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Campus Triple Bottom Line: College Sustainability and Grand Valley State University

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Campus Triple Bottom Line: College Sustainability and Grand Valley State University

Colleges and universities in the United States and globally have mobilized around sustainability issues and engaged their campus community and communities at large in efforts to reduce waste, reduce carbon emissions, create environmental space, foster food security, and learn about and participate in creating sustainable communities. This study provides a literature review of sustainability programs within the United States and abroad, and commonalities across these programs were identified, grouped into four research streams, and used as the bases for the theoretical framework. This paper further expands on the subject of campus sustainability by presenting a case study of Grand Valley State University Sustainable Community Development Initiative, whose focus is to bring sustainable practices not only to the campus of Grand Valley State University (GVUS), but also to wider community stakeholders.

Review of Literature on Campus Sustainability Programs

Peer reviewed articles on sustainability programs within the United States and abroad were reviewed, and commonalities across these programs were identified and used as the bases for the theoretical framework. The articles that were examined were organized into four research streams: Research stream No. 1 (R1)—organizational learning and capacity building and highlights avenues in which the college campus can learn together of the importance and need for sustainable thinking. Organizational learning has helped to create a campus culture that looks at ways to reduce waste and contribute to the environment, ecology, and socio-community responsibility. Downey (2004) illustrates with reflections on Sheffield Hallam University’s learning and capacity building through its transition from environmental focus to sustainability with emphasis towards corporate social responsibility. Guza (2004) shares the need for universities’ sustainable development policy to integrate research, operations and local community relations and moves toward changing organizations that enable relationship-building and the development of learning capacities.

Research Stream 1: Student Education and Involvement

Downey (2004) Case Study Highlights the Regional Centre of Expertise (RCE) on education and development in Toronto and the RCE’s impact on the larger socio-economic thinking in which MBA students engage beyond the neoclassical economic thinking in which MBA students engage with.

Research Stream 4: Global, Regional, and Global Initiative


Research Stream 2: Organizational Learning and Capacity Building

Albrecht, Burand, Schaltegger (2007) Theory Building/Case Study Examines the use of transparency as incentive for organizational change, draws on theoretical concepts from organizational learning and applications to university context.

Research Stream 3: Organizational Learning and Capacity Building

Albrecht, Burand, Schaltegger’s (2007) exploration of sustainability projects as a stimulation of organizational learning and creation of transparency adds to the discussion of creating legitimacy of universities’ sustainability initiatives through action research.

Research Stream 2: Organizational Learning and Capacity Building

Research Stream 1: Student Education and Involvement

Downey (2004) Case Study Analyzes implications for organizational learning in preparing for creating a sustainable development policy. Embedded case study of University of British Columbia Faculty of Agricultural Sciences, learning experience.

Review of Literature on Campus Sustainability

Research Stream No. 1 (R1) overviews organizational learning and capacity building and highlights avenues in which the college campus can learn together of the importance and need for sustainable thinking. Organizational learning has helped to create a campus culture that looks at ways to reduce waste and contribute to the environment, ecology, and socio-community responsibility. Downey (2004) offers reflections on Sheffield Hallam University’s learning and capacity building through its transition from environmental focus to sustainability with emphasis towards corporate social responsibility. Guza (2004) shares the need for universities’ sustainable development policy to integrate research, operations and local community relations and moves toward changing organizations that enable relationship-building and the development of learning capacities. Albrecht, Burand, & Schaltegger’s (2007) exploration of sustainability projects as a stimulation of organizational learning and creation of transparency adds to the discussion of creating legitimacy of universities’ sustainability initiatives through action research.

