uncg research

spring 2009

Research, Scholarship and Creative Activity

MODEL POLICE WORK

Safe to play outside? A gutsy strategy for curbing drug crime brings community together

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THE UNIVERSITY *of* NORTH CAROLINA
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UNCG HAS A LONG HISTORY of outstanding achievements in the behavioral sciences. As early as 1960 with the creation of the PhD program in human development and family studies, quickly followed by the creation of the PhD program in psychology in 1970, UNCG's behavioral scientists have made impressive contributions to improving health across the age span. We feature the work of several in this issue of UNCG Research.

Dr. Susan Calkins is an outstanding researcher. Her areas of interest include social and emotional development in infancy and childhood, particularly as these developments influence the emergence of aggressive behavior; the interface between emotion and cognition processes; and behavioral and biological approaches to self-regulation. The focus of her research program has been to investigate these issues in longitudinal samples of infants and young children. Her impressive body of work earned her UNCG's Junior Research Excellence Award in 2000 and the Senior Research Excellence Award in 2008. She is the only UNCG faculty member to have won both awards. She has been instrumental in the formation of a very large constellation of researchers at UNCG who work in the area of child and family health, the Child and Family Research Network.

The feature on Dr. George Michel's groundbreaking work in the development of handedness in children details his contributions to the field of developmental psychobiology. Dr. Michel came to UNCG in 2004 as the head of the Psychology Department. A prolific researcher, he has co-authored books on developmental psychobiology and published numerous book chapters and research articles that deal with a diverse set of topics including development of emotional expression in infants, origin and consequences of parental care, experience-hormone interactions in animals, the neuropsychology of dyslexia and the development of manual skills and hemispheric specialization.

Since its creation in 1996, the Center for Youth, Family, and Community Partnerships has emerged as a leader in translating behavioral research into community settings and professional practice. The breadth of its activities has increased dramatically in the last six years under the leadership of Dr. Terri Shelton. Its work to build social capital and enhance the quality of life for children and families exemplifies the outstanding quality of behavioral work being done at UNCG. A number of its initiatives are focused on workforce development leading to economic strength (e.g. child care, programs to limit substance abuse). The article in this issue describes its work on a model to disrupt drug markets in High Point, which is now being developed for gang interventions.

The articles in this issue by no means represent the extent of UNCG's involvement in the behavioral sciences. They do represent, however, the level of commitment of the campus to research in this area, especially under the leadership of our chancellor, Dr. Linda P. Brady. In contrast to the biomedical approach to disease, the behavioral scientists are more closely tied to preventing or reducing it. In these troubling economic times, research in this area is profoundly important. Lives will be changed and lived better because of the work of our behavioral scientists.

Rosemary C. Wander, PhD
Associate Provost for Research and Public/Private Sector Partnerships

For more information about research at UNCG and the Office of Research and Public/Private Sector Parnerships, *go to* www.uncg.edu/research.

