions.

Participants had the following suggestions for improving the June 25 presentations and activities:

- New Seasons needed better preparation and guide (4 related responses)
- Could have shown a video at the end of the day because we were tired (2 responses)
- It would be helpful to tie them together. Please help us be sustainable on the bus, with recycling and fewer plastic bottles.
- More on retail responses to population specifically physical. I had a great tutorial on lighting sources from PCC interior designers (for example)
- Green depot is a great place but feels mostly connected to architecture & ID.
- Some type of guide (written) for what to observe.

Day 3: Wednesday, June 26

Eighteen participants completed the June 26 daily feedback questionnaire. Figure 3 presents participants' ratings of the activities and table 3 summarizes the sessions that participants felt most enhanced their knowledge and understanding of sustainability issues, trends, technologies, and best practices. The table also includes participants' comments on the aspects of these sessions that they found to be most useful; the comments have been minimally edited for readability.

Figure 3. Rating of June 26 presentations

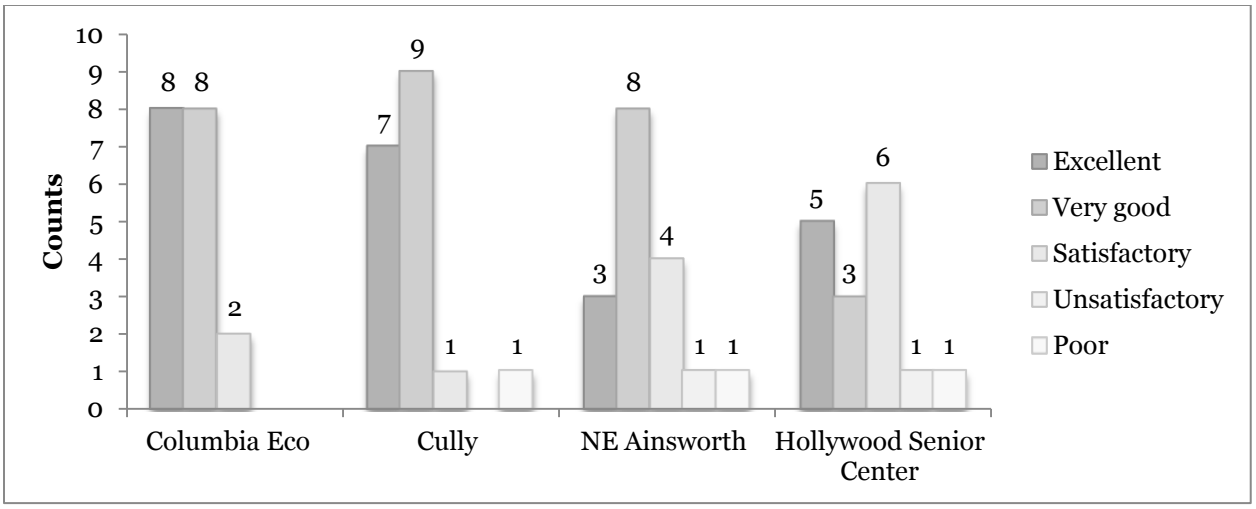


Table 3: June 26 Sessions That Provided the Most Useful Information for Teaching and Work with Students

Session	Number of Responses	Responses to the question: What about this session was most useful?
Columbia Eco-Village Tour – *Pam Leitch*	8	I love the concept of the intentional community
		The Columbia Eco Village & Cully Grove co-hosting tour were both good, interesting and had applicable information
		Food forests and intentional communities
		Seeing the different living and learning areas/communities.
Cully Grove Co-Housing Tour - *Eli Spevak, CEO, Orange Splot LLC*	6	I enjoyed the cully grove tour - seethe design intent being implemented & spending with the developer was the best.
		The back story to how the projects were funded: Columbia, Cully and HSC= good to hear about and development.
Hollywood Senior Center Tour - *Amber Kern-Johnson, Executive Director & Amanda Ferroggiaro, PCC ID*	4	The activities at the Hollywood senior center were the most participatory. This activity helped me understand how to get students involved.
		I enjoyed actually touring @ site V.S. a PowerPoint lecture, reading on each. It made the experience understanding "3D"
NE Ainsworth Walking Tour - *Denise Roy, PCC Architecture*	4	PCC case studies, pocket neighborhood reading. Having the developers, who will live in the community, talking about their experience.
		Repeated exposure to the same sustainability features as helped this knowledge move to my long term memory. Thanks!
		Walking tour w/the originators and their values - agreed principals in practice. Walking tour of Ainsworth w/ stories of each house puts a face & personal choices with living efficiently

N=18
Note: Respondents could list more than one session and some did not provide comments. The table does not include sessions receiving fewer than three responses and excludes comments unrelated to specific sessions.

