

Engaged Scholarship in Land-Grant and Research Universities
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Engaging to Empower: Serving as an engine of prosperity for the common global good by leveraging the land-grant conviction that extraordinary potential lies in ordinary individuals and creating circumstances in which that potential can be achieved. Creating prosperity that goes well beyond finances and fortune is at the heart of Michigan State University's purpose, vision, and our 21st-century engaged scholarship.

Throughout our nation's history, the challenges and opportunities inherent in monumental economic and demographic shifts have fueled fundamental changes in the shared covenant between institutions of higher education and the public they serve. Today, our nation must transform from a manufacturing-based, national economy into a knowledge-based, global economy well positioned in the green revolution, generating national capacity to light our future (Friedman, 2008) in new and innovative ways. Further, we must both meet these challenges and create opportunities in the midst of national and global economic and social stresses (Duderstadt, 2000; Duderstadt & Womack, 2003; Wegner, 2008; Zemsky, Wegner & Massy, 2005).

Changes driven, in part, by this economic chill call us to develop and use cutting-edge knowledge to power and empower an improved quality of life for all people through clean and sustainable energy, access to quality education, safe and plentiful food, affordable health care, an enduring sense of humanity, and undaunted hope. As democratizers of knowledge and education, research-intensive universities with land-grant heritage and values collaborate with their partners to play critical roles in empowering individuals and the communities in which they live and work. Similarly, we are engaged with and empowered by ideas, energy, and the support of our

partners outside the university. Connecting these engagements is at the heart of the partner relationships and the work of engaged scholarship.

At Michigan State University (MSU), we have embraced an approach to engagement that arises directly from our land-grant traditions and values—an asset-based, action-driven approach that places a premium on collaboration with and within communities to identify problems and find solutions. The articulation of research questions and development of innovative solutions through evidence-based scholarship requires embracing a full range of community-based approaches and integrating them into the university’s academic approach to engaged scholarship, and vice versa. This approach engages students as agents of change along with faculty and is inclusive of our community, government, and business partners. It takes on the difficult but essential work of embedding an ever-increasing capacity for discovery, analysis, and innovation in the community. The diverse disciplines and interdisciplinary activities that comprise highly regarded and relevant research-intensive land-grant universities, coupled with a commitment to education that is both practical and theoretical not only make this approach feasible but also help create a potent lever for creating sustainable global prosperity.

In this chapter, I will describe and consider Michigan State University’s approach to engaged scholarship, particularly the institutional imperatives that anchor this work in our land-grant philosophy. I will then address how Michigan State is building on its founding values and, through collaborative work, has established itself as a globally engaged research-intensive university for the 21st century. I will describe several grassroots examples of engaged scholarship to illustrate our action-driven approach. Finally, I will identify a set of organic tensions that are reframing higher education and engaged scholarship.

Core Land-Grant Values—Quality, Inclusiveness, and Connectivity: Good Enough for the Proudest and Open to the Poorest

Abraham Lincoln’s signature on the Morrill Act of 1862 created the legislative mandate to found land-grant institutions, whose covenant with society included advocating for the public good. At its essence, the land-grant idea is a set of beliefs about the university’s social role (Anderson, 1976; Bonnen, 1992; Campbell, 1998; Cross, 1999).

Michigan State’s visionaries imagined a learning institution unlike any other the world had ever seen. Like other land-grant institutions, Michigan State was founded on the innovative idea that practical knowledge could be united with traditional scientific and classical studies to create a rigorous curriculum that melded the liberal arts tradition of knowing and being with the practical capacity for thinking and doing. We were created to be elite without being elitist, to provide access to knowledge and education to those previously denied such access.

The Land-Grant Idea is not just access to higher education for those with limited resources. It is not just good science. It is not just science applied to practical problems. It is not just extension education for people out in the state who have practical problems to solve. It was *all of this and more* [italics added] (Bonnen, 1992).

In the middle of the 19th century, the land-grant idea was a bold experiment, and history has shown it was—and continues to be—overwhelmingly successful. Over more than 150 years, Michigan State has grown in size, scope, and stature. Today, Michigan State University is recognized as among the best research-intensive, globally-engaged universities in the world.

Great universities, like great companies, are rooted in fundamental values that define their contributions to society and endure regardless of who is at the helm (Kanter, 2008). We believe that keeping our core land-grant values relevant to society’s changing needs is the source

of meaningful distinction. As we deepen our engagement with society, our aspirations and our actions stem from three interwoven values: quality, inclusiveness, and connectivity.

Our commitment to quality means we shun complacency and continually strive to be among the best in all we do. Although we realize no university can be everything to everybody, we can be the university *for* everybody and the best in key areas. Great businesses, great communities, and great universities ask everyone to be better and to reject as unacceptable lack of aspiration.

We must remain competitive with the classically defined universities of distinction while adding value through our resolve to advance the common good through our work. In our work, MSU is world-class; however, our distinction grows more through how our work is accomplished as we engage with our students, partners, and constituents, rather than through any particular programs. Because world-class universities are much more alike than different, our distinction comes from how and with whom we build capacity for high-quality discovery, analysis, and innovation in communities in Michigan and throughout our nation and the world. MSU's core value of exceptional quality expresses itself in the institutional hallmark to be good enough for the proudest, recognized as among the best, yet ever open to the poorest—to the benefit of all.