Research stream No. 2 (R2)—environmental management systems and strategy development, highlights environmental management systems (EMS) as a strategic tool for implementation and focuses on how colleges have established structural supports to implement, measure, and evaluate sustainability programs. Research stream No. 3 (R3)—student, education and involvement, is concerned with interdisciplinary approaches to student learning and sustainability. Interdisciplinary learning has allowed students to see the linkages between other areas of studies beyond the sciences, such as social science, community development, and political science. Students have been found to be formidable ambassadors for furthering sustainability both on and off campus. Students also have learned valuable skills that have led to personal job creation and entrepreneurship. Research stream No. 4 (R4)—local, regional, and global initiatives, looks at how colleges and universities have forged relationships with off-campus stakeholders. Higher education has brought the movement of sustainability beyond the campus to local, regional, and in some cases global initiatives (see Table I).

Research stream No. 1 (R1) overviews organizational learning and capacity building and highlights avenues in which the college campus can learn together of the importance and need for sustainable thinking. Organizational learning has helped to create a campus culture that looks at ways to reduce waste and contribute to the environment, ecology, and socio-community responsibility. Downey (2004) offers reflections on Sheffield Hallam University’s learning and capacity building through its transition from environmental focus to sustainability with emphasis towards corporate social responsibility. Guza (2004) shares the need for universities’ sustainable development policy to integrate research, operations and local community relations and moves toward changing organizations that enable relationship-building and the development of learning capacities. Albrecht, Burand, & Schaltegger’s (2007) exploration of sustainability projects as a stimulation of organizational learning and creation of transparency adds to the discussion of creating legitimacy of universities’ sustainability initiatives through action research.

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Table I. Summary of Literature on Campus Sustainability

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<th>Stream/Article</th>
<th>Methodology</th>
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<td>Research Stream 4: Strategy and Environmental Management Systems</td>
<td>Discussion/Case Study</td>
<td>Discusses various Environmental Management Systems from traditional frameworks and implications of EMS as a tool for institutional drivers that led to framework implementation</td>
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<td>Fisher (2003)</td>
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<td>Discusses the use of ISO 14001 as tool for environmental review or management systems</td>
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<td>Price (2005)</td>
<td>Overview/Case Study</td>
<td>Perception of Environmental Management Systems use in most UK universities settings as marginally important. Case study of University of Glamorgan Wales on how to lead all operations accredited ISO 14001</td>
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<tr>
<td>Spiller, Bucher, Fielding (2004)</td>
<td>Discussion/Case Study</td>
<td>Discusses the use of environmental policy and policy practice in adequacy for process without adoption of a formal EMS. Illustrates this via case study of Lincoln University, New Zealand</td>
</tr>
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<td>Research Stream 2: Organizational Learning and Capacity Building</td>
<td>Theory Building/Case Study</td>
<td>Examines the use of transparency as incentive for organizational change, draws on theoretical concepts from organizational learning and applications to university context</td>
</tr>
<tr>
<td>Albrecht, Burand, Schaltegger (2007)</td>
<td>Reflective/Case Study</td>
<td>Highlights the transformation of the Sheffield Hallam University, UK perception of sustainable practices within the formal university structure and advantages of student engagement</td>
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<td>Case Study</td>
<td>Shows interdisciplinary curriculums, student work experiences and implications on new effective learning approaches to sustainability</td>
</tr>
<tr>
<td>Blaauw, Brakkee, Des, Dekker, Pulles, Reuss, Savarick, Stecher, Wolter (2005)</td>
<td>Case Study</td>
<td>Campus and community engagement in sustainable development through sustainability networks, initiatives and educational programs</td>
</tr>
<tr>
<td>Shibs, Croakin (2003)</td>
<td>Literature Review/Case Study</td>
<td>Development of a sustainability framework to teach business student to use critical and reflective thinking and teaching methods, extending beyond the neoclassical economic thinking in which MBA students engage</td>
</tr>
<tr>
<td>Craves, Hallman-Hitchcock (2006)</td>
<td>Case Study</td>
<td>Shares the use of the design charrette as a sustainability teaching tool and assessment of charrette’s role in promotion of sustainability in higher education</td>
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<td>Walker, Seymour (2008)</td>
<td>Case Study</td>
<td>Investigates the use of the design charrette as a sustainability teaching tool and assessment of charrette’s role in promotion of sustainability in higher education</td>
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<tr>
<td>Mihalas, Metaxa, Ito, Yue, Minoda, Ishikawa (2008)</td>
<td>Case Study</td>
<td>Highlights the Regional Centre of Expertise (RCE) in education for Sustainable Development in Tokyo and the RCE’s impact on the larger community and its partnerships.</td>
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<tr>
<td>Nishimura (2008)</td>
<td>Case Study</td>
<td>Highlights the role of the University of Tohoku in establishing a Regional Centre of Expertise (RCE) in Education for Sustainable Development in Tokyo and the RCE’s impact on the larger community and its partnerships.</td>
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Review of Literature on Campus Sustainability Programs

