2012

Leadership Scholarship Collaboration Resources: Research Annual Report 2012

Office of the Vice President for Research

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LEADERSHIP
SCHOLARSHIP
COLLABORATION
RESOURCES

Research Annual Report 2012

WESTERN MICHIGAN UNIVERSITY
The stories and successes of our esteemed faculty and research partners gratify us all. They illustrate the nature of university research today—an approach that offers multidisciplinary solutions to today’s problems. That is to say, our research showcases scholars working together across disciplines to sculpt solutions to complex problems in need of varied perspectives and approaches.

This year’s annual report is a snapshot of some of these research endeavors at Western Michigan University. Your responses to our research magazine, the latest edition being released in summer 2012, tell us that you want to hear about the research and creative activity under way at this wonderful University. We are thrilled by your response and thank you for your interest and support.

Our strategic plan guides our faculty efforts to collaborate and provide cutting-edge research that impacts and defines our community. Kalamazoo is a culturally rich epicenter of the visual arts, theatre and music; it also leads in biomedical and pharmaceutical research and innovative start-ups, all in collaboration with our faculty and researchers.

Building upon these strengths, our office has implemented a Discovery action plan rooted in leadership, scholarship, collaboration, and resources. Whether collaborating with peer institutions to jump-start the Michigan small business economy, licensing our research to industry partners, growing our overall scholarship capabilities here on campus, or sharing resources through campus events like the recent National Institutes of Health workshop, WMU remains true to its mission as a learner centered, discovery driven and globally engaged research institution.

Our efforts to transfer knowledge to the community through technology, patents, and intellectual property remain strong. We also remain steadfast in our historical mandate to enlighten through the humanities, fine arts and sciences.

We invite you to join us in our efforts.

To learn more about Western Michigan University and our outstanding research, visit us at www.wmich.edu/research.

John M. Dunn, Ed.D.
President

Daniel M. Litynski, Ph.D.
Vice President for Research
Partnership results in new product that directs students and adults in their career choices.

WMU recently entered into a commercial product development partnership with HUMANeX Ventures, which continues to work with the University to develop an online product based on the Career Guidance Inventory (CGI) developed in the late 1970s by WMU researcher Jerry Nowak, M.A. and updated by Drs. Ginda Rawls and Mark St. Martin. Unlike many career tests that measure only one or two areas, the CGI is a comprehensive career assessment that measures an individual’s personality, interests, values and achieve- ments. The test sets itself further apart by going in depth to look at psychological and personal factors that can identify strengths and preferences that can help a person to find a career that is a good fit. Historically, the biggest limitations in the test were its size, format as a paper test and the inability to store the results in a useful database for research and development purposes.

The latest version, now referred to as CGI Online (on campus) or known as IMPACTeX Navigator development purposes.

“I was a good fit because we had been marketing the CGI to the commercial sector looking for someone who could envision the opportunity or was willing to invest with us in creating a scalable, online version of the CGI,” says Sharer. “Brad Black and HUMANeX recognized the potential in WMU’s research to commercialize it for broader impact.”

Black agrees. He says of the CGI and his company’s decision to license it from WMU: “We saw in the test the commercialization potential on many levels, and we wanted to take CGI and make it famous and impactful to thousands of individuals.”

HUMANeX collaborated with Rawls and St. Martin to create the IMPACTeX Navigator, the online version of CGI, licensed from WMU by Black’s team.

The collaboration naturally plays to each party’s strengths: HUMANeX’s reputation for innovation and drive to identify talents and passions in workers combined with WMU’s development and use of the CGI in its counseling center to supply students with career and life planning help. WMU also had the in-house expertise to develop a better and more comprehensive tool than others currently on the market. The assessment tool makes use of a series of questions that cumulatively can be interpreted to identify career options for students that fit with their individual goals and values.

Nowak’s version of the 1,100-question paper and pencil assessment was initially designed to explore individuals’ academic skills, interests, values and personality. Retooled to a much shorter version by Rawls and St. Martin, the updated version of CGI sets industry standards as perhaps the only comprehensive career assessment tool available to offer a holistic view of an individual, thus making it a one of a kind.

Dr. Michael Sharer, director of intellectual property management and commercialization at WMU, brought Rawls and St. Martin together with HUMANeX’s CEO Brad Black and his team to discuss plans for his company to commercialize the CGI by transitioning the assessment from its paper form to a scalable electronic tool that interfaced with today’s technology.