Inclusiveness underpins and stems from our commitment to quality. Valuing inclusion means we embrace a mind-set open to learning from one another, regardless of socioeconomic or social status. It means that MSU scholars benefit as they advance knowledge by exploring the vast range of questions that result from human differences throughout the world. Inclusion also benefits our engaged scholarship, as partners, faculty, students, and staff gain from the full spectrum of experiences, viewpoints, and intellectual approaches enriching our conversations

and work together. Valuing inclusion means we embrace access to success for all and treat all members of our extended community with fairness and dignity. We recognize that cross-cultural interactions may sometimes create moments of surprise or discomfort, but when perspectives and expectations clash, we possess an individual and shared responsibility to guard against behaviors that demean or harm individuals, communities, and the trust inherent in relationships that support sustainable engagements characterized by respect for and civility toward one another. Fostering and sustaining relationships of trust develops partners who are intellectually curious about different perspectives, who are culturally competent, and who have the passion and skills to contribute to a global society. Embedded in our core value of inclusiveness is our commitment to cocreate opportunities for learners and partners from all backgrounds, multiply the benefits of cutting-edge knowledge, and grow the rewards of cocreated knowledge in the lives of individuals and in the communities in which they work and live.

Connectivity—with one another in academic enterprises and with those we serve locally, nationally, and globally—obliges us not only to prioritize the use of our assets but also to align them so they foster and reinforce collaborations that look to future advances and accomplishments. Connectivity is the nexus of a “can-do” attitude, of the sharing and cocreation of new assets, and of the alignment of those assets with others to create visions and solutions that are more than a sum of the individual parts. In the context of connectivity, collaboration is a new way of building sustainable relationships, earning public trust, and strengthening the alignment of resources, especially of people and programs, in the public interest. Connectivity cuts across boundaries—disciplinary, geographical, and political—to tackle the most difficult societal problems and to address the intellectual needs of talented and aspiring citizens, regardless of socioeconomic circumstances. Valuing connectivity requires anticipating tomorrow’s issues

while addressing today's. For Michigan State University, connectivity means that we are committed to being a part of the local and global communities where we have a presence and to effecting both incremental and transformational changes that are sustainable in those communities.

Core Values and Strategic Positioning for Relevance: Boldness by Design

Unrelenting focus on our core values is absolutely essential to our approach to engaged scholarship. But core values alone are not sufficient. Coupling these values with a strategic vision is necessary for 21st-century relevance and distinction. When I assumed the presidency, I began this work by engaging with the MSU governing board; my leadership team; students, faculty, and staff; alumni, donors, and friends; community, government, and business leaders; presidents of peer institutions; and strategic partners. It was a team approach to strategically positioning Michigan State University for relevance in the new century. I traveled widely around the state, across the nation, and abroad, listening to and reflecting on the expectations, perceptions, and advice of these partners, constituents, and colleagues on how to position MSU for the future. What I heard was the following:

- Focus
- Simplify
- Become more nimble
- Play to your extraordinary strengths
- Recast what is true about Michigan State University to address 21st-century realities
- Be the university that defines the land-grant mission's relevance for the 21st-century

From these ideas, five imperatives were developed to guide Michigan State in fulfilling its strategic commitments and shared covenant with society:

- **Enhance the student experience**—*by continually improving the quality of academic programs and the value of an MSU degree for undergraduate and graduate students*
- **Enrich community, economic, and family life**—*through research, outreach, engagement, entrepreneurship, innovation, and diversity*
- **Expand international reach**—*through academic, research, and economic development initiatives and global, national, and local strategic alliances*
- **Increase research opportunities**—*by significantly expanding research funding and graduate and undergraduate students' involvement in research and scholarship*
- **Strengthen stewardship**—*by appreciating and nurturing the university's people, financial assets, and campus infrastructure for optimal effectiveness today and tomorrow*

These five imperatives, built on our historical strengths and core values, are now used to align existing initiatives, guide decisions on investing in new priorities, and focus our collective work along with that of our colleges and the centers of creativity and strength that cut across the university.

These imperatives, when supported by our core values, became the foundation of our visionary plan for strategic positioning, *Boldness by Design*. *Boldness by Design* (Michigan State University, 2005) is the framework for bringing our land-grant heritage to bear on society's needs, for acting on today's issues, and for anticipating and preparing for future challenges. *Boldness by Design* calls upon the entire campus community to be bold—in design, implementation, and values—and structures MSU's approach to engaged scholarship for the 21st century.

Persistence with Bold Purpose: Engaging to Empower

We entered the 21st century with society increasingly looking for research-intensive public universities to expand their roles in national, local, and international economic development; deliver more breakthrough discoveries; disseminate new knowledge more quickly; and partner with nonuniversity leaders to address the world's most urgent and complex problems.