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(2004) offers reflections on Shefield Hallam
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focus to sustainability with emphasis towards
shares the need for universities’ sustainable
development policy to integrate teaching,
research, operations and local community
relations and moves towards learning orga-
nizations that enable relationship-building
and the development of learning capacities.

Research Stream No. 2 (R2)—envi-
ronmental management systems and strat-
egy development. Dorrestijn (2007) offers a
case study on sustainability initiatives at
Newcastle University’s learning and capacity
building through its transition from environ-
mental focus to sustainability with emphasis
towards corporate social responsibility. Gudz
(2004) shares the need for universities’ sus-
tainable development policy to integrate
teaching, research, operations and local
community relations and moves towards learning
organizations that enable relationship-building
and the development of learning capacities.

Research Stream No. 3 (R3)—student
education and involvement. Englefield
(2004) offers a case study on sustainability
initiatives at the University of British
Columbia Faculty of Agricultural Sciences.

Research Stream No. 4 (R4)—struc-
tural and institutional drivers. Price
(2005) offers a case study on sustainability
initiatives at the University of Glamorgan
Wales as first to have all operations accredited
to ISO 14001.

Table I.

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<tr>
<td>Research Stream 4: Structural and Institutional Drivers</td>
<td>Conceptual Paper</td>
<td>Provides an overview of the United Nations University’s Regional Centre of Expertise on Education for Sustainable Development (RCE) as a tool for implementation and focuses on how universities can forge partnerships with the expanded university community</td>
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<td>Medelez, Bednarek (2008)</td>
<td>Case Study</td>
<td>Examines the use of transparency as an incentive for organizational learning and focuses on how universities can forge partnerships with the expanded university community</td>
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<tr>
<td>Research Stream 5: Regional and Global Initiatives</td>
<td>Case Study</td>
<td>Highlights the Regional Centre of Expertise (RCE) in Education for Sustainable Development in Europe and the contribution of UNESCO as a RCE</td>
</tr>
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<td>Case Study</td>
<td>Examines the use of transparency as an incentive for organizational learning and focuses on how universities can forge partnerships with the expanded university community</td>
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<tr>
<td>Research Stream 6: Education and Policy</td>
<td>Case Study</td>
<td>Examines the use of transparency as an incentive for organizational learning and focuses on how universities can forge partnerships with the expanded university community</td>
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The University of Minnesota’s efforts in moving a “soft control” issue and separate from campus sustainability operations to a more integrated system (Steurer, 2005). Clarke & Kouri (2009) highlight many different frameworks of EMS (ISO-14001; Higher Education 21 (UK); the EMS Self-Assessment Checklist (USEA) the Assessment Instrument for Sustainability in Higher Education (Netherlands); The Hanover University Sustainability University Model (Mexico). They argue that colleges and universities require EMS frameworks that are specific to their sector needs. This is in order to create a comprehensive model of sustainability development in the area. Research stream No. 4 (R4) looks at how universities and colleges have forged relationship with off-campus stakeholders. Higher education has brought the movement of sustainability beyond the campus to local and regional initiatives, and has participated in global initiatives. The papers reviewed include case studies of various universities’ involvement with the United Nations University for Advanced Studies (UNU) Regional Centre of Expertise (RCE) on Education for Sustainable Development, which is a “network of existing and emerging formal, non-formal, and informal education initiatives, organisations, mobilised to deliver education for sustainable development to local and regional communities” (United Nations University for Advanced Studies (UNU)). Mochizuki and Fadeeva (2008) provide an