“HUMANeX had the time, enthusiasm and resources needed to take the assessment and make it readily accessible to others,” observes Rawls. “While we have helped thousands through the use of the Career Guidance Inventory assessment tool, we were limited to our students, faculty and staff at the University in our use of it.”

“We wanted people to access the test so that its potential to help communities and individuals could be fully realized,” says Black. “We also were committed to building a partnership with WMU as the major academic institution in the area to leverage the CGI for impact across the Kalamazoo community.”

HUMANeX Ventures markets the IMPACTeX Navigator for its clients nationwide. Black offers communities the means to tap into and keep local talent by marketing primarily to K-12, universities, businesses and community groups.

The tool affirms for the individual participants who they are and where they need to concentrate their efforts. Compared to other career assessments available commercially, the IMPACTeX Navigator has rigor, purpose and design. Its potential impact across the country to help assess personality and align personal values in the workforce is tremendous, according to Black.

“We all need ‘mirrors’ to reflect who we are as a person. A tool that reflects and affirms our personality and values helps us in our choice of a career,” Black says. “One time we identify our talents and skills, the ability to match those to a ‘map’ or career path, allows the individual to realize his or her passion in life.”

The WMU and HUMANeX teams continue to work together in developing, testing, and refining the IMPACTeX Navigator as a tool to be used commercially to grow people, organizations and communities into talent-rich resources as well as to have a significant impact on WMU students and their career decision making. This collaboration demonstrates how WMU research can be commercialized for broader impact and, like all good commercial ventures, it takes commitment, resources, vision and the right partner.
Faculty receive awards

FULBRIGHT GRANT AWARD

The Fulbright Program was established in 1946 and is the flagship international educational exchange program sponsored by the federal government. Grant recipients are selected based on academic or professional achievement, as well as demonstrated leadership potential in their fields.

WMU's 2011-12 Fulbright grant recipients were awarded a combination of short- and long-term grants.

Dr. Kuanchen Chen, associate professor of business information systems, received a Fulbright Specialist award. Chen spent three weeks at National Chung Cheng University in Taiwan beginning in January 2012. While there, he assessed curriculum opportunities for that university to stay ahead of the competition in higher education and engaged in lectures, research and instruction that guided the business administration faculty's development of a specialty focus in business analysis.

Dr. William W. Cobern, Distinguished University Professor of Science Education and Biological Sciences as well as director of the Mallinson Institute for Science Education, received a Fulbright Lecturing/Research award. Cobern spent five months in Turkey beginning September 2011. His research and teaching were about secular and religious issues with respect to the teaching of science. He also gave lectures on the experimental study of science teaching efficacy. While in Turkey, Cobern gave 16 public lectures on both topics at various Turkish universities.

Dr. Richard A. Gershon, professor as well as co-director of the telecommunications and information management program, received a Fulbright Specialist award. Gershon spent the fall semester at the University of Navarra in Pamplona, Spain. While there, he taught two accelerated courses, one for undergraduate students on media management and telecommunications and one for graduate students on digital media and innovation.

Dr. Albert LaVergne, professor of art as well as the University's sculpture area coordinator, received a Fulbright Lecturing/Research award. LaVergne began spending 10 months at Obafemi Awolowo University in Nigeria in January 2012. His research and teaching involves a comparative analysis of traditional and contemporary Yoruba sculpture processes and his own unique metal style of fabricating sculptures.

EMERGING SCHOLAR AWARD

This award celebrates the accomplishments of faculty members who are in the first decade of their WMU careers who have gained national recognition and demonstrate outstanding promise to achieve renown in their continuing work.

Jeffery Angles, associate professor of world languages and literatures, joined the WMU faculty in 2004 and has served as director of the Soga Japan Center since 2011. He also is head of the Japanese Language Program. His work as a literary translator and scholar of modern Japanese literature has won several major awards and impacted both the scholarly community and the general public. In the United States and internationally, Angles has produced significant translations of major Japanese modern and contemporary poets, in particular Tada Chimako and Ko Hirota.

Charles Henderson, associate professor of physics, joined the WMU faculty in 2002 and the faculty in WMU’s Mallinson Institute for Science Education in 2004. Since coming to the University, he has been involved in grant projects totaling more than $2 million, including awards from the National Science Foundation, the state of Michigan, NASA and the Howard Hughes Medical Institute. Henderson has been instrumental in the evolution of physics education research, and his extensive research has helped change the landscape of STEM education.

