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Introduction

Universities around the world are now under pressure to respond to new demands by government, business, civil society, and a globalizing economy, but are constrained by limited resources, bureaucratic hierarchies, and isolationist disciplines (Clark 2004; Tandberg 2010). Slaughter and Leslie (1997) have shown how universities are restructuring to capture new funding sources by promoting strategies such as patents, spinoff business parks, problem-based research units, and differentials in faculty numbers and salary based on generation of external funds. Community outreach and extension programs fare poorly in this context, as they typically do not generate revenue for universities. Clark (2004) has identified other entrepreneurial strategies that universities can use to thrive in the emerging context, one of which is an “extended developmental periphery.” Innovative and successful universities tend to have innovative and opportunistic entities at their periphery. Like the mass of a gyroscope, these entities spin around the core to create an entrepreneurial mix of stability and dynamism. We argue that some outreach programs—in particular community-based landcare—can become such an innovation.

The Morrill Act of 1862 established land grant universities in the United States (US) to educate citizens, generate knowledge that would build economies, and empower communities with that learning. In the century that followed, land grant universities helped transform American agriculture and rural communities (McDowell 2001). In the 150 years since the passage of the Morrill Act, the social, political, and economic landscape of higher education and rural America has changed dramatically. What in 1862 was a primarily rural nation with 60% of its labor force working on farms now has 80% of its population living in urban areas (US Census Bureau 2000). Less than 2% of the nation’s workforce is now involved in farming (Dimitri et al. 2006), and rural communities now routinely struggle to address global scale issues (Franklin 2009; Lichter and Brown 2011).

As a result, the outreach mission of land grant universities has struggled and become vulnerable to significant budget cuts (Blaine 2005; Fischer 2009), political struggles (McDowell 2001; 2003), and perceptions of irrelevance (West et al. 2009). In response, there have been calls to “return to our roots” (Kellogg Commission 1999), fulfill the “civic purposes of higher education” (Cress et al. 2010), and to “step forward as stewards of place” (American Association of State Colleges and Universities 2002). Some land grants have responded by broadening their community and economic development initiatives (Fischer 2009; McDowell 2001), institutionalizing engagement at all levels of the university (Alperovitz and Howard 2005), focusing on improving quality of life for communities (Franklin 2009; Spanier 1999), introducing high-tech industry into regions (Franklin 2009; Stephenson 2003), and building community capacity (Franklin 2009) — the latter is the focus here.

This article examines the theoretical and practical aspects of university engagement for building community capacity. We describe lessons learned from a multi-year community engagement initiative undertaken by faculty, staff, and students at Virginia Tech, organized around theories

for building social capacity, promoting social learning, and enabling adaptive management within communities, which others (see below) have argued are critical capacities needed to shape a sustainable future.

In particular, we examine how Landcare, an international strategy that employs community building as a means to promote sustainable development, may provide a model for a wide range of land grant university engagement efforts in the US. We contend the lessons we learned have implications that extend beyond the land-based sustainability orientation of our case study. They are applicable to a diversity of engagement missions of institutions of higher education.

Literature Review

Cities and towns around the US are working to remain viable in the face of globalizing markets, rapid urbanization, and degrading water, soil, energy, and other resources. Public agencies and universities with engagement missions are struggling to provide these communities with the assistance they need. Campbell (1995) has summarized the reasons for alternative and innovative engagement strategies:

- Changing demographics are increasing the number and diversity of clients that cannot be reached by the traditional one-on-one, extension agent-to-client approach, particularly with shrinking budgets.
- Communities are unique in their assets and constraints, suggesting that engagement approaches must be tailored to specific contexts.
- Communities that recognize their problems and build their own initiatives to address them will produce more sustainable results.
- The capacities of nongovernmental organizations, voluntary conservation and “localism” groups, and other forms of civil society are growing, and can be harnessed to support community-based sustainable development.