Participants had the following suggestions for improving the June 26 presentations and activities:

- I would have liked to stay longer at Columbia Eco Village (2 related responses)
- A little too much walking for me (2 related responses)
- More detail on the walking tour & adding one tour inside [one] of the houses (2 related responses)
- More short structured discussions could help us observe and digest and understand more (2 related responses)
- The walking tour was not a very good use of time, though it got better at the end with seeing the last street of houses and talking with the brother-in-law.

- The Ainsworth walking tour could have been more meaningful to me - a small "work-book" worksheet to guide my observations.
- I think it would have been nice to have more of a design solution presentation form Amanda's students reading the improvement of space.
- Would like to see examples of how to engage students with this materials/info. Connecting concepts to standards would be useful too.

Day 4: Thursday, June 27

Seventeen participants completed the June 27 daily feedback questionnaire. Figure 4 presents participants' ratings of the activities and table 4 summarizes the sessions that participants felt most enhanced their knowledge and understanding of sustainability issues, trends, technologies, and best practices. The table also includes participants' comments on the aspects of these sessions that they found to be most useful; the comments have been minimally edited for readability.

Figure 4. Rating of June 27 presentations

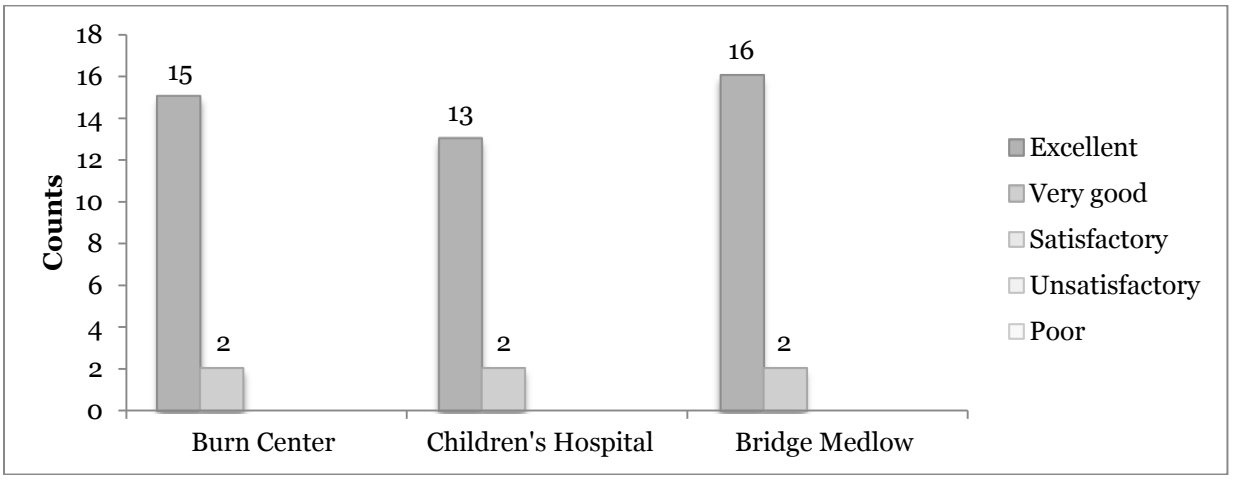


Table 4: June 27 Sessions That Provided the Most Useful Information for Teaching and Work with Students