overview of the RCE and how institutions of higher education (HEIs) can create linkages that allow them to break from compartmentalization of knowledge and link campus policies with practices. They further highlight that HEIs that are partners in RCEs can use action research as a means to modifying action rather than generating new knowledge (Mochizuki and Fadeeva, 2008). Itoh, Sueyomo, Matsuo, Ito, Yui, Matuda, and Ishikawa (2008) reinforce these ideas by showing how the RCE has helped Keio University built on existing education for sustainable development work that had begun at Keio University, which created opportunities for interdisciplinary action research in collaboration with regional stakeholders and created further opportunity for integration and coordination within the universities. Stefanovic (2008) highlights the work of University of Toronto and the establishment of a RCE. The work that was done at University of Toronto focused on relevant interdisciplinary action research that helped raise awareness and make an impact on the local and broader communities and represent the narratives of the area’s educational and community development. University of Minnesota’s efforts in moving sustainability initiative forward (Bshair, Bjordet, Das, Dock, Pullins, Rosales, Sa-
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The SCDI was one of the founding members (GVSU Sustainability Recognitions, 2010). The SCDI’s work is guided by many thought leaders in sustainability but notably the SCDI’s Sustainability Initiative model is based on the work of Dr. Anthony Cortese, ScD of Second Nature (figure 1). This model complements the research streams previously discussed and will be introduced throughout the case study discussion, as it offers examples of the research streams in practice. This case study will not focus on the linear history of the GVSU ScDI as much as it will highlight activities that correspond to the research streams and the GVSU ScDI model. Thus the focus from this point will be the following: Education for Sustainable Development (Research stream No. 1—Organizational Learning & Capacity Building), Campus Dining and Facilities Services (Research stream No. 2—Strategy and Environmental Management Systems), Student Involvement and Service Learning (Research stream No. 3—Student Education and Engagement), and Community Development (Research stream No. 4). As previously mentioned, the research streams form the lens through which to explore GVSU ScDI and the formation of the theoretical framework that will follow.

Education for Sustainable Development (Research stream No. 1—Organizational Learning & Capacity Building)

Education for Sustainable Development (R1) is focused on campus awareness and learning about sustainable practices. The GVSU ScDI model formed the basis for building awareness throughout the campus and helped to establish a common framework from which to work on threading sustainability concepts and practices that were new to the campus. GVSU ScDI has used many ways to build awareness and encourage participation from staff, faculty, and students. The initiative has created a dynamic website that is rich with information and resources for staff, faculty, and students.

Campus Dining and Facilities Services (Research stream No. 2—Strategy and Environmental Management Systems)

This area focuses on the administrative strategies and the embedding of sustainable practices in operational areas. It is important that students are encouraged to support sustainability by setting the tone and helping to create awareness, interest, and engagement (Velazquez et al., 2005, pg. 384). GVSU leadership began to set this tone in the creation of sustainability indicators, and President Thomas J. Haas’s signing of the Talloires Declaration and The American College & University Presidents Climate Commitment (GVSU Sustainability Recognitions, 2010). Each year, since the ScDI’s start, Campus Dining Services have increased sustainable practices without compromising the quality of food or service. This unit has focused on sustainable procurement from local sources (including fair trade sources) and seafood sources that focus on sustainable practices (Sustainability and Community Development Report, 2008 Sustainability Indicator Report, pg. 4-10 through 4-11). Campus Dining Services has also focused on waste management and recycling by elimination of trays, which helped in reduction of energy, water, and detergent use, saving 1,619,000 gallons of water annually (GVSU ScDI, 2010).

