

Research

at Andrews University

Fall 2010, Volume 1

Secrets of Success

John Stout, David Mbugu,
Larry Burton

Seabirds and Synchrony

James Hayward,
Shandelle Henson

Drug Abuse Policies and Treatment Efficacy

Duane McBride

Analyzing Biblical Narrative

Tom Shepherd

Biosensor Technology

Hyun Kwon

Center for Community Impact Research Formed

Curtis VanderWaal

Piecing Together the Past

Rhonda Root

Editor: Pat Spangler

Writer: Samantha Snively

Designer: Justin Jeffery

Photographers: Darren Heslop, Martin Lee,
Katelin Mitchell, Dave Sherwin, David Steen

Cover: The annual Celebration of Research
showcases projects from across campus.
Photo by David Steen





Introduction

Many smaller colleges and universities with a history similar to Andrews University's have had ongoing conversations about the relative importance of creative scholarship/research in their educational mission and goals. In these conversations at Andrews University, research—in its broadest contexts—has focused on creativity and original scholarship. Research has encompassed all of the academic disciplines, from artistic to scientific, widely engaging the University community as a whole.

About a decade ago, University administration chose to enhance the resources used to support faculty and student research collaboration in unexplored areas. This included appointing a dean of research, which is a new leadership position, along with reorganizing the Office of Research & Creative Scholarship and enhancing support for faculty-led research. It also led to the creation of University-funded undergraduate research scholarships. The resulting growth in research led, in many programs, to including it as an essential component of the University's educational mission. It opened up research possibilities for those best prepared to make new and important contributions to their professions, to the wider society and to the religious communities they are involved with.

The pervasive spread of research through the Andrews University community has become most visible at the annual Celebration of Research. For the past two years, this event has attracted wide participation by faculty and students. The increasing role research plays in an Andrews University education has also led to this first of an annual series of reports (sponsored jointly by the Office of Research & Creative Scholarship and the Office of Integrated Marketing & Communication) to both the Andrews University constituencies and the wider higher education communities. In this document, we want you to not only become fascinated by the very creative and interesting research described, but to also experience its wide-ranging nature through diverse, productive disciplines.

With the retirement of John Stout, dean of research, in May of 2010, the University has further enhanced the support for and profile of research by appointing Christon Arthur to a newly defined dual role as dean of the School of Graduate Studies & Research and Gary Burdick to lead the Office of Research & Creative Scholarship as associate dean for research.

John F. Stout, PhD
Research Professor of Biology
August 30, 2010

Secrets of Success

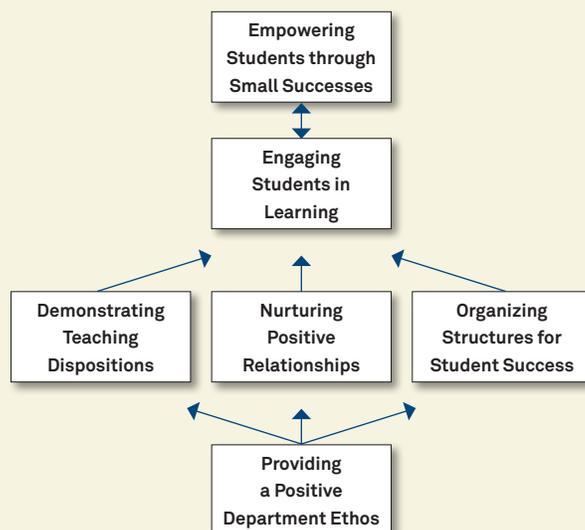
Enhancing student success through educational transformation

Based on exit scores from the mid-90s through 2002, Andrews University biology graduates scored as a group in the top 10 percent of biology departments whose graduates took the nationally normed Major Field Test in biology. Seventy percent of entering freshmen biology majors graduate, 80–85 percent of biology seniors who apply are accepted into medical school and more than 90 percent of those who apply are accepted into graduate programs in the life sciences.

Usually this high percentage of success is only found at schools with highly selective entrance requirements. More of the students entering the biology program at Andrews are only adequately prepared or underprepared than is the case for colleges and universities whose students are this successful. This makes the high completion rates and high acceptance rates into post-graduate programs even more notable. While the well-prepared biology majors continue to excel, these less well-prepared students are experiencing educational transformation, and as a result improving their success and sharing in the exceptional opportunities that Andrews senior biology majors experience. These outcomes are even more notable since approximately 30–35 percent of biology graduates are black and Hispanic. Nationally, these two groups make up approximately 10 percent of science graduates.