Session	Number of Responses	Responses to the question: What about this session was most useful?
Bridge Meadows- 3 Generation Housing Tour - *Renee Moseley, Deputy Director, Bridge Meadows*	8	In particular, the presenters: Teresa and Rene were terrific: relaxed and informative
		Loved the meet and greet with the Bridge Meadow presidents. Felt especially connected to the site/people.
		Intentional community! Restored my faith in human kind.
		the business model @ Bridge Meadow
		I would like to bring my class to tour.
		The garden tour/info and 3 generational tour were the ones I could see us using in the near future.
Emanuel Hospital Burn Center & Children's Therapy Gardens - *Teresia Hazan, Director, Legacy Health Therapy Gardens*	7	The presentation & the sustainability lunch lecture were very helpful. Especially how they started & hoe they integrate with the greater hospital administration culture.
		The therapy garden is the most directly useful. However all if the tours were wonderful and the Bridge Meadows tour was inspirational
		Absolutely loved the Emmanuel Hospital presentation & tour, but not sure how to connect it to my high school students. I did however get ideas about how to better structure our organization/school.
		The philosophical and practical aspects of the gardening for health.
Randall Children's Hospital Tour - *ZGF Architects*	5	I loved the hospital tour& that ZGF sent some of their staff from Randall's - I will incorporate examples if their way finding.

N=17
Note: Respondents could list more than one session and some did not provide comments. The table does not include sessions receiving fewer than three responses and excludes comments unrelated to specific sessions.

Participants had the following suggestions for improving the June 27 presentations and activities:

- A shorter visit to Legacy
- Would like to see concrete examples of how to connect the info into the classroom
- More semi-formal discussions to absorb everything
- I would like to suggest 2 sites w/group ref lecture time in between. Fabulous experience
- Point out all of the sustainability features of Randall Children's hospital

Day 5: Friday, June 28

Seventeen participants completed the June 28 daily feedback questionnaire. Figure 5 presents participants' ratings of the activities and table 5 summarizes the sessions that participants felt most enhanced their knowledge and understanding of sustainability issues, trends, technologies, and best practices. The table also includes participants' comments on the aspects of these sessions that they found to be most useful; the comments have been minimally edited for readability.

Figure 5. Rating of June 28 presentations

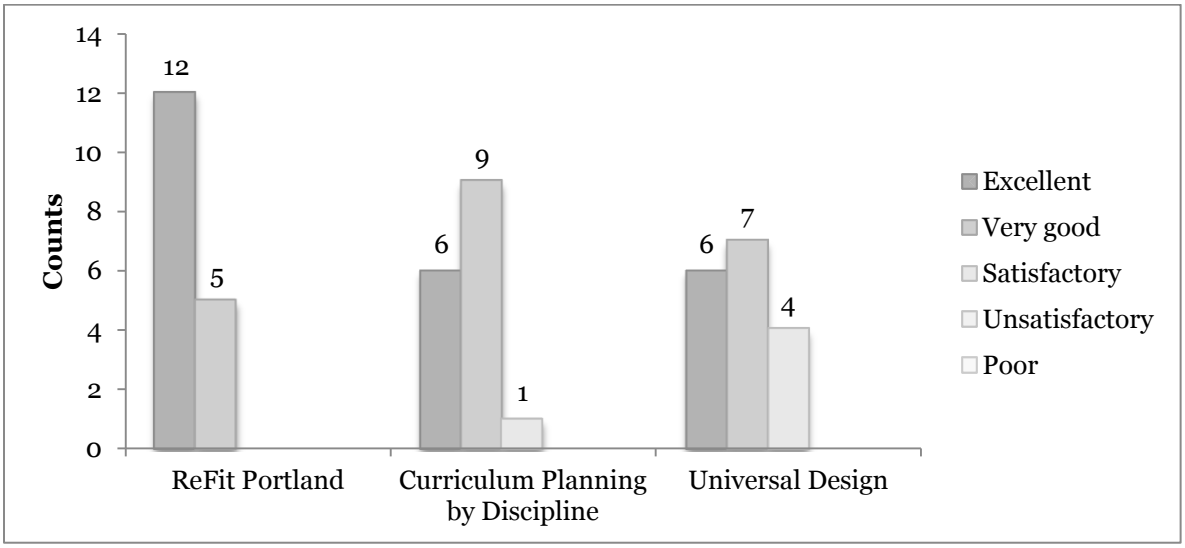


Table 5: June 28 Sessions That Provided the Most Useful Information for Teaching and Work with Students