Sherine Obare, associate professor of chemistry, joined the WMU faculty in 2004 and has been an adjunct professor in the Michigan State University Department of Chemical Engineering and Materials Science since 2007. An internationally respected rising star in the area of nanomaterials, she is acknowledged as someone who has been able to design nanoscale materials with important optical, catalytic and electronic properties. Her research has earned Obare a number of prestigious awards, including the 2010 National Science Foundation American Competitiveness and Innovation Award, which is given to the top 10 materials scientists each year.

WMU commercialization center invests in nervous system breakthrough

Western Michigan University’s Biosciences Research and Commercialization Center has invested $250,000 in a Kalamazoo company that is doing early-stage work on a revolutionary approach to treat and restore function to people who have suffered major damage to their peripheral or central nervous systems.

The BRCC award to Avonia Medical is part of $2 million in seed financing the company recently assembled to advance technology its founders believe can transform medical care for people who suffer a debilitating nervous system injury. Such injuries include spinal cord injury, traumatic brain injury, peripheral nerve injury and stroke. Other investors providing seed funding include the Southwest Michigan First Life Science Venture Fund and Ann Arbor SPARK.

“Avonia Medical is developing precisely the kind of innovative, early-stage work our center is designed to support,” says Stephen J. Haakenson, executive director of the BRCC. “This is technology developed in a university setting that has great potential in the marketplace to address unmet medical needs.”

Avonia, located in Kalamazoo, is a startup that is leveraging groundbreaking discoveries on nervous system growth and repair by Dr. Douglas H. Smith at the University of Pennsylvania. Smith is scientific co-founder of Avonia with Dr. Harry Liedebur, president and CEO.

The company’s products are expected to bridge lost nervous tissue and jump-start regenerative mechanisms that will allow levels of functional recovery not now possible. The company was an early participant in a Penn program called UPstart that focuses on the transfer of technology from higher education to the commercial arena.

Established in 2003 with an initial cash infusion of $10 million from the Michigan Economic Development Corp., WMU’s BRCC is designed to promote development of life science startups in Michigan. It has played a critical role in the creation of 50 Michigan companies and more than 200 high-paying jobs. With every dollar of the original $10 million invested in startup companies, a new award of $3.8 million in 2011 allowed the center to transition to a new fund, dubbed by BRCC organizers as BRCC-II.

The funds were provided by the 21st Century Jobs Fund, a Michigan Strategic Fund program designed to accelerate the growth and diversification of Michigan’s economy. The Michigan Economic Development Corporation, a public-private partnership between the state and local communities, provides administrative support for the 21st Century Jobs Fund. The MEDC markets Michigan and provides the tools and environment to drive job creation and investment.

For more information on the 21st Century Jobs Fund initiative, visit MichiganAdvantage.org. WMU is a strategic partner with the BRCC, visit http://www.brcc.wmich.edu/strategicpartners.asp for more information.
The mission of the University Center for the Humanities is to support and recognize the humanities at WMU.

Serving as a gathering place for dialogue, the Center functions as an idea incubator for the exchange of ideas among faculty, emeriti, alumni, students and community members beyond the campus.

In a day and age when the focus is on developing science, math and academic specialties, the role of the humanities remains strong. The humanities serve to elevate the thinking beyond any one area of study and to instead take up questions on the issues of our day, which are rooted in diverse perspectives ranging from those linked to anthropology, science, engineering, philosophy, political science, ethics and jurisprudence.

“We want the center to be an incubator of ideas and projects,” says Katherine Joslin, the center’s founding director and long-time WMU professor of English. “It’s like an industrial park for the mind. We want this space to generate and nurture ideas across colleges and across disciplines and, at the intersection of those, to stimulate new thinking.”

Years in the making, the center was conceived in 2006 when then-WMU President Diether H. Haenicke began working with a committee of faculty to explore formation of a humanities center.

The center seeks to put humanities at the center of a university education, says Joslin. That goal is in keeping with efforts both nationally and internationally to provide the best tools and critical thinking skills necessary for a well-educated citizenry and workforce able to keep pace with a rapidly changing world.

Recently, high-profile Washington Post columnist E.J. Dionne visited campus to launch this year’s speaker series. Dionne’s talk, titled “The Election and Our Divided Political Heart,” came just days before the defining presidential election between Barack Obama and Mitt Romney. This year’s speaker series includes speakers from across disciplines who will examine the election’s outcome on science policy, the politics of race and the democratization efforts in Islamic countries.

“This center is all about collaboration,” says Joslin. “We want our humanities events to elevate the lives of everybody. Where WMU can and has made a name for itself is that it’s a state-funded University that places liberal education at its core and makes it available to all our citizens.”