These trends point to the importance of building capacity for social learning and adaptive management at the community level to support sustainable development efforts. Building internal capacity to self-govern and direct new change-focused initiatives is critical to ensuring a community’s future (Freshwater 2007), particularly rural communities that have traditionally relied on natural resources extraction and agriculture-based economies, and the government programs that have supported them. In their review of rural community development practice, Flora and Flora (1993) identified three components of strong, sustainable communities: (1) robust physical infrastructure (i.e., roads, schools); (2) human capital (i.e., leaders, access to education); and (3) a strong social infrastructure to facilitate the process of community building and development (i.e., social capital, networks).

Flora and Flora (1993) argued the first two components—physical infrastructure and human capital—often serve as goals for community development initiatives, but that such efforts will have little lasting impact without the third component, a strong and “entrepreneurial” social infrastructure, a position supported by many scholars recognizing the importance of social capital to sustainable community development (Freshwater 2001; Rainey et al. 2003). Social infrastructure emerges from complex and dynamic interactions among people and is an attribute

of a group not an individual. Therefore Flora and Flora (1993) argue, it is difficult to measure and receives less emphasis and attention than other factors in many development initiatives. Nonetheless, these social linkages create the infrastructure through which information and knowledge are perpetuated within the community, resources and actions are mobilized, and problems are addressed. Social capacity enables leaders and entrepreneurs to maintain and utilize local physical infrastructure to meet community challenges as it builds acceptance and expectation for action. It underpins a population's capability to adapt to changing conditions.

Based on decades of work in rural community development, Flora and Flora (1993) identified three essential features for strong community social infrastructure:

- The capacity to engage in constructive controversy and devise workable solutions that balance people, place, and economy rather than divide, exclude, or privilege one portion of a community over others.
- The ability to mobilize local capital to invest in regional entrepreneurial activities that benefit a larger community.
- The capability to attract and disseminate resources, particularly information, into and throughout a community.

We elaborate on each of these capacities below, suggest how each can be enhanced through land grant engagement programs, and illustrate them through a case study.

Holding Environments: Flora and Flora (1993) suggested communities need social space in which to engage in constructive controversy. Heifetz (1994) described this space as a holding environment, frequently determined by relationships and exchanges of information, and often facilitated by an external actor (p. 105). The holding environment provides a space in which community members may share ideas, bring together disparate positions, accept that there are no easy solutions to their collective problems, and hold their collective “feet to the hard work of reconciling and compromising among competing values claims and perspectives” (Stephenson, 2011, p.100). Social learning requires that communities clarify and test shared assumptions and values continuously as circumstances change. Such processes often reveal conflicting perspectives and values claims, which are innately stressful and often avoided unless a trusted process is in place for people to communicate their concerns, listen, and learn openly.

It can be difficult for communities to mediate conflict from within, in which case an external partner can be invited to help create and maintain the holding environment. Universities, with their legitimacy and resources, have successfully developed holding environments. Heifetz (1994, pp. 113-124) has identified five functions of holding environments:

- Directing attention to the problems, issues, or controversies that need to be resolved and the opportunities for collaboration.
- Gathering, testing, and managing information that helps community members understand their problems and opportunities, evaluate whether the risks of inaction merit the risk of change, and build confidence that a development scenario is possible and worth the risk.
- Helping frame issues, presenting them as constructive solutions worth considering rather than threats to be avoided.
- Providing a safe forum for conflicting perspectives to be voiced, recognized, and respected, rather than ignored and suppressed.
- Facilitating a decision-making or planning process that leads towards a solution and

identifies tangible actions.