Session	Number of Responses	Responses to the question: What about this session was most useful?
ReFit Portland, Renovating for Special Needs – *Laurey Masylk, Exec. Dir.*	11	Laurey's tireless [passion] for refit was inspiring. Suggestions & a map for curriculum. I'll try to come up with a better answer to how to make universal design work for disabled workers.
		Refit - case studies & networking. Community ideas
		I enjoyed the breakout session in which we discussed our curriculum changes & discussed the many options.
		Great to learn about refit, as it could be a great volunteer connection for my students.
		I developed my understanding of what universal design means w/ refit.
Curriculum Planning by Discipline – *SSI Facilitators*	8	Interdisciplinary discussions - exchange of ideas. Small groups & large group.
		Curriculum planning gave me ideas about how to organize changes for upcoming classes. (this other info was also great!)
Universal Design & Remodeling – Karen Richmond, Neil Kelly	6	Clear definition of universal design & comparison WADA
		The universal design & remodeling - though I did find the other 2 presenters very interesting.
		Nice overview and slides. Organized and clear.

N=17
Note: Some respondents indicated multiple sessions or did not provide comments. The table does not include sessions receiving one response or comments unrelated to the sessions.

Participants had the following suggestions for improving the June 28 presentations and activities:

- More time to talk in small groups (5 related responses)
- Please publish accessibility case studies (2 related responses)
- Try to separate the NeilKelly commercial from the presentation
- Perhaps demo of low cost durable equipment
- Another curriculum planning session with different people
- Have the universal design presentation earlier in the week, not at the end

General Suggestions from Participants for Improving SSI-Portland Sessions and Activities

On all five days, participants provided feedback that applied to multiple sessions or to the SSI overall. The most common suggestion for improving the sessions was to include more time for the following activities:

- Time for sharing participants' reflections
- Question and answer periods
- Interactive or group activities
- Help with transportation for visitors to and from the hotel to the CLIMB center
- Written guides to supplement presentations or tours
- Connections between content and course curricula

The overall evaluation asked respondents to provide **suggestions for improving content and format of the SSI**. Suggestions offered by three or more respondents are summarized in the main body of the report. Other suggestions offered by one respondent each were:

- Include therapy rehabilitation perspective
- Brainstorm personal sustainability projects
- Make food sustainable and compostable
- More hands-on activities
- More visits to sustainably designed homes
- More written information about products and processes
- More materials to take back to students
- More places to rest during tours

The SSI overall evaluation asked participants their recommendations for future SSIs. Suggestions included the following (responses have been minimally edited for readability):

- I would consider trying to get an even number of high school & college level participants or possibly divide the program into 2 separate sections. Event was expertly planned, the food was fantastic & I made tons of useful connections, thank you!

- Excellent job in keeping our needs satisfied. Joint dinner events & socializing adds to the ideas exchange. Use more lunchtime for some presentations (like sustainability mgr @ legacy presentation).

- More time to chill out and integrate the information; one less session per day. 1-8pm should be so that integration outside of session can occur when we are fresh. Since the sessions are long & intense it would work better to have out of town participants near the PCC Climb center & in a more comfortable calming space (with no long walk & bus ride). Chrystal Hotel is better for a long rock n roll

weekend. Very fun place & great presentation concepts. I loved it all & felt that it was very well thought out and organized. Very careful & creative thinking much appreciated. Thank you.

- Include Occupational Therapy rehabilitation perspective. Some examples of "experiencing" disabilities.

- More hands-on activities and directly applicable ideas for both high school and college educators. Reduce the number of presentations by at least one a day. Great stuff, but days are a bit long.

- Perhaps an end-of-day discussion session or lunch /dinner session where the new ideas could be discussed in a round table format. I was fortunate to be an out-of-towner staying with others at the hotel. We established a breakfast meeting daily and eagerly discussed the previous day's activities.

- Content and format were great - an amazing experience. I just wish I had more drawings (specifics) to take back to use with my students.

- Add a session about tiny adaptations that those with physical challenges make without any help on environmental change. For example, paralysis & even quads can do wheelies AKA chair spins that do not require the 5' turning radius. Today's example of woman throwing her walker over a hedge was so appropriate. A session on the ADA minimums versus the universal design approach.