Joslin

“We want the center to be an incubator of ideas and projects. It’s like an industrial park for the mind.”

—Katherine Joslin

2012 Woodrow Wilson Michigan Teaching Fellows at WMU

Included in the 2012 cohort for the Woodrow Wilson Michigan Teaching Fellows is an engineer who holds 55 patents and a professional pilot with experience as a veterinary medicine surgical nurse supervisor. They are among 13 highly skilled people pursuing a specially designed master’s degree at Western Michigan University to prepare them for careers as science and math teachers in high-need public schools.

Each of the 13 has received one of the W.K. Kellogg Foundation’s Woodrow Wilson Michigan Teaching Fellowships at WMU. This statewide initiative, in its second year, aims to improve student achievement by placing into secondary-school classrooms career changers or recent college graduates who are particularly talented in math, science or technology.

WMU and five other state universities are each charged with training a class of fellows. The students were selected for this competitive fellowship for their strong background in what are known as STEM disciplines—science, technology, engineering and mathematics.

“Great teachers and great teaching can make all the difference for our students, their educational growth, future success and quality of life,” said Michigan governor Rick Snyder in announcing the new fellows. “The W.K. Kellogg Foundation’s Woodrow Wilson Michigan Teaching Fellowship is making tremendous strides toward the goal of providing children across Michigan access to highly effective educators in these critical subject areas, and I commend this work and look forward to its continued role and achievements.”

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The Michigan Corporate Relations Network (MCRN) offers a number of specific programs to help the business community. These programs include the Small Business Company Internship program, the Small Company Innovation Program, the Michigan Information Transfer Source, and Instant Innovation program and an expertise search tool and portal.

- **The internship program** provides funding for students to work as interns at companies in science, technology, engineering and mathematics fields. This cost-sharing grant helps to encourage student placements with innovative and dynamic company partners within Michigan.

- **The innovation program** helps small companies attack technological and commercialization issues by providing access to top university resources at a more affordable cost. The SCIP provides matching funds to engage the MCRN partner universities on company-specific research projects.

- **The information transfer program** provides a cost-effective way for small companies to access a major research library's collection.

- **The Instant Innovation program** brings faculty experts from the universities together with Michigan companies to tackle significant business and research challenges. With the provision of cost-sharing funds, the program’s goal is to foster creative approaches to solving these challenges in a one-day facilitated brainstorm.

The business portal will provide the private sector with a single point of access Web tool to search faculty expertise across the MCRN universities.

"The win-win here is—the students gain ‘real world’ experiences that they can add to their resumes while the businesses gain the creative energy and ‘outside the box’ thinking that comes from an outsider’s perspective.”

—Lisa Garcia

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For example, Garcia’s office helped 14 businesses partner with the Haworth College of Business and the College of Engineering and Applied Sciences to offer experiential learning for students while providing companies with cost-effective solutions to their business problems. “The win-win here,” says Garcia, “is the students gain ‘real world’ experiences that they can add to their resumes while the businesses gain the creative energy and ‘outside the box’ thinking that comes from an outsider’s perspective.”

The Michigan Corporate Relations Network (MCRN) includes Western Michigan University, University of Michigan, Michigan Tech University, Michigan State University, Wayne State University, and U-M Dearborn. Collectively these six institutions represent 99% of all research and patent activity among the state universities. Working together to form an alliance, the network creates partnerships between the universities and businesses to help grow the state’s economy. They each work individually on their own campuses to be a local resource as well.

Established in the past year, the WMU Business Connection office functions as a ‘one-stop-shop’ for West Michigan area companies that want to engage with the University. With the help of its new director, Lisa Garcia, the office has strategically served to match the resources on campus with the needs of over 100 local businesses, companies and entrepreneurs.

“Our office has helped to connect businesses with valuable University resources like research partnerships, faculty consultants, student talent and so much more,” says Garcia. “The response has been tremendous in that the people who come to us for help find their needs met in ways that benefit their bottom line.”

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—Lisa Garcia
2011-2012 RECIPIENTS OF GRADUATE STUDENT RESEARCH AND TRAVEL GRANTS

The Graduate Student Research Fund and Travel Grant supports graduate students engaged in independent scholarly research, scientific inquiry, inventive technological and original artistic activity. The fund is intended to help students pay extraordinary or unusual costs incurred in research projects. Grants range up to $1,000, and students may apply for up to $600 of additional support to defray the cost of international travel.
Hamley, Christopher
Graduate Student Travel Grant
"Stalingrad, an American Battlefield: Significance and Relevance to Our First Amendment"

Herb, Kel
Psychology
Graduate Student Research Grant
"Self Assessment Model for Obesity: Health Outcomes and Risk Factors" and Technology

Hilton, Derrick
Accounting
Graduate Student Research Grant
"Revisiting the Classroom: Do We Need a New Look at Teaching in the Lives of Multiple Students About Physical Tutoring?"