Campus Facilities Services has participated in campus recycling efforts and the guidance
Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus). Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus). Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus). Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus). Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus). Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus). Grand Valley – the Laketurf Building and Michigan Alternatives and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heating support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building (Robert C. Pew Grand Rapids Campus).
and coordination of engineering projects, which includes new and existing building energy efficiencies. Facilities have worked diligently to bring awareness via information distribution and energy awareness competitions within the Housing department. These efforts have yielded a 42% decrease in the campus-wide electricity consumption from $861,000 since 2001 (Grand Valley State University: 2008 Sustainability Indicator Report, pg. 4-6).

GVSU Facilities Services continues to evaluate opportunities to incorporate alternative energy use in operations. As explained in the GVSU 2008 Sustainability Indicator Report, some notable examples are the use of alternative energy sources in the Laker Turf Building (Allendale Campus), Michigan Alternative and Renewable Energy Center (Muskegon) and the John C. Kennedy Alternative and Renewable Energy Center (Muskegon) and the John C. Kennedy Hall of Engineering Building (Robert C. Pew Grand Rapids Campus).

Grand Valley – the Laker Turf Building and Michigan Alternative and Renewable Energy Center (MAREC) – incorporate photovoltaics as a partial energy source to provide power to building energy controls and some building heat support. Geothermal wells also have been added as an alternative energy option for the Turf Building. Geothermal technology helps maintain the heating and cooling levels within the building by transferring heat from the wells to the building in the winter, and from the building to the cooler wells in the summer months. Ice block technology was added to our John C. Kennedy Hall of Engineering building on the Robert C. Pew Grand Rapids Campus. This technology, which allows us to freeze a large ice block during nighttime hours, helps cool refrigerant lines during the daytime hours and helps offset peak electrical costs.

(Grand Valley State University: 2008 Sustainability Indicator Report, pg. 4-7).

Other areas of focus include the decrease of water use to 151.5 million gallons in FY2008 to less than 53 million gallons in FY2008. Energy reduction awareness has created an annual savings of $861,000 since 2001 (Grand Valley State University: 2008 Sustainability Indicator Report, pg. 4-6).

GVSU wanted to show commitment to their work in sustainability by establishing interdisciplinary studies and student involvement in service learning projects. Included in this area is the aforementioned Sustainability Week and RecyclingMania programs. The interdisciplinary studies provided at GVSU offer students and faculty the opportunity to engage deeply in the area of sustainability. Students have the opportunity to major or minor in a Liberal Arts degree in sustainability. Students and faculty are also afforded the opportunity to gain knowledge and build skills in service learning projects and internship and research opportunities. Notable activities beyond the classroom include the Student Sustainability Partnership, which focuses on bringing together SDCI students and student organization leaders to collaborate on sustainability projects (Sustainability Community Development Initiative, Student Sustainability Partnership, 2010), and a most recent internship project with West Michigan Symphony, Sustainability: A West Michigan Journey, which focuses on a "multi-media concert based on sustainability with supporting education and community engagements programs" (Sustainability Community Development Initiative, Internships, 2010). These activities add variety by allowing the student to engage outside of the classroom and text and create a more understanding and practicality of sustainability between the community and the student.

Community Engagement (R4)

Since its inception, the GVSU SDCI has worked to foster connections and learning between the various GVSU campuses and the wider community. These connections have created viable partnerships that have added focus under sustainability and renewable practices as well as advancing community and economic development. As noted before, GVSU SDCI’s participation in the Community Sustainability Partnership (CSP), the Grand Rapids Regional Center for Expertise in Education and Sustainable Development (a United Nations Institute of Advanced Studies program), and GVSU President Haas as signatory to the Talloires Declaration and The American College & University Presidents Climate Commitment all create local, national and international visibilities. GVSU is participating in the development and monitoring of city and community sustainability indicators reports as well as assisting with developing sustainable neighborhoods and communities (GVSU, Making it Happen, Applied Sustainability at GVSU, 2010).