- No suggestions for registrations - great! :) No suggestions for facilities, No suggestions for food. Heidi's planning & coordination was incredible. Lodging was interesting- all hotel employees were great. I enjoyed them. Some of my peers did not care for the uniqueness of the facilities. Transportation was great - no change needed.

- Heidi and everyone else did an awesome job in putting the week together. I cannot imagine any improvements.

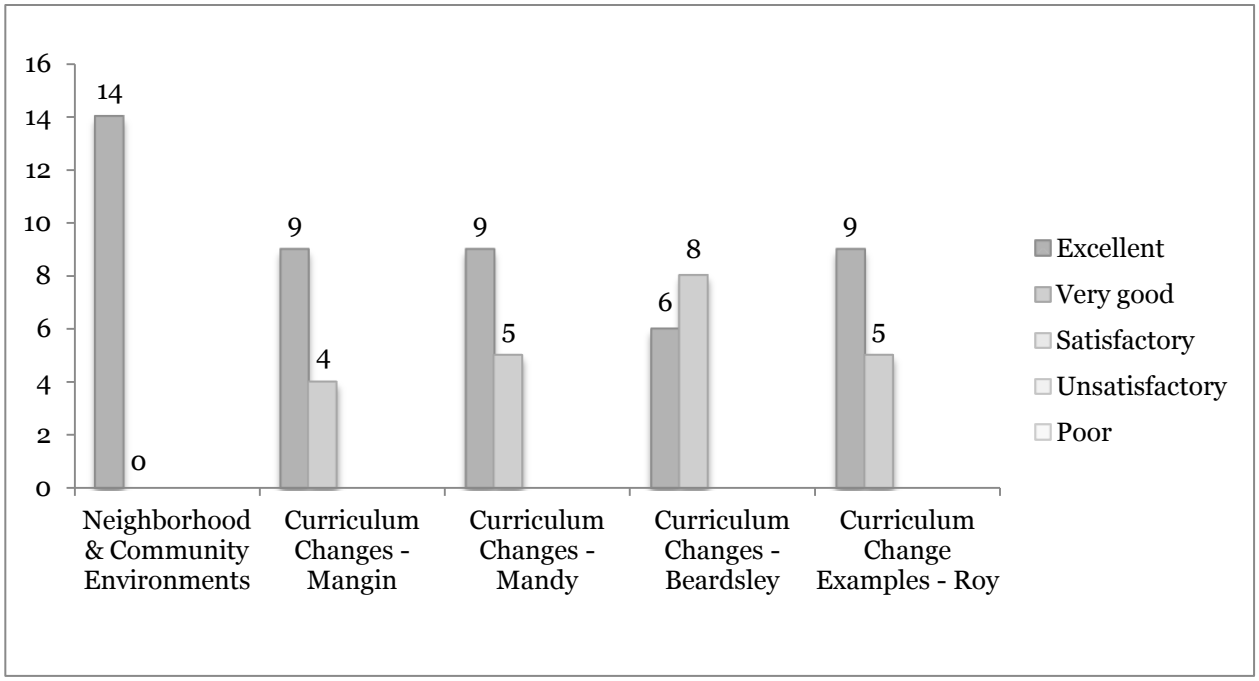
- It's minor… by the end of the 2nd day my head was going to explode with info! I think 45 minutes of small group discussion/recap before dinner would be a nice way to synthesize the days info, do evaluations & discuss info with in groups. But overall it had been fabulous! so if nothing changed it would be fine.

- Heidi is fabulous - so well organized, everything was planned so well. The food was great but some lighter fare would be nice. Overall a wonderful program! Thank you!

SSI Summit, August 23

Fourteen participants completed the feedback questionnaire for the SSI Summit on August 23, 2013. Figure 6 presents participants' ratings of the activities and table 6 summarizes the sessions that participants felt most enhanced their knowledge and understanding of sustainability issues, trends, technologies, and best practices. The table also includes participants' comments on the aspects of these sessions that they found to be most useful; the comments have been minimally edited for readability.