This unusual success of biology graduates has attracted national interest. In 2003, biology professors John Stout and Gordon Atkins developed a proposal to the National Science Foundation (NSF) for a grant to evaluate the reasons for this success with the goal of finding out the causes

Processes Promoting Success and Transformation of Biology/BNS Students at Andrews University



for the educational transformation Andrews University biology majors were experiencing. An important part of the grant proposal was built around developing a new program in behavioral neuroscience, shared between the Departments of Biology, Behavioral Sciences and Mathematics, that would bring new groups of students into preparing for careers in the sciences and mathematics. This would provide opportunities to use the approaches that had been so successful in biology, attempt to recreate this success with a new group of students, and thereby enhance understanding of why the biology program is so effective in increasing student success. As the grant proposal progressed in these directions, Shandelle Henson, professor of mathematics, and Duane McBride, professor of sociology, joined the team as coinvestigators. NSF quickly funded the proposal that resulted in a six year grant of approximately \$500,000. One of the immediately positive outcomes was support by the grant for hiring Karl Bailey to lead out and teach in the new behavioral neuroscience program.

As the grant activities developed, NSF asked for an increased depth of assessment that included a carefully structured evaluation of how individual students felt their success was enhanced. The depth of this study brought a second, \$50,000+ grant from NSF and added David Mbungu, associate professor of biology, to handle the study of student outcomes and Larry Burton, professor of teacher education, to develop, oversee and evaluate extensive interviews with alumni and current students of the programs supported by the grants and analyze the results.

Burton and his team of five graduate student assistants have nearly completed evaluating approximately 2,000 pages of interview transcripts that resulted from 115 interviews of both alumni and current students from the Departments of Biology and Behavioral Sciences. For each interview, some as short as 25 minutes and others as long as one and a half hours, subjects were asked an open-ended question: "Tell us about your experience in the department and what is it that you think helped or helps you be successful?" Prior to each interview, the subjects had received a letter outlining the goals of the research. As a result, many were well prepared. At the same time, Mbungu's focus on the outcomes of the program in terms of student academic success and high levels of continued access by graduates to postgraduate programs in medicine and the life sciences, documents that the factors that attracted NSF support continue and include the new groups of students brought into the program.

A final report for the first grant was submitted in April 2010, and a more comprehensive

report covering the outcomes of both grants is near completion and will be reviewed by the coinvestigators and University President Niels-Erik Andreasen, who has collaborated with the team since the beginning of the study. It will then be submitted to the NSF, but perhaps more importantly, form the basis for additional papers in well-recognized journals and presentations at appropriate national and international venues.

The results already reveal several reasons that stand out conspicuously. These include two very important factors that are clearly conducive to success, which include positive relationships with both teachers and peers referred to as "department ethos," or the environment created by the confluence of a diverse, supportive, intellectual community within a small, faith-based, teaching university, and very successful teaching methods, referred to as "effective pedagogy." All three groups interviewed—current biology students, biology alumni and behavioral neuroscience students and alumni—gave credit to the personal relationships they developed through very close student/mentor-advisor relationships, small class sizes, undergraduate research opportunities, and an intentional focus on student success. Where as introductory science courses at state and public universities often weed out students with weaknesses in those entering classes, courses and student support at Andrews are designed to develop understanding and confidence that leads to educational transformation and unusual academic success as undergraduates.

Stout, Burton and Mbungu attribute the success of the actual research process to two main reasons. The researchers had Elaine Seymour, an outstanding, nationally prominent, professional consultant, advising them on their research processes and the NSF-provided funding gave the opportunity for careful, in depth evaluations of both student outcomes and their responses during extensive interviews. These successful educational processes are now much better understood and can be adapted for improvement of science education programs nationally. Their grants came from a NSF program mandated as an effort to increase the number and ethnic balance of students preparing for careers in science, mathematics and engineering, in order to meet national needs for the future.

The researchers have already made several presentations, "and everywhere we've presented, people get excited...and start taking copious notes...because the potential is exciting," says Burton. Once the final reports are submitted to the NSF, the reports become public information.