An additional area that should be noted is the Grand Valley State University Michigan Alternative and Renewable Energy Center (MAREC) housed in a LEED certified (Gold) facility that opened in fall of 2003. Among the collaborators were the Community Foundation for Muskegon, Muskegon Area Chamber of Commerce, and Muskegon First. MAREC’s focus is on creating economic development opportunities in the area of renewable and alternative energy providing space and support for uniquely focused and innovative business start-ups and projects in these areas. GVSU SDCI highlights that “MAREC’s strategic focus revolves around four key initiatives: 1) managing a leading-edge facility; 2) implementing visionary energy projects; 3) providing alternative energy education; and 4) supporting the economic development ofMuskegon and the state” (Sustainability Community Development Initiative, LEED Buildings, 2010).
and programming. The second phase can be the driver for more substantial work to be carried out in the areas of procurement, facilities, interdisciplinary curriculum development, campus participation in local, regional, and global initiatives, and faculty and student involvement in programming. GVSU and other college campuses highlighted in this research became involved in both on campus and off-campus initiatives. For some institutions of higher education, off-campus engagement can be a starting point for sustainability projects.

The fifth and final phase focus is on incorporation of continuous learning and improvement at a systemic level. This can be accomplished through program evaluation practices, such as sustainability indicators, or more targeted work around climate action. This phase also focuses on looking at redesign and revision as a part of growing and developing.

The research streams and the implementation phases can be conceptually integrated to show the relationship between the theory and suggestion for program development, implementation, and monitoring.

Conclusion

The campus sustainability programs that were reviewed varied in form and demonstrated broad and diverse methodologies and applications of data collection, programming, stakeholder involvement, and program measurement. The examples from the research streams and the Grand Valley State University Sustainable Community Development Initiative show that there is room for applying a Theoretical Framework for Sustainability and Proactive Implementation. Institutes of higher education should examine critical success factors that can help and inhibit the quality and effectiveness of campus sustainability programs before and during the process.

Resources

Grand Valley State University Sustainability and Campus Dining, 2010 Retrieved from http://www.gvsu.edu/campusdine/index.cfm?id=A7763EAE-D4B4-0EDD-16CF84191E7F2062


The second phase can be the driver for more substantial work to be carried out in the areas of procurement, facilities, interdisciplinary curriculum development, campus participation in local, regional, and global initiatives, and faculty and student involvement in programming. GVSU and other college campuses highlighted in this research became involved in both on campus and off-campus initiatives. For some institutions of higher education, off-campus engagement can be a starting point for sustainability projects.

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The research streams and the implementation phases can be conceptually integrated to show the relationship between the theory and suggestion for program development, implementation, and monitoring.

**Conclusion**

The campus sustainability programs that were reviewed varied in form and demonstrated broad and diverse methodologies and applications of data collection, programming, stakeholder involvement, and program measurement. The examples from the research streams and the Grand Valley State University Sustainable Community Development Initiative show that there is room for applying models for a Theoretical Framework for Sustainability and Proactive Implementation. Institutes of higher education should examine critical success factors that can help and inhibit the quality and effectiveness of campus sustainability programs before and during the process.

**Resources**

Grand Valley State University Sustainability and Campus Dining, 2010 Retrieved from http://www.gvsu.edu/campusdine/index.cfm?id=A77638A-D4B4-0EDD-16CF84191E7F2062


**Figure 4**

Proactive Implementation Model for Sustainability (Phases)

- **Phase 1**: Organizational learning & capacity building, Devices understanding of sustainability and how to achieve sustainability, Top leadership commitment and support needed
- **Phase 2**: System for Strategy & Environmental Management, Set visions and objectives, Identify Champions and form teams, Develop quality assessments & reviews
- **Phase 3**: Implementation & Programming, Campus functions and services; vendor relations, Interdisciplinary curriculum development, Student education and involvement, Local, regional, global initiative
- **Phase 4**: Systematic continuous learning & improvement, Program evaluation, Redesign or revisions

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