Hiza, Alka
Chemistry
"Predicting the Inaktivating Behavior Specific to Grazing Clinton Döhler Catalysts"

Hodson, Kristin

Holub, Korina

Howard, Kristyal
Graduate Student Travel Grant
"A Meta-Analysis of the Effects of the Frequency of Use of Social Networking Sites on the Development of a Self Esteem Multidimensional"
Schroeter, Daniela  
Augustana College  
Kalamazoo Communities in Schools

Roth, Edward A.  
National Collegiate Inventors and Entrepreneurs Alliance (NCIIA)

Rodriguez, Jorge  
Chemical Industrial and Manufacturing Engineering

Ro, Kapseong  
Korea Association of Industry, Science, and Technology

Lewis Walker Institute for Race and Social Justice

Obare, Sherine O.  
Bertman, Stephen B.

Robertson, Carolyn K.

Roth, Edward A.  
School of Music

Roth, Edward A.

Ro, Kapseong  
Korea Association of Industry, Science, and Technology

Ray, Juseok  
Korea World Trade Center

Reynolds, Susan  
Michigan Tech

Rinaldi, Robert F.  
Kalamazoo College

Roth, Edward A.  
School of Music

Roth, Edward A.  
School of Music

Rowe, Donald D.  
Michigan Tech

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FACULTY RESEARCH AND CREATIVE ACTIVITIES AWARD 2012 RECIPIENTS

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WMU CENTERS AND INSTITUTES*

- College of Engineering and Applied Science
- Center for Advanced Smart Sensor and Systems
- Center for Advanced Vehicle Design and Simulation
- Center for Advancement of Printed Electronics
- Center for Coating Development
- Center for Excellence in Engineering Education
- Medflow Center for Design Excellence
- Human Performance Institute
- Center for Information Technology and Image Analysis
- Center for Ink and Printability
- Center for Integrated Design
- Manufacturing Research Center
- Center for Recycling Technology
- College of Arts and Sciences
- Center for African Development Policy Research
- Rawlins Center for Anglo-Saxon Studies and Manuscript Research
- Biological Imaging Center
- Light Center for Chinese Studies
- Center for Cistercian and Monastic Studies
- Center for Communication Research
- Environmental Institute
  (Contains the Environmental Research Center)
- Great Lakes Center for Environmental and Molecular Sciences
- Ethics in the Science Classroom
- Center for the Study of Ethics in Society
- Uppjohn Center for the Study of Geographical Change
- Institute of Government and Politics
- University Center for the Humanities
- Center for the Study of Mathematics Curriculum
- Medieval Institute
- MichCarb
- Michigan Geological Repository for Research and Education
- Nanotechnology Research and Computation Center
- Science and Mathematics Program Improvement (SAMP) Initiative
- Mallinson Institute for Science Studies
- Kercher Center for Social Research
- Saga Japan Center
- Haworth College of Business
  - Center for Entrepreneurship and Innovation
  - Global Business Center
  - Center for Health Information Technology Advancement
  - (with the College of Health and Human Services)
  - Center for Sustainable Business
- College of Education and Human Development
  - Center for Counseling and Psychological Services
  - National Research Center for Grandparents Raising Grandchildren
  - McGinnis Reading Center and Clinic
- College of Health and Human Services
  - Center for Gerontology
  - Center for Health Information Technology Advancement
  - (with the Hathaway College of Business)
  - Children’s Trauma Assessment Center
- Office of the Provost and Vice President of Academic Affairs
- Honick Institute for Global Education (Includes the Confucius Institute and the Center for English Language and Culture for International Students)
- Center for Practices with Electronic Portfolios and Assessment
- Walker Institute for the Study of Race and Ethnic Relations
- Office of the Vice President for Research
  - nanotechnology Research & Commercialization Center
  - Evaluation Center
- Office of Diversity and Inclusion
  - Center for Disability Services

*submitting annual reports to the Office of the Vice President for Research

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While every effort has been made for accuracy, there is still the possibility for errors or omissions. We apologize for any that might occur. Please contact us with any corrections for our next issue.

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