However, the researchers face several challenges in adapting the program for larger, secular



John Stout (left), research professor of biology, discusses concepts with **Renik Delisser**, senior biology major (mathematics minor) from New York City. Renik is completing his fourth year at Andrews. This semester he is also a teaching assistant for the course Systems Physiology. During the summer he took the MCAT and applied to 11 graduate schools in pursuit of his medical degree. He's hoping to be accepted by one of his top two choices: Johns Hopkins University in Maryland or Loma Linda University in California. His current interest is either pediatric psychiatry or pediatric neurosurgery. Fascinated with the human brain, Renik says, "The brains of children have plasticity which allows a higher degree of freedom in operability." Renik is pleased with his experience in the Department of Biology. He says, "Access to professors and professors who genuinely care about the students together make for success of the department. While no department is perfect, the department I call home has far more pros than cons. From the professors to office staff to janitors, they treat every question as valid and I've discovered that asking questions is how we learn!"

educational institutions. How successfully can these approaches developed in a small, faith-based institution be applied in much larger public universities? Often the new professors at these universities find their tenure is dependent upon the grants they receive and the publishing they do—and so have little time to spend in the classroom, leaving the job of teaching to their graduate assistants. In addition, at large universities where the average class size can be well above 200 it is impossible for the professor to develop personal relationships with many of the students. The final report must extract general principles and practices that could be applied at other types of higher education institutions.

Toward this goal, Stout and Burton are already working with faculty members and administrators at one large public university to explore ways of implementing the studies' most important findings.

Seabirds and Synchrony

Combining the fields of mathematics and biology

Spending three months on an island that is closed to the public, without electricity or regular hot water, with only the supplies that can be brought over on a boat, would not seem like ideal conditions in which to pursue groundbreaking research. But for the past eight summers, that is exactly what husband-wife team James Hayward, research professor of biology, and Shandelle Henson, professor of mathematics, have done. They spend each summer at Protection Island National Wildlife Refuge in the Strait of Juan de Fuca, Washington, sharing a tiny two-bedroom cabin with several students, observing every movement of the Glaucous-winged Gulls that nest there in a large colony.

and seabird behaviors. One practical application of this research addresses the common problem of gulls sitting, or “loafing,” on airport runways and consequently being caught in jet engines. The models that predict gull loafing times can be used to help develop effective systems for keeping birds off runways. The team’s research also has applications in the areas of wildlife conservation and species protection.

Currently, team members are hoping to pinpoint the signal that leads to ovulation synchrony in birds, a phenomenon they discovered over the past three summers. Daily during the field season, the team meticulously checks more than 200 nests throughout the gull colony and records

have allowed their research to progress at a steady pace, as they collect reams of data to test their hypotheses. Hayward has been working on Protection Island for 24 years, but he says that since Henson has added her mathematical expertise to his understanding of behavioral ecology, “our productivity and the quality of our work have been tremendously enhanced.” The project, says Henson, is “too much for one person—it really requires interdisciplinary work.”

Their progress has not gone unrecognized. Since 2003 they have received two grants from the National Science Foundation (for \$304,000 and \$300,000), and their most recent proposal has been recommended for funding (\$350,000) by the NSF Division of Mathematical Sciences. Additional assistance has been awarded by the Andrews Office of Research in the form of Andrews University Faculty Grants. Hayward believes the quality and interdisciplinary nature of their work, along with the diversity of their research team and the significant participation of undergraduate students, are some of the reasons the Seabird Team has received funding. Over the past seven years, they have published 15 joint research papers and presented more than 30 invited research talks at conferences and universities. They continue to develop three interdisciplinary classes available to undergraduate students (Calculus I for Biology, Mathematical Modeling in Biology, and a General Ecology lab in mathematical modeling).

Student team members assist with every aspect of the research, and 15 students have coauthored major papers with Henson and Hayward. These students are trained in mathematical biology and processes of research. Team member Brianna Payne began working with the team early in her undergraduate career and is now a graduate student in the biology program. She says participating has helped her develop “a sense of curiosity and a simultaneous ‘can do’ attitude about exploring the questions raised by my curiosity,” which is “invaluable for a satisfying, intellectually stimulating and enjoyable academic experience.”