As we grow in our understanding of engaged scholarship for the 21st-century, we are influenced, but not driven, by current economic, political, and social circumstances. As we become engaged with society more effectively, there are four formational perspectives that deserve comment in the context of research-intensive land-grant universities:

1. The persistence of purpose to constantly refresh but not change our core values as the frontiers of society and knowledge change over time
2. The global overlay of bringing the best of the world to Michigan and the best of Michigan to the world
3. The expansion of the definition of community beyond place
4. The alignment of our bold “can-do” spirit with community- and university-based assets

Persistence of Purpose: Refreshing, but Not Changing, Our Core Values

Our decades-long success in becoming a more engaged institution rests upon our persistence in adhering to our historical foundation and purpose. At each stage of development, we have remained true to our core values of quality, inclusiveness, and connectivity, keeping them relevant but fundamentally unchanged. Through participation in the Knight Collaborative's Wharton–Institute for Research on Higher Education Executive Education programs in the 1990s, we began to better understand the Wharton School's construct of directional truth in an environment of perpetual white water and how this construct fits with our long-held perspective

on persistence of purpose (Wegner & Knight Higher Education Collaborative, 2002). Directional truth provides a clear vision even when there are a variety of paths to pursue, emphasizing strategic intent instead of tightly specified plans and prescribed goals. It also focuses on the positive energy and can-do spirit created by the enormous internal and external tensions of being Bonnen's land-grant and more (1992) university in this century and on proactive sensitivity to small changes as tipping points for large transformational changes (Gladwell, 2002). Directional truth seizes opportunities inherent in the turbulence of a fast-changing world and recognizes the need to find alignments and make synergies a conscious part of the dialogue between partners. Overall, directional truth recognizes the uneven pace of change in a perpetually changing environment (Vaill, 1996) for the betterment of all.

MSU's long history in continuing education, lifelong education, Extension, public service, outreach, engagement, service learning, and engaged scholarship is rich in lessons learned and provides momentum for the future. We have influenced and been influenced by our long working relationship with the W. K. Kellogg Foundation and through our leadership in national conversations and initiatives to become an increasingly effective engaged institution. Our pioneering work, supported by the Kellogg Foundation, to define outreach as a form of scholarship across the institutional mission and within the work of faculty served as the foundation for the Committee on Institutional Cooperation's (CIC) definition of outreach and engagement (Fitzgerald, Smith, Book, Rodin, & the CIC Committee on Engagement, 2005). Similarly, our work helped shape the new definition for engaged institutions in the Carnegie Classification framework used to identify groups of roughly comparable institutions for research and analysis purposes (Giles, Sandmann, & Saltmarsh, 2010). Further, our work was pivotal in renaming the Association of Public and Land-Grant Universities' (APLU, formerly the National

Association of State Universities and Land-Grant Colleges) Council on Extension, Continuing Education and Public Service to the Council on Engagement and Outreach. In the late 1990s, the relevance and impact of our leadership was validated by an invitation to participate on the Kellogg Commission on the Future of State and Land-Grant Universities. Their third report, *Returning to our Roots, The Engaged Institution* (1999), affirmed and strengthened our resolve that we can and must continue to do better in serving local, national, and global needs.

Our history suggests that outreach may well be the most complex and interconnected dimension of our mission and vision to be the leading land-grant university for the 21st century: research-intensive, globally engaged, and locally relevant. For example, rethinking Extension, organizationally and programmatically, particularly as funding patterns change, will be a major challenge across the entire institution to the ways in which we have been and are engaged with our state and regional partners. Historically, Extension has dominated our outreach agenda. It has been—and continues to be—a strong knowledge-delivery system in the state, especially since it broadened its reach into urban communities. But in the 21st century, Extension must evolve beyond the local and regional into international arenas. MSU is doing some of this, but much remains to be accomplished as Extension develops new and more effective roles to bring the best of the world to Michigan and the best of Michigan to the world. Extension’s international dimensions must strengthen and grow as we engage the dominant societal issues of this century. It must add new partners and connect with existing partners in new ways, and its projects and programs must tie into a powerful system for profound change.

We will need to bring different voices into the conversations, voices that are sometimes at odds with our legacy of particular programs and relationships. While the MSU approach to collaborations embedded in communities, stressing asset-based solutions, building community

capacity, and creating sustainable collaborative networks will continue to be our hallmark in the years ahead, we must do more. We will not be able to fully optimize the assets of engaged scholarship if we simply keep doing the same things with the same partners.

MSU's founding values of quality, inclusiveness, and connectivity will continue to refresh our energies and passions and will drive our bold thinking to design changes that advance knowledge and transform lives—here in Michigan's counties and communities as well as around the world.

A detailed chronology of key events is beyond the scope of this chapter, but it is a significant context for engaged scholarship at Michigan State University (Fear, 1994; Fitzgerald, Allen, & Roberts, 2010a; Simon, 1999; Votruba, 2010). As our history illustrates, MSU's land-grant, value-centric approach to engagement with society has remained our persistent focus since our founding, even as the challenges and complexities of particular historical eras have changed (Thomas, 2008; Widder, 2005). As we have grown in stature, size, and scope, we have stayed in step with the society we serve. However, often our paths have differed from those of our traditional peers or the classical definitions by which institutional quality is measured. In this new century, our route will continue to evolve to reflect changing circumstances, but our destination will remain constant—creating sustainable prosperity for the common global good that goes well beyond finances and fortune.

The Global Overlay of Engaged Scholarship: Bringing the Best of the World to Michigan and the Best of Michigan to the World

Being globally engaged means more than recruiting faculty and students from other countries to come to MSU. It is more than our faculty working internationally and our students studying abroad. It is more than internationalizing the curriculum. It is more than creating a

presence in China or Dubai or Africa. It is all of this and more. Being globally engaged has become a frame of reference for all that we do, a frame of reference that recognizes that fulfilling our aspirations and shared covenant with society requires dynamic and interconnected actions that extend across boundaries and borders.