Figure 6. Ratings of the SSI Summit presentations



The SSI Summit Questionnaire asked participants to indicate which sessions had provided the most useful information for teaching and work with students. The greatest number of responses (six) was for all sessions, followed by five for the "Neighborhood & Community Environments for an Aging Society" with Dr. Alan DeLaTorre followed by discussions of curriculum changes (three responses).

Table 6: Summit sessions, activities, and information that participants found particularly valuable

Session	Number of responses	Participant comments
All sessions	6	I found all the presentations to be very interesting and useful.
		Wonderful presentations!
		All others in general were helpful, too.
		This day was far more valuable than I had expected. I learned from EACH presentation. I don't think I can rank this.
Neighborhood & Community Environments for an Aging Society, Alan DeLaTorre, Ph.D., Portland State University —Institute on Aging	5	Alan's presentation was great because he was so passionate about his subject. Would have been great to kick this off (although I understand he wasn't available then).
		Neighborhood and community environments for the aging society added additional perspective to knowledge gained overall.
		Alan DeLaTorre is an amazing speaker and thinker. I hope to talk again with him.
Discussion of curriculum changes	3	Talking to cohorts about curriculum changes
		Susan's presentation was directly applicable to my discipline and classroom needs. Denise's presentation was also helpful in guiding some of my student project ideas.
		Curriculum ideas.
Breakout Sessions	2	I liked the discussion groups, by discipline, would have been nice to be in every group.
		Collaborating in small group; connecting with individuals

N=12
Source: 2013 SSI Summit Feedback Questionnaire
Note: 2 respondents left this question blank.

Suggestions for Improving the SSI Summit Presentations and Activities

The final question in the Summit Feedback Questionnaire asked participants to share suggestions for improving the day's activities. Eight respondents either indicated they had no suggestions (4 responses) or left the question blank (4 respondents). Four participants suggested that the Summit increase the number of and time for breakout sessions. Two additional participants suggested modifications to the breakout sessions themselves. Table 5 summarizes participants' suggestions.

Table 10. Suggestion for Improving the 2012 SSI Summit

Suggestion Topic	Number of Responses	Participant comments
None	4	It was a great day--great way to pull it all together. Thanks!
		This has been an incredible conference. Thank you!
		Nothing comes to mind!
		Everything was great!
More/modified breakout sessions	4	I like breakout/summary sessions. The spirited conversations were great.
		The small breakout groups should have been divided by the course leaders, not by discipline.
		Again, more time to discuss and synthesize the info with each other.
		Today was very helpful. Revisiting this info was great. I would have liked it if each group would have briefly presented to each group a summary of their discussion.
Other	2	Topics for discussion in groups.
		Afternoon break-- we took it anyway.

N=10

Source: 2013 SSI Summit Feedback Questionnaire

Note: 4 participants either had no suggestions or left the question blank.

HPI-Boise

Fourteen HPI-Boise participants completed an evaluation questionnaire at the end of the final day of the institute. The following information provides additional, detailed information to supplement the summary included in the main body of the report.

Institute Experience Most Useful for Integrating into Teaching

The overall evaluation asked respondents to provide identify **which institute experience they felt best prepared them to integrate high performance or sustainability concepts and issues into one or more of their existing courses**. Responses offered by three or more respondents are summarized in the main body of the report. Respondents also listed the following experiences, each of which received one response:

- Energy Calculations for R+V value
- UA Experiment
- Dan Cote
- Sealing the building envelope
- Energy and Moisture Transfer
- Ventilation Scenarios and Calculations

Suggestions for Improving HPI-Boise Sessions and Activities

The HPI-Boise evaluation asked respondents to provide **suggestions for improving the content and format of the institute**. Suggestions offered by two or more respondents are summarized in the main body of the report. Four respondents felt no changes were needed. The other suggestions received one response and included:

- Have the SI present a full Energy Audit
- More time to get into content
- More examples of real-world techniques and products
- More calculation worksheets
- More time on renewable energies
- More breaks
- More time for course development

The overall evaluation questionnaire also asked respondents to share **suggestions regarding the logistics of the SSI**, such as registration, travel and accommodations, and meals. Twelve of the thirteen respondents who answered this question felt that the SSI had been well put together and enjoyed their experience and offered no suggestions concerning logistics.