Undergraduate students have a unique opportunity to participate in this research alongside their professors. In fact, of the 30 students who have helped with the research, only four have been graduate-level students. Biology and music major André Moncrieff joined the Seabird Team as a high school senior to learn more about the birds that have fascinated him since childhood. He says he has gained “a better understanding of math’s role in systems biology and different methods of data collection.”



Clockwise from left: André Moncrieff, Libby Megna and Brianna Payne at work on Protection Island; Shandelle Henson in the converted van which the team calls its “mobile blind;” Jim Hayward outfitted with protection against the colony’s persistent “white rain” and kamikaze gulls.

What makes them gladly return to virtual isolation time and time again? Perhaps it’s just plain curiosity or their passion for the subject; or perhaps it’s the knowledge that they are conducting unique, relevant research with promising results.

The Seabird Ecology Team, as it is called, combines the fields of mathematics and biology, using mathematical models to describe, explain, and predict animal behavior. In the past, the team has created accurate mathematical models to predict times and frequencies of harbor seal

various data. The data are analyzed with laptop computers powered by solar panels mounted outside the cabin. Data collection stops when the sun goes down, around 9 p.m. Data already exist in support of ovulation synchrony in humans and rats, but the Seabird Ecology Team has provided the first observed case of synchrony in a non-mammalian species. The team hopes their discovery will lead to a better understanding of the basic biology of the endocrine system as it relates to reproductive behavior.

Henson and Hayward’s combined disciplines

Drug Abuse Policies and Treatment Efficacy

Advocating prevention and treatment accessibility

Drug abuse and its extensive, negative impacts are pressing problems in today's society. For most of his career at Andrews University, Duane McBride, director of the Institute for Prevention of Addictions, chair of the Department of Behavioral Sciences and research professor of sociology, has been addressing that problem in his research. In the past, he has researched juvenile delinquency, AIDS infection of IV drug users, the efficacy of state and federal drug legislation, and the role of public health institutions in prevention and treatment programs. McBride, long-time chair of the Berrien County Board of Health, has found that public health organizations are effective avenues for providing treatment of drug abuse and offering educational programs designed to prevent substance abuse. One of his recent papers, "Reflections on Drug Policy," outlines a brief history of drug policy in the United States and analyzes different approaches to treatment, while advocating prevention and diversion to treatment instead of incarceration.

His recent projects address current drug policies and their effects. The first project, funded by the National Institute of Justice, focused on the impact of state laws on reducing the number of small toxic laboratories used to cook methamphetamine. Many states have recently passed legislation requiring identification for anyone wishing to purchase certain over-the-counter medicines containing pseudoephedrine. Home labs often use large quantities of the ingredients in these medicines to produce the illegal drug methamphetamine. These home labs have a damaging effect on communities, including the physical danger of an unstable lab blowing up and the toxic effects of harmful chemicals on the

environment. These "small toxic labs" are also accompanied by increased rates of child abuse and an increased incidence of violence and identity theft, as well as harmful consequences of the drug itself.

States have tried a number of ways to counteract this problem, such as limiting the quantity of medicine that can be purchased, requiring identification and monitoring each purchase. McBride's research data indicates that methods of requiring identification combined with monitoring and regulating purchase of over-the-counter medicines containing pseudoephedrine leads to the most noticeable decrease in home labs. This evidence supports the conclusion that monitoring and regulation programs are most effective when all purchases are documented at one centralized location, instead of collected and kept in individual stores. A qualitative component of this project led by Curt Vanderwaal, chair of the Department of Social Work, found that law enforcement officials and pharmacists preferred regulation and monitoring over criminalization.

The second project, funded by the Robert Wood Johnson Foundation-funded Substance Abuse Policy Research Program, focuses on the impact of drug abuse treatment made available through Medicaid, particularly treatment available to African-Americans. The current analysis explores the availability of ancillary/transitional programs, such as transportation to and from treatment and childcare, as well as programs to transition users back into the community. The study found treatment programs that accepted Medicaid provide greater access for African-Americans, because the programs are also more likely to provide supplementary programs that help patients stay in treatment. Often, African-American women patients in court-ordered treatment do not have childcare or transportation to the facilities. Drug treatment is often seen as secondary to these needs and many patients stop treatment because of these issues. When these supplementary services are available, the programs see increased retention and smoother transitions to the community. Additional post-treatment transitional programs, available through Medicaid, further a successful outcome. In both of these projects, McBride worked with an Andrews alumnus, Yvonne Terry-McElrath. McBride works hard to include students in his projects, which gives them greater access to strong graduate programs and future careers in research.