A global overlay is a 21st-century necessity in our commitment to address the world's most intractable problems around issues common to all communities and countries—issues of the environment, food, education, health, energy, humanity, and hope. The impact of these problems is both immediate and long-range. And while the consequences are felt locally and personally, solutions must be global as well as local. Recognizing our interconnectedness—and acting in ways that improve quality of life broadly—is essential to creating a sustainable future.

In the same way that Michigan State University was a pioneer land-grant institution in the 19th century, we are a pioneer of land-grant work around the world in the 21st century—a way of working I have called “world grant.” We bring the same purpose—to open opportunities for development and prosperity and to increase the capacity of communities and countries to chart their own course toward self-sufficiency—to our work today as the early leaders of the land-grant movement brought to a young nation preparing for a new age. By building the capacity of others, we extend to the world the same covenant MSU had with the citizens of Michigan when it was established. Our historical obligation to democratize knowledge and help translate knowledge across the state in ways that drove innovation and prosperity now animates our engaged scholarship across geographical and political boundaries.

Standards for judging the significance of contributions for addressing problems surrounding health, food, energy, education, and the environment are becoming global and raise questions about the transnationalism of knowledge. Effective global engagement requires us to

learn new ways to make local projects applicable in other places. In this global setting, both the project and process variables increase with the inherent complexities of different cultural community contexts; our faculty and partners must struggle with the applicability principles between developing and more developed countries.

Our global engagement is sharpening our questions both at home and abroad. How can we effectively move beyond project activities to become catalysts for broader change? From individual project activities to cocreating dreams with communities about all that can be accomplished? From project activity to the development of related public policy? How can we strengthen social networks that facilitate the specific project or projects at hand but also develop and sustain the next generation of work?

Creating bridges between policy development and capacity building is crucial for achieving the synergies of a multiplier effect, especially in developing countries, where public policy agendas are evolving. In these settings, it is often difficult and arduous to link a project's related activities together: the supply chains of materials, people, and human capital that are necessary to sustain successful projects. We have learned that the project activities and the process successes must be designed to inform and propel policy development.

Work here and abroad has been animated by many of the same threads identified by Kanter (2008) in her study of some of the world's biggest companies that are giving primacy to their plans to improve the world. They globalize and localize, deriving benefits from the intersections, producing business and societal value, and bringing together the soft areas of people, culture, and community responsibility with the hard areas of technology and product innovation. Kanter confirms what MSU has long experienced—that people are more inclined to be creative when the community's and institution's values stress innovation that helps the world.

By focusing MSU's approach to engaged scholarship on the problems that impede prosperity, we enhance and protect the quality of life in Michigan and around the world.

Defining Community: Beyond Place or Locale

The expanded definition of community, that is, that it extends beyond place or locale, aligns with the global overlay of engaged scholarship. Originally, land-grant institutions were highly place-bound in their responsibilities and aspirations, society's expectations, and natural partnership areas. The powerful national economic engine envisioned in 1862 worked well in geographically contiguous areas of the nation's land-grant institutions; however, as the nation's number and kind of higher education institutions increased, they differentiated themselves in national competition for prestige, faculty, and students. Even as our recruitment of faculty and students expanded to reach competitively across the nation and world, the boundaries that defined our natural partnership areas remained relatively unchanged. Only recently has the understanding of "what is good for the world is also good for Michigan" begun to gain traction. Identity in a geographical place is deeply rooted and difficult to change.

The economic engine of the 21st century is fueled less by place than by connections and networks. Our founders, who saw the assets of place as the source of results, sought to establish the university throughout the state in every county via Extension agents and offices. They saw only two dots to connect to advance quality of life and drive economic prosperity: the institution and the problem site.

Today, engaged scholarship connects numerous dots, including students, faculty teams, interdisciplinary teams, community partners and community networks, businesses, and government agencies, without depending on the infrastructure of organization, institution, community, or discipline. In this approach, dependence on place as the interaction space shifts

into the social milieu of consortia, networks, faculty–student teams, coalitions, collaborations, and partnerships. As partners participate in defining problems and developing solutions, ideas emerge across disciplinary, organizational, and community boundaries. Today’s results stem from relationships intentionally designed to speed the dissemination of information, fuel future innovation, and build a platform of trust and confidence for potential future engagements. An example of such a campus–community partnership is illustrated by the Power of We Consortium (Fitzgerald, Allen, & Roberts, 2010b).

The Mind-set of the Research-Intensive, Globally Engaged University: A Bold Can-Do Spirit

In a highly competitive world in the throes of severe economic and social stresses, the willingness to try things that are boldly transformational requires a mind-set grounded in a can-do spirit supported by cutting-edge knowledge. It is this mind-set that builds and infuses hope into our work and the relationships we build with our partners. This bold can-do spirit has empowered MSU from its earliest years.

MSU’s approach to engaged scholarship continues to align our assets with an action-driven mind-set in which the best professional and disciplinary knowledge is mapped onto the needs of society and then taken around the globe to empower new communities. This alignment is a commitment to prioritize, redefine, and refine key questions for new contexts that in turn impels us to listen to all voices that should have a role in shaping the questions and agenda. It propels us forward in the difficult task of getting everyone thinking and doing boldly. That is our covenant with society.