Entrepreneurship: Higher education engagement efforts can support entrepreneurs as they respond to opportunities and challenges identified in the holding environment. Marsden and Smith (2005) examined entrepreneurs that have explicitly focused on ecological and social well-being in addition to profitability—or the triple bottom line of economics, ecology, and ethics. University engagement programs can support entrepreneurship of this type by serving in one or more of three identifiable roles:

- Regional catalysts promote entrepreneurship by identifying opportunities, individuals, and institutions and engaging them in a broader support network, either as a contributing partner or in creating profitable opportunities for market enterprises that support broader community and environmental goals (Holley 2005).
- Network brokers bridge entrepreneurs and external partners, connecting them to achieve mutual benefit (Rosenfeld 2001).
- Entrepreneurial support organizations (ESOs) directly assist entrepreneurs and networks by providing access to information, capital, support services and training as well as by promoting local entrepreneurial cultures (Kauffman Foundation 2008).

Learning Action Networks: Holding environments provide space to facilitate social learning, adaptive management, and the construction of learning action networks (LANs). Learning action networks encourage community members to develop, share, and test means of cooperation. They function as catalysts that promote assessment, reflection, learning, and action. Stephenson (2011) has argued that universities can help these networks form, help establish trust and shared vision among stakeholders, build local organizational capacity to assess current conditions, devise possible strategies of response, and mobilize action.

Landcare: Landcare provides a framework for organizing these three major types of engagement practice. It is a locally-led, community-based, public agency-facilitated strategy to build social capacity in response to challenges of sustainability in a dynamic world. It engages landowners, businesses, nongovernmental organizations (NGOs), local government officials, resource professionals, scientists, consumers, and concerned citizens in the work of caring for their environment and community. To date, Landcare has been employed primarily to focus on land stewardship tasks such as sustainable farming and forestry, but with particular attention given to landowner and community economic viability. It is applicable to any place-based efforts to improve community economic, social, and environmental conditions.

Introduced in Australia in the mid-1980s as a state-supported program for outreach and extension, Landcare has since been launched in more than 15 additional countries to date (Secretariat for International Landcare - www.silc.com.au/). Landcare's roots in local initiative provide those who employ the approach the flexibility to respond to issues most pertinent to a place and community. Efforts to establish a Landcare movement in the US are still nascent (see www.landcarecentral.org), but several groups have formed, among them Catawba Landcare near Virginia Tech. The relationship between Catawba Landcare and Virginia Tech is developed in the analysis below.

Methods

We developed a case study of Catawba Landcare to explore the university's role in fostering and facilitating the group and the implications of that role or roles for community capacity building. Our analysis employs the framework provided by the concepts of holding environment, social and ecological entrepreneurship, and learning action networks. This research draws on six years of university faculty, staff, and graduate student work with Catawba Landcare. Team members conducted semi-structured interviews with key informants and analyzed relevant documents and project reports throughout this time period. Two team members engaged in participant observations throughout the six years. Members of the community were aware of our university affiliation and research interests, and were asked to provide feedback on our emerging interpretations. These multiple data streams enabled triangulation and corroboration of findings.

The case is presented in two parts: the first portion provides a brief overview of the project while the second component examines the specific community capacity building strategies and outcomes discussed in the literature review. The conclusion reflects on how other land grant universities may be able to engage in similar efforts.

Results

Catawba Landcare

Faculty and staff in the College of Natural Resources and Environment at Virginia Tech (VT) became involved with the international Landcare movement in 2005 when the college's associate dean returned from Australia, where he had learned about the approach and become aware of federal interest in developing a similar program in the US. Around that same time, a community organizer in Grayson County, Virginia approached the college for assistance with an integrated conservation and economic development initiative for that community. Many College faculty members had been seeking opportunities to work with communities in the region and the timing was right for the ensuing "engagement". As VT faculty members and graduate students became more engaged in supporting Landcare in Grayson County, and funding became available, faculty members began integrating Landcare language and ideas into proposals and community engagement publications. A virtual Landcare Center formed to build capacity within the university and beyond to foster the development of the approach.

In 2006, Ned Yost, a resident of the Catawba Valley, located near the Virginia Tech campus, read about the Landcare Center and inquired about starting such a group in his community. Yost is a local champion of land conservation and saw the approach as a non-polarizing way to bring neighbors together around a common interest in land management. Meanwhile, several College faculty members pursued internal and external funding to advance Landcare in the region and secured support from the US Department of Agriculture (USDA). Some of this money was used to hire staff to serve as the Catawba Landcare facilitator while the group organized, identified priorities, and began planning events.