Analyzing Biblical Narrative

Applying common research methods in new ways

"In studying a document that's 2000 years old, how do you come to new insights? You apply common research methods in new ways." Tom Shepherd, professor of New Testament in the Seventh-day Adventist Theological Seminary, has been involved in such research, and it is paying off in better understanding of both the early manuscripts of the New Testament and the history of early Christian communities.

He recently co-organized a conference in Belgium titled "Resurrection of the Dead: Biblical Traditions in Dialogue" along with New Testament professor Geert Van Oyen of Université Catholique de Louvain. The conference brought together an international group of scholars who presented papers on the topic. Peeters Publishers, a well-known publisher of religious scholarly articles, will release a compilation of papers presented at the conference, which Shepherd will co-edit. Included in the book will be Shepherd's most recent paper, analyzing the ending of the Gospel of Mark in *Codex Vaticanus* and *Codex Washingtonianus*.

Using a new methodological approach, he combines narrative analysis and textual criticism to better understand Scripture. Textual criticism involves looking at variations of wording in Biblical manuscripts and, through the use of carefully formulated guidelines, determining as closely as possible the original text. Narrative analysis is used to examine literature, studying settings, characters, stylistic features, actions and historical context to determine what point the story is trying to make. Shepherd analyzes the same story in different manuscripts and then compares how

their differences modify the point of the story. “These differences illustrate for us how, over time, modifications slipped in to the New Testament, changing subtly the meaning of the story,” he explains. “Our greatest interest is in getting at the original text the Apostles wrote, but it is also quite interesting to see how story modifications illustrate for us the theological development of the church through revised manuscripts.”

Shepherd’s study of the ending of Mark looked at two very different manuscripts. *Codex Vaticanus* has a text that ends at Mark 16:8 with the women fleeing from the tomb and telling no one because of fear. Analyzing this story, Shepherd found that its point was a call to mission: “The story can’t end like that! What are you going to do to spread the word?” *Codex Washingtonianus* on the other hand, has a much longer ending, including a paragraph not found in any other existing manuscript. It seems to emphasize both the power of the risen and ascended Lord and the role of church leaders as His emissaries in spreading the Gospel.

The conference in Belgium addressed the topic of resurrection from the dead in a variety of texts including the Gospels, the writings of Paul, the General Epistles, the Hebrew Bible, and Jewish

and Christian apocalyptic literature. Jacques Doukhan, professor of Hebrew and Old Testament Exegesis in the Seminary, also presented a paper at the conference. His paper dealt with the resurrection in the book of Daniel. According to Shepherd, the feedback from other scholars provides invaluable help in strengthening the paper.

Shepherd’s research interest in the Gospel of Mark began during his PhD studies at the Theological Seminary in a class taught by Robert Johnston. In the class, Johnston described a storytelling technique in the Gospel of Mark known as intercalation or “sandwich stories” where one story interrupts the telling of another story. Shepherd was intrigued and when it came time to choose a dissertation topic he decided to study these stories and try to explain their function. He found they utilized dramatic irony to teach truths about Christology and discipleship.

Several years later, he noticed that the national meetings of the Society of Biblical Literature did not have a study group focusing attention on the Gospel of Mark, although there were study groups for Matthew, Luke and John. “I’m a guy who likes to organize things,” he says, “and I saw a chance to get involved.” He gathered a group of well-known Biblical scholars who agreed to study



Tom Shepherd, professor of New Testament, researches the Gospel of Mark

the book of Mark. They eventually became the Mark Group in the Society of Biblical Literature. Shepherd has been involved with this study group for about 13 years. This process of continually finding new opportunities has taught him the vital importance of networking.

Shepherd believes that more experienced scholars should mentor younger scholars in research projects. “Out of the networking and collaboration come more opportunities for research,” he says. Andrews students have assisted him in his preliminary research and he encourages them to submit papers for review and publication in scholarly journals.

Shepherd is currently working on a popular book tentatively titled “Inside Out Upside Down: Surprising Lessons from 1st and 2nd Peter.” The inspiration for the book stems from a class on these two Epistles that he teaches at the Seminary. He hopes to have the book finished this fall and released next year.