The spirit that drives this shared covenant requires both a common vision and a common set of values. Part of this covenant is intangible. In the context of engaged scholarship, this means it is not merely a return-on-the-investment, business-like transaction primarily concerned

with funding. It is about the creation of a renewable resource of hope. Over time, society has given us its trust and accepted our aspirations and capacity both to leapfrog ahead with information and to move knowledge forward via incremental discoveries. Engaged institutions and the communities they serve have a shared belief that it is possible to accomplish things that are difficult to envision but can nevertheless be done. It is a shared belief in society's capacity to develop to its fullest potential—not via a bartered or transactional exchange but in a collaborative we-can-get-this-done system.

This can-do attitude, aligned with our assets, requires us to form what I call “rebounding partnerships”: partnerships that not only create an immediate impact on Michigan but also take a long view of Michigan and the world's future. These partnerships rebound from Michigan into the world and from the world back into Michigan. Rebounding partnerships call for creativity and engaged scholarship; confidence and conviction; innovation, boldness, and risk-taking; and the courage to try solutions that feel like they might not fit at the beginning, but that we—and the society we serve—will grow into.

The convergence of thinking and acting boldly with people requires that our communities' and our institution's assets be used to create possibilities as well as discover them. We've learned that addressing some of the most difficult societal problems affecting individuals and communities requires a multi-dimensional view—seeing not only what others see but also the new relationships and new dimensions of complex problems and potential solutions.

Twenty-first-century Variations within the MSU Approach to Engaged Scholarship

The variations are many within MSU's approach to engaged scholarship (Michigan State University, 2009). Our approach is asset-based, places a premium on collaboration within communities in both problem identification and strategic solutions and innovations, and works to

create cutting-edge knowledge while embedding in the community an ever-increasing capacity for discovery, analysis, and innovation independent of the university's local presence. The following examples illustrate the diversity of work and the multiple approaches that characterize MSU's engaged scholarship.

Pioneering Prototype: Providing Access to Knowledge

One international example of MSU's engaged scholarship is in Tanzania. As is the reality in many developing countries, remote Tanzanian villages lack not only computers but also the electricity to power them. Books and other educational materials are scarce, and traditional ways of life are slowly disappearing. Many community elders believe the future depends on educating their children to participate in public discourse so they can influence government decisions, ultimately protecting their land and way of life as well as broadening their life choices. In collaboration with Tanzanian colleagues, a community, university, and industry partnership designed a low-cost computer system that runs on solar energy to give children access to the Internet's vast educational and informational resources to empower them for 21st-century life. The design-and-install team for this prototyping engagement included the computer manufacturing partner, MSU faculty in engineering and communication arts and sciences, MSU students studying Swahili, and university faculty and students in Tanzania. The team worked with and trained community members, ultimately giving responsibility for the computer system to the village. Once young Tanzanian students learn to navigate the computer, the village's first goal is to prepare older students for the secondary school entrance exam. If the community has access to education, its members can become doctors, teachers, and entrepreneurs, all of which are needed throughout the region. This computer system, therefore, can help the community advance, perhaps even saving its village from destruction, just by preparing a higher proportion

of students for secondary school. This program is the starting point to providing a better quality of life for future generations.

Closer to home, but also arising from that collaboration, is a new MSU undergraduate specialization entitled “Information and Communication Technologies for Development.” Students in this new specialization will take two classes focused on the developing world and one class on technology for use in developing countries. Additionally, they will participate in a field experience that extends the work begun in Tanzania. This work will prepare them to understand and work in a global context, a skill set that is increasingly in demand,

Both at home and abroad, this is a pioneering prototype that’s already democratizing knowledge in one village and has the potential to transform lives around the globe.

Impact that Improves Lives: Transformational Facilities for the World

The U.S. Department of Energy’s selection of Michigan State University to design, build, and run the Facility for Rare Isotope Beams (FRIB) brings together an international community of top scientists to advance understanding of rare isotopes, helping to unlock the origins of the universe and fueling potential breakthrough applications in medicine, national security, engineering, materials science, and the environment.

Rare isotopes are fleeting bits of matter created primarily in the extreme environment of stars. Despite their ephemeral nature, these short-lived isotopes are critical in the world of science and could affect lives around the globe. Rare isotope research has already led to the development of technologies that make the world safer, including a high-precision handheld device that detects a host of destructive elements, from lead paint on children’s toys to an aluminum alloy used only in nuclear weapons production. Advances in accelerator technology

used in nuclear and high-energy particle physics are also leading to innovations in proton therapy, which is showing promise in treating certain types of cancer.

Our vision for FRIB is to build on past successes. For years, MSU has operated a world-class rare isotope research facility, the National Superconducting Cyclotron Laboratory, that has served 700 researchers from 100 institutions in more than 30 countries. FRIB is expected to expand the quality and quantity of research opportunities for approximately 1,000 university and laboratory scientists, postdoctoral associates, and graduate students from around the globe. In doing so, FRIB is expected to provide economic benefits, too. This science venture will bring an estimated \$1 billion in economic activity to Michigan over two decades, and the economic benefits from the application of new discoveries are incalculable.