The first meetings of Catawba Landcare were informal, attended mostly by Yost's neighbors, who invited their friends and neighbors. Meetings were held at different venues in the community, featuring experts facilitator Christy Gabbard had secured to discuss topics the group identified as pertinent. Beyond educating landowners, these meetings provided opportunities for

interaction and relationship-building among neighbors. The group also undertook several projects, including actively encouraging landowners to establish riparian buffers along tributaries in the valley. Indeed, with the cooperation of the local agents of the Virginia Department of Game and Inland Fisheries, “streamcare” became a major focus of the fledgling group.

Following numerous discussions, the Landcare group identified a common interest in the fate of a neglected state-owned historic farm located at one end of the valley. Many residents viewed the property as symbolic of the community and its addition to the state’s list of supposed “surplus” properties raised concerns that it might be developed in a manner incompatible with the surrounding area.. Thereafter, the group directed much of its focus towards organizing university interest in the property on behalf of the community. Members solicited funding from private foundations and government programs. Within a year, Virginia Tech formed the Catawba Sustainability Center (CSC): “An Experiential Showcase for Green Ideas – a place to practice, demonstrate, learn, and teach about issues that affect the world today and into the future.” Gabbard became the new entity’s first director. The CSC embraced two primary goals: to support projects that showcase innovative land-management practices; and to catalyze new and expanding agriculture and natural-resource businesses through VT EarthWorks¹, a business incubator and training program that promotes sustainable land-based businesses in the region.

Kimmel, then a graduate student at VT, followed Gabbard as the facilitator for Catawba Landcare. She worked with group members to develop community festivals and farmers markets as ongoing events. She also helped to establish a regularly scheduled series of community-organized workshops on topics identified by group members. An informal steering committee oversaw these efforts and met monthly, sharing dessert or a potluck dinner. University facilitation is phasing out as of this writing, as sufficient internal capacity has developed to sustain the group. A member of the community now serves as the group’s coordinator, although the university still provides assistance on request.

Holding Environments

As noted above, holding environments are safe spaces in which individuals may share ideas freely, adaptive learning can occur, and which frequently rely on facilitation by external partners. A key function of these environments is to direct attention to the problems participants share and to collaborative opportunities to address them. Catawba Landcare was established to provide a safe and welcoming forum for community members to discuss sustaining land, economy, and community in the Catawba Valley. Federal, state, and local conservation programs had polarized landowners and skepticism about the role of government in private land management had created a barrier to cooperation around conservation. Yost and others thought Landcare’s emphasis on locally developed agendas and integrated conservation and community economic development would help to overcome those barriers.

The first step in establishing a holding environment was to create the expectation of a neutral venue for discussion. This required making several distinctions clear through word-of-mouth and other communication channels:

- Catawba Landcare was locally-directed and not a university or government program.

¹ <http://www.vt.edu/spotlight/innovation/2010-11-01-growers-academy/growers-academy.html>

- Catawba Landcare was not a land trust constrained to promoting conservation easements.
- Catawba Landcare was as much about developing opportunities for community development as it was about encouraging sustainable land management practices.
- Landcare was nonpartisan and apolitical.

Gabbard, representing VT, worked with a core group of landowners to begin publicizing these distinctions. The nascent Landcare group hosted meetings at the farms and homes of different residents in the valley as well as at area churches and the local community center, with the idea of keeping action local to the valley and emphasizing neighbor-to-neighbor learning. Gabbard's affiliation with VT provided a level of credibility to the endeavor, both from the landowner and external presenter perspective. An effective holding environment began to take shape.