Biosensor Technology

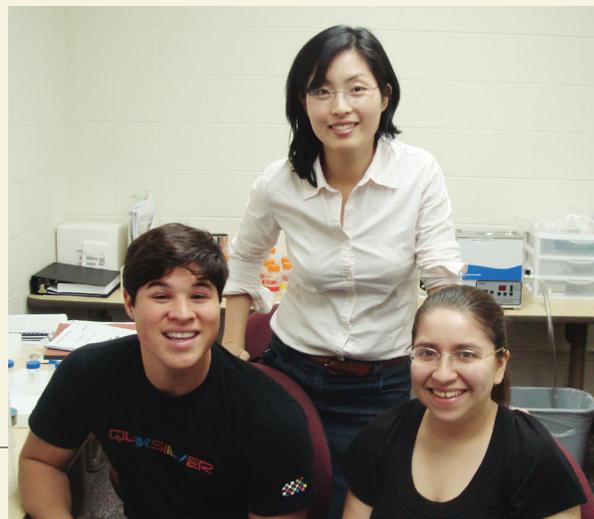
Detecting viruses and genetic disorders

“Engineers are the people who connect science and society,” says Hyun Kwon, assistant professor of engineering and technology, as she describes the philosophy of her current research. The discoveries biologists make have practical and beneficial applications in human life, but how does that knowledge become tangible and helpful? One application in this interdisciplinary approach is the field of biosensor technology. Biosensors use living organisms or organic molecules to detect the presence of any given substance. Kwon and her team of students are currently working on a biosensor that will detect viruses and genetic disorders from a small sample of human fluids.

Currently, this process often requires many complicated and time-consuming lab tests. A

biosensor of the type Kwon’s team is developing could make testing for viruses or disorders as simple as a tool touched to a small sample from the patient. The team is currently running tests on consistently smaller concentrations, in order to see accurate results in the smallest possible samples. The science behind this technology relies on the properties of the protein calmodulin, which controls many biological functions by binding to hundreds of other proteins. Calmodulin “changes its configuration depending on the presence of Ca^{2+} ,” as a recent research presentation states. In Kwon’s research, calmodulin molecules are placed

Michael Hernandez (left) and Sandra Prieto assist Hyun Kwon (center) with her research



on a quartz crystal disk and can indicate abnormalities in the bloodstream or genes.

Together with researchers at the University of Maryland-Baltimore and the University of Notre Dame, she hopes to make an already-tiny device even smaller. Utilizing Notre Dame’s nanotechnology laboratory, she envisions biosensor technology being developed at the ultra-microscopic level. In addition to shrinking the size of the device, she intends to reduce the amount of sample needed to obtain accurate results.

Kwon’s student assistants are primarily senior undergraduate students, with one notable exception: Michael Hernandez, an incoming freshman from Andrews Academy, who recently began

working on the project. He believes that the project will give him “a headstart into the next year,” when he plans to enter the mechanical engineering program. “I plan on learning a lot,” he says. Sandra Prieto, a graduate engineering student, is currently working as a lab assistant on the project. She “helps with the solutions and experiments,” but will also learn “how to read and interpret the data,” she says.

Center for Community Impact Research Formed

Partnering with Grand Rapids and Kent County, Mich.

The Institute for Prevention of Addictions (IPA) has been working to reduce and prevent alcohol and drug dependence through research and education since 1985, and has contributed to a number of socially influential projects. Because of a recent trend of projects involving community-based evaluations, Curtis VanderWaal, chair of the Department of Social Work, recently helped to establish a new branch of the IPA: the Center for Community Impact Research.

Over the past four years, VanderWaal and his team, which includes Duane McBride, director of the IPA and chair of the Department of Behavioral Sciences, have been evaluating four different projects throughout Michigan. These projects are unrelated, yet they are all “focused on reducing high-risk behaviors and removing barriers that prevent individuals from accessing substance

In addition to numerous applications in the medical fields, specifically neurobiology, the research Kwon conducts has lasting academic and professional impacts on her student assistants. Sandra Prieto has “discovered a love of research” she didn’t know she had.

Kwon has been working in the field of biosensor technology since her PhD studies in 2002. She has been at Andrews for the past five years, and in that time has developed a laboratory specially designed for her research. Experiments are conducted primarily in the summer, and papers are published throughout the year.