The FRIB competition included grassroots community initiatives to build an appreciation for basic science research that recognized that the impact and discovery potential of such research may not be known for another 10 to 20 years. Because MSU is both a research-intensive and globally engaged institution, we used the FRIB competition as an opportunity for engaged scholarship, strengthening our outreach to K–12 students, educating the community about nuclear science and rare isotopes, building enthusiasm about sophisticated science, and positioning with our community partners to support esoteric science research. The competition for FRIB built community capacity to appreciate the long-term potential of basic research.

Multiple Solutions, Multiple Partners, Multiple Impacts

Transportation accounts for approximately two-thirds of oil consumption in the United States and approximately one-third of the nation's total energy use. The critical need to reduce our country's dependence on oil imports combined with today's use of the same efficiency-

limited combustion system that powered the first automobiles more than 100 years ago, present significant challenges and opportunities. There is no single solution to the world's fossil fuel shortage. In collaboration with partners in government and the transportation industry, MSU researchers in agriculture, plant sciences, and engineering are working on multiple approaches to finding environmentally responsible and economical ways to power transportation. One of these approaches involves developing powerful new biofuels in tandem with specially designed engines, a distinctly integrated approach that could drive the next automotive revolution, reduce the nation's dependence on oil imports, and dramatically contribute to reducing emissions and improving air quality, especially in large metropolitan areas. MSU's Energy and Automotive Research Laboratories, housed in a dynamic 29,000-square-foot research complex on the MSU campus, have provided the necessary infrastructure to integrate these research projects. Such collaboration holds the potential to improve the environment and economic outlook for the region.

Rapidly Deployable Solutions: Parts of the Puzzle

Pollinators are to thank for one of every three bites of food consumed in the world. In recent years, however, honeybees—the powerhouses of agricultural pollination—have been disappearing at alarming rates, leaving beekeepers and scientists perplexed. With as much as 80 percent of Earth's crops at stake, MSU researchers working closely with beekeepers are seeking rapidly deployable solutions for protecting honeybees from colony collapse disorder (CCD), the complex bee disease characterized by the disappearance of all adult honeybees in a hive, while concurrently finding new ways to attract other pollinators to help ensure crop survival. Work with researchers and growers from countries including Tajikistan, Kyrgyzstan, and Uzbekistan has yielded new knowledge about the ways plants can be used to attract various species of native

bees as well as natural enemies of insects that attack crops, allowing growers to control pests without chemicals that harm honeybees.

As growers, beekeepers, and scientists collaborate on research about pollinators, they contribute important knowledge to solving the larger puzzle of pollinating crops. Each additional puzzle piece also advances specific knowledge that will help beekeepers in Michigan, across the country, and internationally address CCD. MSU's pollinator studies also intersect with biofuel crops research. Sharing knowledge and working with other researchers as well as with crop producers and beekeepers, MSU entomologists and their partners are finding practical solutions that will sustain pollinators and the crops they support throughout Michigan and the world.

Connecting Cultures, Sharing Values

MATRIX, the Center for Humane Arts, Letters, and Social Sciences Online (Michigan State University, n.d.), uses Internet technologies to improve education and increase the democratic flow of information throughout the world. The group makes use of a variety of technology applications—from building online archives to developing interactive educational opportunities for increasing understanding of social justice issues—to connect cultures and share values across time and geography.

A similar initiative that ties into our work with the African National Congress to document their culture and the South African struggle against colonialism and white minority rule involved a collaborative team from MSU's Museum and the Nelson Mandela Museum in South Africa. Together, they created an interactive exhibit that is inspiring young people around the world with its message of *ubuntu*, a Zulu word that means “humanity to others.”

Dear Mr. Mandela, Dear Mrs. Parks: Children's Letters, Global Lessons opened in South Africa in July 2008 and then at the MSU Museum before touring the United States. The exhibit features a collection of letters written by children from around the world to renowned human rights leaders Nelson Mandela and Rosa Parks. Designed to raise awareness of the social justice challenges that South Africans and Americans have faced, the multifaceted exhibit provides visitors with opportunities to read the children's letters alongside biographies of the human rights heroes and to listen to video messages from Mandela and others. Visitors can also write their own letters. By helping bring to life Mandela's and Parks' courage and social and cultural ideals, and by showing how they made a real difference in the world, MSU is strengthening a global community rooted in core values much like its own: quality, inclusiveness, and connectivity.

Organic Tensions and Their Role in Redefining Engaged Scholarship

As I observe research-intensive land-grant institutions change the scope of their engagement and address society's needs and expectations more effectively, I see a set of issues emerging as dominant themes characterizing the work and impact of the 21st-century engaged university:

- Variability, especially in large institutions, that has all the advantages of pushing engagement deep into colleges and across disciplines while accommodating the challenges of hundreds of potentially disparate approaches
- Pursuit of institutional and community capacity-building models
- Metrics that are relevant units of measurement and reflect direct and indirect impact beyond a project's life

- Appropriate use of technology, particularly as issues of cost, time, distance, and transnational partners and projects increasingly dominate
- Ways to honor and learn from less successful or even failed, but nevertheless bold, initiatives

Embedded in these issues are organic tensions with the potential for constructive opportunities as well as significant problems. Framing them as questions to be addressed is a useful way to use them productively.