Community residents identified several common challenges and controversies in this holding environment, including concerns about the impacts of grazing, stream channeling, and minimal riparian buffers on water quality. Residents discussed tensions caused by conversion of rural land to residential development, a phenomenon with roots in the struggling economic viability of working farms and forests in the area, the effect of increasing property taxes, and the influx of new residents and money from urban areas. Many Landcare members voiced a sense of political alienation and skepticism concerning federal government conservation programs. Some residents shared concerns about the relative scarcity of services from such traditional assistance providers as the Cooperative Extension Service, for whose aid a six-month waiting list is not uncommon. In addition, the valley had historically maintained a very closely-knit social structure through churches and local institutions, which was under strain as new people moved into the area.

Allowing these issues to rise to the surface, to be recognized and respected, and then to find ways to help the community work towards addressing them proved an essential step in building Catawba's capacity. Virginia Tech's faculty and students did not wish to, nor could they themselves resolve, these issues. Instead, Gabbard sought only to help identify and implement strategies that would begin to address these concerns. Recall that one function of a holding environment is to provide a forum where issues can be framed as opportunities for change rather than threats to be defended against. Reframing concerns as opportunities, Catawba Landcare and Gabbard were able to obtain support from external funders, to engage multiple departments at VT as well as several public agencies, and to mobilize volunteers and excite community members about new possibilities for the valley. Among the outcomes of discussions in the holding environment were the formation of the Catawba Sustainability Center and VT EarthWorks, discussed in the next section.

Social and Ecological Entrepreneurship

Land grant universities can contribute to building community capacity by supporting entrepreneurship that complements community-identified goals. The Catawba Sustainability Center (CSC) and its associated program EarthWorks, illustrate how a university can support these efforts. These initiatives have sought to respond to resident concerns about the relative lack of economic opportunities in the valley, narrowing profit margins for land-based enterprises, and possible abandonment of the iconic state farm.

The CSC is administered by the VT Office of Outreach and International Affairs and led by Gabbard. To build this university center, Gabbard served as a network broker, assembling advisory panels, planning teams, and working groups populated by members of Catawba Landcare, representatives from local and state government, regional organizations, a wide range of colleges and offices at Virginia Tech, as well as private businesses in the region. In engaging these partners, VT acted as a catalyst to build partnerships and develop opportunities to support entrepreneurship within the region. Examples of CSC projects include the establishment of research plots for native warm-season grasses for forage and biofuel that supports local agricultural and alternative energy industries, installing hardware and software to allow remote monitoring of soil and water conditions to more precisely time land management practices with when they would be most effective, establishing agroforestry schemes in riparian zones for demonstration of value-added water quality management, honey bee research projects for raising resilient queen bees and supporting a pollination and honey-based product industry in the region, and leasing low-cost plots to beginning growers, including members of a local refugee group.

EarthWorks was developed as a complementary entrepreneur support program associated with the CSC. Defined as a “business-acceleration program for land-based businesses,” VT EarthWorks was developed as a companion program to VT KnowledgeWorks, a business-acceleration program focused on technology-based enterprises. Designed to help producers plan their physical and financial operations, the program offers members access to low-rent land at the CSC, networking opportunities to connect with buyers, market access through the community farmers market and local publications, and to education and training courses through a newly founded Growers’ Academy. In 2011, EarthWorks hosted its second iteration of the Growers’ Academy in cooperation with the Virginia Cooperative Extension and the VT Business Technology Center to provide formal business and farming training and assistance for beginning producers.

Learning Action Networks

Higher education engagement efforts can be instrumental in forming a learning action network (LAN) that builds community capacity. LANs are comprised of relationships and linkages among what might otherwise be disparate stakeholder groups and individuals, enabling opportunities for collaboration, mechanisms for exchange and learning, and pathways for shared understanding and mutual benefit (Stephenson 2011; p. 104). Stephenson (2011) has pointed to to Booher’s (2008) concept of collaborative complex adaptive networks as similar to LANs, specifying their need to include institutions, government officials, nonprofit organizations, business leaders, as well as families and community members to catalyze effective community change.