The team hopes to present papers on their current research in the fall, and Kwon is currently working on a manuscript. The team has presented their QCM-D sensor research (quartz crystal microbalance with dissipation) at the annual meeting of the Biomedical Engineering Society in 2008 and 2010 (planned), and the Comsol Conference in Boston, Mass., in 2009. Undergraduate students participated in writing the paper.

Because the field of biosensor technology is continually developing, Kwon’s team will have no shortage of research opportunities.

abuse, mental health or other services,” says the new proposal.

Project Get Connected is a partnership between five churches in Grand Rapids and the Department of Human Services of Kent County, Mich. The pilot program, sponsored by the Doug and Maria DeVos Foundation, aims to use churches as the primary referral points to mental health and substance abuse services in the African-American community. The churches provide a stable environment where those in need of help can find the services they need with the help of people they trust. Although the program is still in the preliminary stages of evaluation, the results are already promising. Survey results showed that the subjects’ primary concerns were housing and mental health services. Most of those surveyed were referred to services in the community, and 80% of those referred kept their appointments. Over half of these continue to receive services.

The Better Life Initiative, sponsored by Goodwill Industries of Grand Rapids, is intended to help those who have developed a long-term dependence on welfare and drugs or alcohol become autonomous, employed and productive citizens. The program works to change the entitlement mentality of dependents, connect them with service agencies, and employs a positive reinforcement system that provides increasing amounts of money for each step made towards

productive citizenship. VanderWaal and his team plan to spend three years on this project, which is currently in the data-collection stage.

VanderWaal and McBride were recently asked to conduct an evaluation of the United Way of Southwest Michigan, to “determine the extent to which they are meeting their impact goals for the community,” says VanderWaal. United Way works to improve lives in four areas: education, basic needs, health and income generation. United Way wants to develop an annual report card that will show the success of their programs to potential donors.

The team has worked with the DeVos Foundation in the past, and recently completed an assessment of the DeVos Urban Leadership Initiative, a faith-based program that trains youth leaders in urban areas to be “more effective in their ministries.” The program’s participants receive “intensive training from national leadership experts in areas such as core values, leadership skills, self-care strategies, and collaboration with community partners,” says VanderWaal. When the researchers evaluated the program, DVULI had trained 450 leaders in 22 cities nationwide. Program outcomes demonstrated remarkable success in the areas of leadership skills and concrete community development skills such as community capacity building, resource networking, and collaboration with other community organizations.

Over the four projects, VanderWaal has had eight graduate and undergraduate students helping with his research. The research assistants primarily help with literature reviews, instrument development and review—choosing which surveys and questions that are considered the most effective—data collection and analysis, scholarly poster and presentation development, and writing for professional reports and journal articles.

Duane McBride (second from right) and Curt VanderWaal (right) meet with representatives from Grand Valley State University at the Institute for Prevention of Addictions.



Piecing Together the Past

Tracing cultural development through objects and figurines

If art reflects culture, it follows that one should be able to trace the development of culture from a region's art. Rhonda Root, chair of the Departments of Art & Design and Digital media & Photography, Stefanie Elkins, assistant professor of art history, and Brian Manley, assistant professor of art, are trying to do just that—piece together the cultural development of the Transjordan region. Working in conjunction with the Madaba Plains Project and Jordan's Department of Antiquities, the researchers sketch, document and date each piece of art, from tiny figurines to whole pots, in an effort to trace the great and little influences of culture in the region. Great traditions are influences in art that can be traced to major civilizations throughout time, such as Greek, Roman and Egyptian culture, while little traditions are local, non-professional styles and influences in art and architecture. By carefully sketching each object, recording its location, use and date, and cross-referencing it with other known artifacts, the team hopes to demonstrate the history of the region through its artwork.

The team spends six to eight weeks in the summer in the Middle East, visiting various countries and making sheaves of sketches. Their research parallels the archaeological research being done at the various dig sites of the Madaba Plains project, but they will often remain traveling for several weeks after the archaeologists have returned home. At each city and site they visit, they study the area's architecture, observe and record the local culture, and sketch samples of local art and artisanal pieces, as well as sketching any ancient artwork they may uncover. During the rest of the year, the research team travels to museums all over the world to study their collections of antiquities, so their own finds can be properly dated and understood.