Variability. Varied approaches to knowledge creation, different principles and priorities driving any particular project, and different organizational and cooperative–competitive arrangements all interact dynamically. Even as people do the right things, institutions as large and complex as MSU have inherent variability that can appear as organizational incoherence. For MSU, *Points of Distinction* (Michigan State University & Zimmerman, 1996) created initial momentum to reduce variability through the creation of touchstones to help deans, unit chairs, directors, and individual faculty members define, plan, evaluate, and document quality outreach. However, there is a highly dynamic balance across the different organizational and professional contexts in which faculty and community partners find meaning and establish policy frameworks for the planning, evaluation, and reward of quality engagement. Balancing the tension between organizational coherence and the variations inherent in creative processes consumes considerable organizational energy. Although the appropriate promotion and tenure policies and organizational structures are in place at MSU to motivate and protect faculty who do the work, we continue to be challenged to avoid compromising the grassroots energy and joy that animates faculty taking on engagement in communities, while sustaining robust outreach planning, evaluation, and documentation frameworks. Nevertheless, it is clear that MSU has come a long

way in making outreach and engaged scholarship a legitimate part of its institutional conversations.

We are considering new ways to make engaged scholarship's collective impact effective beyond a particular project, to create multiplier effects through policy and community infrastructures. We are headed in the right direction and speaking the same language within a commonly held definition of outreach as engaged scholarship. The work led by the MSU Office of University Outreach and Engagement is advancing the underpinning scholarship of cutting-edge knowledge necessary to build the policy- and best-practice-basis of engaged scholarship, and to foster organizational coherence while recognizing variability across disciplines and programs. Meanwhile, we continue to struggle to better align the policies and incentives that drive faculty work.

How can the often vexing variability inherent in large institutions and in campus–community partnerships function to expand the capacity for creativity, innovation, and trust within the institution and with our partners?

Capacity Building. Engaged scholarship that builds robust capacity for discovery, analysis, and innovation is complicated by the long history of outreach as hands-on delivery of particular services or programs into communities, followed by the exit of faculty upon project completion. There is persistent tension in determining how to construct approaches to projects that are faculty-led yet simultaneously build a community's capacity to take on projects without a traditional faculty presence. I often think of this in a team metaphor. High performing sports teams build appreciation for and create momentum from the contributions not just from the players who score, but also those who are assist leaders, play makers, and those who add special team or bench strength. The whole team performs at levels higher than the skills of the individual

players, increasing understanding of the sport as well as the game, recruiting players and integrating them into the team, and above all, developing the capacity to play a winning game in the absence of the coaching staff. The sports team metaphor is akin to the significant challenges and opportunities that arise in determining ways to develop a community's capacity to chart its own course and improve the quality of its citizens' lives.

Capacity building entails more than project-specific activities. Engaged scholarship must be designed to yield an impact beyond a particular community and the initial partnership's time frame, long after a specific project is complete. Capacity building helps capture the "scholarship lost" because we insufficiently document the macro-impact of projects and the process of engagement. The engagement portfolio must be designed to reflect both an immediate return on the investment and returns over long periods of time—perhaps decades.

Capacity building entails working on solutions to local problems without being constrained by the local definition of the problem. It is knitting together networks across the country and around the world, recognizing that engaged scholarship is always about working together to define problems and priorities, without designating winners and losers and without being dependent on structures of authority, control, and power. Capacity building means embedding both the process and the activities into the community. Engaged empowering assures that the focus is on path-breaking research, not just incremental community-maintenance discoveries. Building capacity bridges the gap between academic quality and community relevancy, creating a new sense of the discovery agenda. Closing the gap allows the academic definition of quality and the community definition of relevancy not only to fit together but also to create energy for further innovation. It is this fit between academic quality and community relevancy that underpins trust. By definition, capacity building is an iterative cycle fueled by

trust based upon continuous forward momentum as ideas are refined and developed. Engaged scholarship requires commitment to the full cycle of long-time horizon iterations that move through the shorter-time horizon increments and toward strategic and visionary innovative changes.

Without a doubt, institutional policies must recognize and foster interdependent and interdisciplinary work on campus and in the community. Initial momentum for building capacity within the community comes from individual projects. Sustaining the momentum in the community and in the university is increasingly complex, with multiple stakeholders, constituents, and partners as participants.

How can institutional and community capacity building be pursued as a central organizational responsibility and policy imperative as well as at grassroots project levels?

Metrics. The development of metrics for assessing the overall value of engagement continues to lag point-in-time project and institutional measurements. Breakthrough progress is needed in establishing metrics that are applicable across institutions as well as analyses that are relevant at both institutional and project levels. Indicators of academic and community value that push outside the box of current circumstances or project activities and are “instruments of prospective strategy, not weapons of turf defense” (Zemsky, 2000) are largely absent in the documentation of engaged scholarship. Metrics are needed that not only demonstrate real impact over time but also continue the scholarship of learning about the nature, scope, and sustainability of the impact. Even the recent work by APLU and the American Association of State Colleges and Universities to create a Voluntary System of Accountability (2007) has not successfully addressed the issue of credit for adding significant value in a secondary or assistant role or as a broker of substantial engagement. There is much work to be done. Highlighting revenue sources

or who paid for particular projects has limited utility in assessing and understanding the value the engagement created. Our current analyses are better at reflecting the university's work, but engaged scholarship requires us to think through how to reflect the work of and in the community and to develop indicators that show when engagement is no longer about the faculty or the funding source. Documentation must be developed to indicate the community-embedded ownership of ideas and processes as a measure of capacity.