For each project and initiative undertaken by Catawba Landcare and the CSC, a host of partners from multiple sectors have been drawn into the network. The advisory committee formed to guide and support the CSC provides an example of a LAN comprised of inter-sectoral and inter-organizational institutional collaborators. Committee representation comes from Virginia Tech, the Catawba (State) Hospital adjacent to the property, the Appalachian Trail Conservancy, Roanoke County, the USDA National Agroforestry Center, Virginia Department of Conservation

and Recreation, Virginia Water Resources Research Center (VWRRC), and the Catawba Landcare steering committee. This group has been meeting regularly to develop a vision and plan for the CSC—work that requires communication, exchange of ideas, and negotiation of priorities by stakeholders that have not previously cooperated. One result has been access to even more partners, including the regional water authority and a local cement company, both of which are concerned about water quality and sustainable energy production. These and other institutions, agencies, businesses, and organizations have been drawn into the LAN with varying degrees of formality, but all are establishing themselves as CSC stakeholders and of the community's vitality more generally. VT has played a critical role in catalyzing the formation of this LAN.

An important function of a LAN is to provide a platform from which to gather, test, and manage information that helps the community understand its problems and opportunities, evaluate whether the costs of inaction merit the risk of change, and build confidence that a development scenario is possible and worth pursuing. Catawba Landcare has excelled at this function, in part because of its access to the resources of a land grant university.

One example is the “streamcare” initiative. Water is a defining characteristic of the valley. Residents are well aware their springs and streams form the headwaters of several national watersheds. Building on that awareness, Catawba Landcare has worked with the VWRRC to sponsor a parcel-scale survey to map stream bank erosion in the valley. Catawba Landcare produced informational brochures for landowners containing maps highlighting problematic stream banks. The group also distributed the names and addresses of organizations where landowners could obtain resources for stream restoration assistance. Catawba Landcare sponsored 'streamcare' workshops and field trips focused on stream restoration and cost-share programs. These gatherings provided information, allowed questions and concerns to be addressed by residents and experts, and encouraged neighbors to share their personal experiences. Tensions over the issue became evident in these meetings, with conflicting views expressed about government conservation programs, the need to exclude cattle from streams, and humans' role in managing nature. But workshops have continued and action has resulted. As of Spring 2011, more than two miles of riparian area along the North Fork of the Roanoke River have been restored. The local chapter of Save Our Streams and the VWRRC has established several water-quality monitoring sites. Biologists from the Virginia Department of Game and Inland Fisheries have actively supported this approach to stream restoration because it multiplies the impacts of their investment.

Conclusions

Land grant universities are redefining their engagement missions in light of declining budgets, changing demographics, and globalizing economies (Clark 2004; Slaughter and Leslie 1997; Tandberg 2010). Four criteria are discussed below that help evaluate whether Landcare-type outreach efforts might be utilized to respond to these trends and strengthen engagement efforts.

- 1) Demographic trends suggest engagement efforts must address an increasing number and diversity of clients (Campbell 1995). Landcare, as describe here, based on Flora and Flora (1993), builds social infrastructure and targets communities rather than individuals,

households, or businesses. Targeting communities builds social capacity which, we argue, secures more lasting change by enabling and encouraging leaders and entrepreneurs to search for solutions, perpetuates know-how in the community, and directs it where it is needed. That is, social infrastructure builds expectation for action and the capacity for social learning so that action and adaptation continue in response to changing conditions, even after injection of expertise and resources by state funded programs inevitably cease and get redirected. Communities without these capacities are less likely to be sustainable regardless of whether particular individuals have high problem-solving capacity or regardless of uncoordinated injections of resources by state programs.