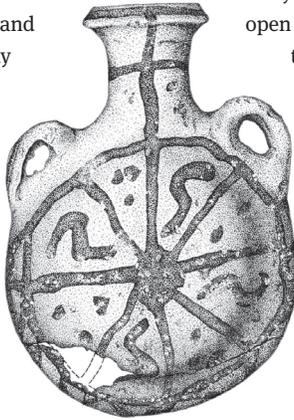
Often in their travels, various team members will have to research or sketch findings on the personal property of locals. The local cultures are often suspicious of people coming to dig, particularly people with cameras, because they believe the archaeologists are looking for gold, and cam-

eras are tools for espionage. Root has found that her artistic abilities have enabled her to sketch an entire region from memory for reference, as well as helping her to establish trust with the property owners by sketching their families.

Wherever they go, team members form close connections with the local residents, often asking for their help in digging, spending time in the homes, and bringing family members along to observe the digs. "We have found them to be very hospitable and gracious and open... they open their homes to us, and have us drink tons of tea," says Root. Along with family members and Jordanian researchers, the team is often accompanied by at least one representative from Jordan's Department of Antiquities, which Root believes further helps erase preconceived boundaries between the two cultures. Root and her team have discovered that the Jordanians not only willingly allow them into their country, but welcome them in, as well as working in partnership with them to preserve their history.

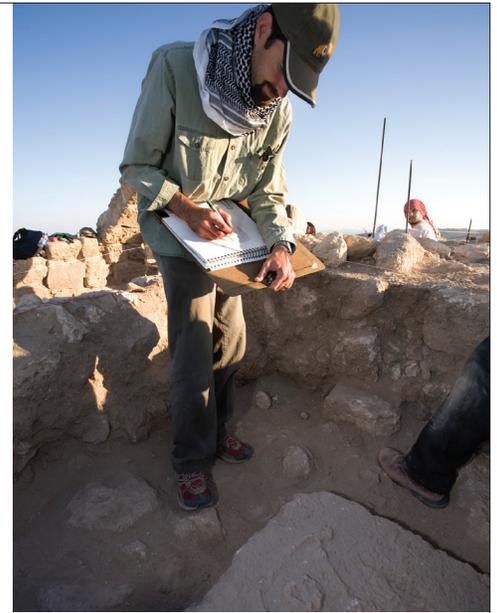
The Jordanians involved with the project have found these researchers are helping the country preserve its history without exploiting or taking objects without permission. Although many of the major artifacts are studied in the United States, all are returned to Jordan except for a few the Jordanian government graciously allows the United States to keep, some of which are displayed in the Andrews University Horn Archaeological Museum.

Over the years, the team has found some very interesting artifacts. In the summer of 2008, their first season, the archaeologists unearthed a strange Bronze Age building with high ceilings and figurines of gods that lacks any indication of a domestic building. The team is still trying to understand the use of this building, but they



Sketch by Stephanie Elkins

Painting by Rhonda Root



Brian Manley sketches an object at Tell Hesban

believe it was most likely a shrine or temple. Root has completed a conceptual painting of the building that provides archaeologists with a possible visualization of the building's use. "It's very unique in the history of archaeology to find such a complete Bronze Age building of this particular type...You never know what you're going to uncover when you start digging in the ground," she says. The team also finds the usual seals, beads, pottery, clay figurines and coins that help them pinpoint a culture's influence, as well as bones that can indicate the diet of ancient residents. "There are things that we find that come only from Egypt. There are things that we find that come only from Greece, and so those objects and bones, and even the shape of a pot gives us connections to the greater cultures," says Root.

The team expects the project will extend five years or more, based on research results and opportunities, and after the project draws to a close will come a flurry of presentations at conferences, galleries and exhibitions (they are artists, after all), and quite possibly a book for either a scholarly or general audience.

Several students have helped with the bulk of the on-campus research for this massive undertaking. During the 2007–2008 season, Jennifer Montero and Kelsey Curmutt compiled a comprehensive amount of reference material; and Keri Friestad and Chantelle Allen created a three-dimensional display that details the progress of the Madaba Plains Project, as well as drawings of archaeological objects. Lauren Popp and Tommy Greene did preliminary photographic work for a Little Traditions book that will outline the project's results, and Ashley Peterson created a website for the team's grant in the 2008–2009 season.