The evidence of our success as a research-intensive, engaged university is the value we cocreate with our partners and the students we educate. Our success lies in the legacy of engaged empowerment that improves the quality of life for people in Michigan and throughout the world.

How can the work of the university and the work of the community be reflected in metrics that reveal both direct and derived impact over time?

Technology. Technology is becoming more ubiquitous in its capacity and reach into all socioeconomic strata apart from geographical; further, its extensive use raises ethical questions in all fields of endeavor. Traditionally, outreach has been hands-on in the delivery of knowledge. The deepening of our engagement with society now requires not only the delivery of cutting-edge knowledge to partners outside the institution but also the cocreation of knowledge with them. Technology facilitates both of these obligations, bringing people who have never met or worked together into direct conversation. Nonetheless, it is shifting the traditional strengths and satisfaction of hands-on and face-to-face engagements. The social milieu of the Internet is often at odds with our legacy practices because all ideas compete on an equal footing; contribution counts for more than credentials; hierarchies are natural and not prescribed; leaders serve rather than preside; tasks are chosen not assigned; groups are self-defining and self-organizing; resources get attracted, not allocated; power comes from sharing information, not hoarding it;

opinions compound and decisions are peer reviewed; users can veto most policy decisions; intrinsic rewards matter most; and hackers are heroes (Hamel, 2009).

Especially as partners and projects become more transnational, how can technology be used appropriately and effectively to build sustainable relationships and engaged scholarship's grassroots capacity?

Honoring and learning from less-than-successful engagements. We need to discover ways not only to learn from but also to honor less successful or even failed projects. Engagement that is innovative presses against the usual ways of accomplishing change. A commitment to have a potentially profound impact on intractable problems generates a level of discomfort among partners, especially when risking failure. The drive and motivation to report successes often runs counter to our drive to be innovative and risk taking. Yet engagement with a community's most complex and difficult problems is central to our shared covenant with society. It demands a deep institutional culture of boldness, courage, perseverance, and risk taking. Historically, the farm and faculty partners understood that a demonstration project did not always yield the desired results. In fact, a demonstration project's power rested upon the mutual understanding that some things would not work. With this understanding, partners grew in their trust of one another, enabling them to make judgments about the potential cost-benefit of the demonstration without being rigidly attached to always showing positive results.

How can we deal positively with our failures as well as our successes, finding ways to celebrate and build sustainable relationships through less successful but bold initiatives as well as those that are successful?

Conclusion. I have come to believe that these tensions and the questions they generate are tools for building the renewable resources of hope and the human capacity to chart the course of

one's own life and community toward sustainable prosperity. These tensions propel faculty, partners, and communities beyond their individual passions, building the networks and relationships that, when fueled by emerging knowledge, refine ideas and innovations and move new ideas forward. As tools, they are based on the shared understanding that engaged scholarship is about:

- Knowledge that continually pushes the boundaries of understanding
- Knowledge that is at the frontier of relevancy, innovation and creativity
- Knowledge that is organized and openly communicated to build capacity for innovation and creativity
- Knowledge that creates energy, synergy, and community independence to assess projects and processes, providing a reason and a capacity to gain new knowledge
- Knowledge that is accessible across the chasms of geographic boundaries and socioeconomic situations

In this context, the organic tensions around variability, capacity building, metrics, technology, and honoring innovation in less-than-successful initiatives are consequences of our initial successes on the journey of engagement with society that began, for Michigan State University, in 1855. They are rooted in a fundamental commitment to broaden and to make effective the number and variety of voices that define relevant problems and to position our partners and the communities in which they live and work at the forefront of knowledge. Cocreating and using cutting-edge knowledge are fundamental to engaged empowering for sustainable economic prosperity for the common good of the citizens with whom we are intertwined, locally and globally.

Summary

This chapter has described and reflected upon Michigan State University's approach to engaged scholarship and commented on the institutional values and imperatives anchoring our work as we seek to transform the quality of life in Michigan and in communities around the globe. I have also used examples to illustrate a variety of themes in engaged scholarship. Finally, I have identified a set of organic tensions and a mind-set that I believe are reframing higher education and engaged scholarship.

More than 150 years ago, reframing higher education and creating land-grant institutions required bold thinking, a passion for both thinking and doing in order to advance knowledge across traditional boundaries, and a commitment to transforming lives through access to new and applicable knowledge. Well before the Morrill Act was signed by Abraham Lincoln, Michigan State was engaged in pioneering work. In this century, I have called upon MSU to be the exemplar as a world-grant institution in extending our land-grant work and values around the world, cocreating opportunities for prosperity and increasing communities' and countries' respective capacities to chart their own courses toward self-sufficiency through enabled empowerment based on shared ideas, talent, and innovation.

Engaged scholarship in 21st-century, research-intensive land-grant universities requires the same bold thinking, passion, and commitment demonstrated by 19th-century visionaries. How we fulfill the destiny derived from this legacy will depend on daring to be who we are and who we were created to be, and then “doing” even more boldly and better than we do now. We are recasting our land-grant values and traditions and our research-intensive mission to meet 21st-century challenges and opportunities, honoring the values of our past and drawing from them the energy to innovate our future—around the world, across the nation, and at home.

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