- 2) Communities are unique in their assets and constraints, implying that engagement approaches must be tailored to specific contexts (Campbell 1995). When resources are not available for engagement specialists to redesign their programs for each community, Landcare, as described here, might be attractive because it empowers each community to design its own strategy, request its own mix of resources and expertise from the state, and provide specific directions for maximizing the impacts of engagement specialists scarce time. It builds on the work of Heifetz (1994) by promoting holding environments to provide opportunities for community members to discover and share their assets and constraints, and thus direct engagement programs from a bottom-up perspective. Furthermore, communities empowered to define their own problems and solutions produce more sustainable results (Campbell 1995; Flora and Flora 1993). Holding environments enable communities to do this and Learning Action Networks can sustain this community capacity (cf., Stephenson 2011). Thus, Landcare-type strategies appear to be an attractive means by which to design and maintain the benefits of engagement programs
- 3) The capacities of nongovernmental organizations, local conservation groups, and other forms of civil society are growing and can be harnessed to support community-based sustainable development (Campbell 1995). In locations where these entities exist, Landcare-type strategies can be used to promote social and ecological entrepreneurship (Marsden and Smith 2005) by harnessing regional catalysts (Holley 2005), network brokers (Rosenfeld 2001), and/or entrepreneurial support organizations (Kauffman Foundation 2008).
- 4) A university with innovative and opportunistic entities located at its periphery is more likely to thrive in a dynamic and resource constrained world (Clark 2004). Landcare-type groups are embedded in communities surrounding a university, tethered to it by facilitators, experts, and reputation. In the case of Catawba Landcare, the relationship between community and university has produced not only political good will, but also numerous opportunities for undergraduate and graduate education, as well as research partnerships in funding proposals that would not otherwise have been possible.

On balance, Landcare-type community engagement efforts seem likely to strengthen Virginia Tech's outreach capacities and impacts, but the outcomes are difficult to measure, as they exist not in individuals or objects, but in interactions and networks. Thus, such efforts are often neglected. But we have argued that holding environments, social and environmental entrepreneurship, and learning action networks are three strategies and outcomes that can be

constructed, supported, and “measured” by institutions of higher education as a means to engage communities.

Land grant universities seem unlikely to receive additional public funding in this era of government downsizing. They will likely continue the practice of “academic capitalism” that rewards revenue-generating entities within their portfolio (Slaughter and Leslie 1997). Engagement programs will not fare well under this model if they do not generate revenue. Landcare-type programs do not generate revenue per-se, but they do create partnerships that can access and leverage funds. Perhaps more importantly, they have the potential to do more engagement with fewer inputs of resources, and arguably do it better in the 21st-Century context. Whether Landcare efforts are funded depends, we suspect, to a large extent on whether land grant universities are willing and able to support their third mission of community outreach and engagement.

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References

- Alperovitz, G., and Howard, T. (2005). "The next wave: Building a university civic engagement service for the twenty-first century." *Journal of Higher Education Outreach and Engagement*, 10(2), 141.
- American Association of State Colleges and Universities. (2002). *Stepping forward as stewards of place: A guide for leading public engagement at state colleges and universities*. Washington, DC. Blaine, T. W. (2005). "Applied extension research in an era of devolution." *Journal of extension*, 43(2).
- Booher, D. E. (2008). "Civic engagement as collaborative complex adaptive networks", in K. Yang and E. Bergrud, (eds.), *Civic engagement in a network society*. Charlotte: Information Age Publishing, pp. 111-148.
- Campbell, A. (1995). "Facilitating Landcare: conceptual and practical dilemmas." *Rural Society*, 5(2-3), 13-19.
- Clark, B. R. (2004). *Sustaining Change in Universities*. The Society for Research into Higher Education and Open University Press. NY
- Cress, C. M., Burack, C., Dwight E. Giles, J., Elkins, J., and Stevens, M. C. (2010). *A promising connection: Increasing college access and success through civic engagement*. Campus Compact, Boston.
- Dimitri, C., Effland, A., and Conklin, N. (2006). *The 20th Century Transformation of U.S. Agriculture and Farm Policy*. US Dept. of Agriculture, Economic Research Service.
- Fischer, K. (2009). "Economy forces land-grant universities to reshape extension work" *Chronicle of Higher Education*. City: Washington, DC.
- Flora, C., and Flora, J. (1993). "Entrepreneurial Social Infrastructure: A Necessary Ingredient." *Annals of American Academy of Political and Social Science*, 48-48.
- Franklin, N. E. (2009). "The Need Is Now: University Engagement in Regional Economic Development." *Journal of Higher Education Outreach and Engagement*, 13(4), 51-73.
- Freshwater, D. (2001). *Delusions of Grandeur: The Search for a Vibrant Rural America*: Dept. of Agricultural Economics, University of Kentucky, College of Agriculture.
- Freshwater, D. "Rural Development and the Declining Coherence of Rural Policy: An American and Canadian Perspective."
- Holland, B. (1997). "Analyzing institutional commitment to service: A model of key organizational factors." *Michigan Journal of Community Service Learning*, 4, 30-41.
- Holley, J. (2005). *Building a Regional Entrepreneurship Network: A guide to action*, Athens, OH: ACEnet Institute.
- Kauffman Foundation. (2008). *Entrepreneurship Summit Executive Summary*. Kauffman Foundation & International Economic Development Council.
- Kellogg Commission on the Future of State and Land-Grant Universities. (1999). *Returning to our roots: The engaged institution*. National Association of State Universities and Land-Grant Colleges, Washington DC.
- Lichter, D. T., and Brown, D. L. (2011). "Changing Rural Society." *Annual review of sociology*, 37(1)
- Marsden, T., and Smith, E. (2005). "Ecological entrepreneurship: sustainable development in local communities through quality food production and local branding." *Geoforum*, 36(4), 440-451.
- McDowell, G. R. (2001). *Land-Grant Universities and Extension into the 21st Century: Renegotiating or Abandoning a Social Contract*. Iowa State University Press: Ames.

- McDowell, G. R. (2003). "Engaged universities: Lessons from the land-grant universities and extension." *The Annals of the American Academy of Political and Social Science*, 585(1), 31.
- Morey, A. I. (2004). "Globalization and the emergence of for-profit higher education." *Higher Education*, 48(1), 131-150.
- Powers, J. B. (2003). "Commercializing academic research: Resource effects on performance of university technology transfer." *The Journal of Higher Education*, 74(1), 26-50.
- Rainey, D. V., Robinson, K. L., Allen, I., and Christy, R. D. (2003). "Essential forms of capital for sustainable community development." *American Journal of Agricultural Economics*, 85(3), 708-715.
- Renault, C. S. (2006). "Academic capitalism and university incentives for faculty entrepreneurship." *The Journal of Technology Transfer*, 31(2), 227-239.
- Rosenfeld, S. (2001). "Networks and clusters: The yin and yang of rural development." *Exploring Policy Options for a New Rural America*, 103-20.
- Slaughter, S. & Leslie, L.L. (1997). *Academic Capitalism: Politics, Policies, and the Entrepreneurial University*. John Hopkins Press: Baltimore.
- Spanier, G. B. (1999). "Enhancing the quality of life: A model for the 21st-century Land-Grant University." *Applied Developmental Science*, 3(4), 199-205.
- Stephenson, M. (2003). "Of land grants, leadership, nonprofits and social change: a model for catalyzing sustained community-based learning and change." *Presented at National Conference of the Association for Research on Non-Profit Organizations and Voluntary Action*, Denver, Colorado.
- Stephenson, M. (2011). "Conceiving land grant university community engagement as adaptive leadership." *Higher Education*, 61(1), 95-108.
- Tandberg, D. A. (2010). "Politics, Interest Groups and State Funding of Public Higher Education." *Research in Higher Education*, 1-35.
- US Census Bureau. (2000). *United States -- Urban/Rural and Inside/Outside Metropolitan Area*.
- West, B. C., Drake, D., and Londo, A. (2009). "Extension: A Modern-Day Pony Express?" *Journal of Extension*.