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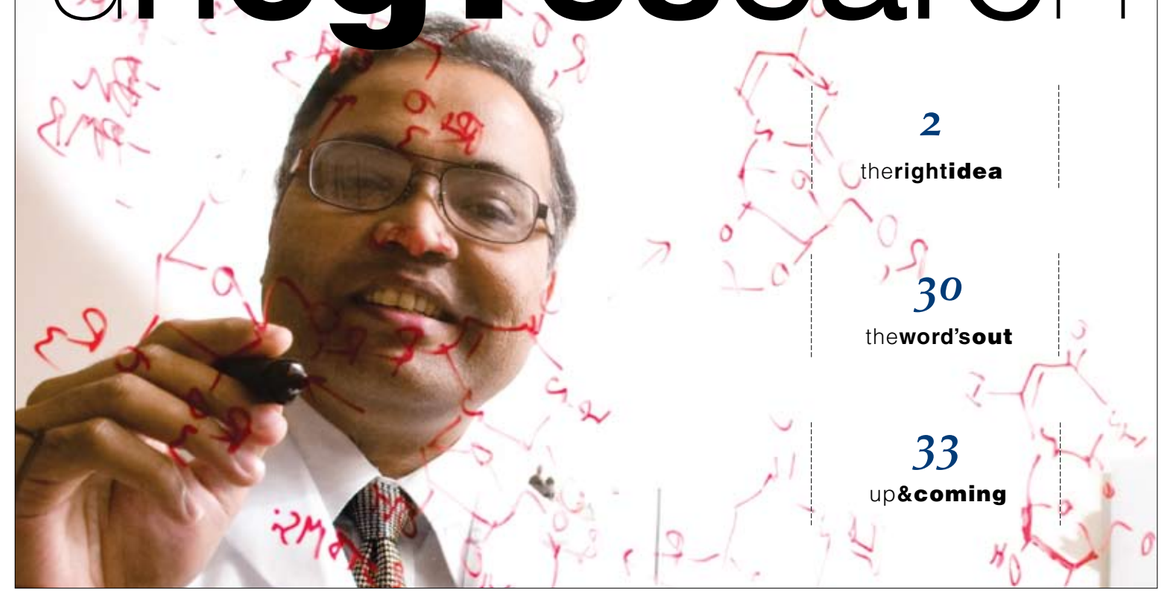

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Big Boxes = Smaller Waistlines?

> "We basically tore apart the data, threw everything at the data we could think of and couldn't get a positive result. None of these stores make us gain weight."
> Dr. Charles Courtemanche

SOMETIMES WALMART, THE WORLD'S LARGEST RETAILER, becomes the neighborhood whipping boy when it enters a market, blamed for all kinds of ills.

But based on research by Dr. Charles Courtemanche, assistant professor of economics, an expanded waistline shouldn't be one of them.

"There's been a lot of emphasis placed on the availability of processed foods. Of course Walmart, Super Walmart, Sam's Clubs and other wholesalers sell pretty cheap, processed foods," says Courtemanche. "One would expect that if these stores enter the marketplace, folks would increase their consumption of unhealthy processed foods."

But put to the test, Courtemanche and his co-researchers found that theory was dead wrong.

"What we found, for all three of them, their entry was either associated with a small reduction in weight and obesity or had no effect," Courtemanche says. Instead, the entrance of the big box and wholesale retailers often leads consumers to make healthier food choices.

"That was somewhat surprising," he says.

Here's why: When big box retailers like Walmart enter a market, the increased competition causes the store and its competitors to drop prices to woo customers. That leaves more money in people's pockets, and the ability to afford the fruit, vegetables and lean meats that are usually more expensive than the junk food found in the middle aisles of the grocery store.

A scholar of health economics, Courtemanche tries to link his findings back to public policy. He can identify several reasons why this research resonates. For instance, a local government may try to encourage or discourage Walmart from entering their community with various tax formulations. If obesity is a concern of a local legislative body, the research helps inform them how to proceed.

This isn't the first time Courtemanche's research has revolved around the world's largest retailer. But why the focus on Walmart?

"When economists study the impact of Walmart, they tend to focus on the things you expect economists to focus on: labor market, wages, prices. We thought that Walmart could have an effect more broadly, more of a social impact or other areas beyond the areas economists focus on," he says.

"In our research in this paper and combined with other papers, the broad conclusion that seems to pop out is the hype about Walmart outpaces the reality. Walmart has become this symbol of everything evil about capitalism. It's been argued that Walmart destroys communities and has all kinds of detrimental effects. From our research, it seems the data doesn't support the hype."

Taking pills, taking risks

Do your homework before you pop a pill for sports performance, says Mike Perko.

CONSUMERS FREQUENTLY ASSUME sports performance dietary supplements, with millions of users and billions of dollars in sales, are safe. Not so fast, according to the associate professor of public health education.

Sports performance supplements remain largely unregulated and in many cases aren't rigorously tested for safety, purity and effectiveness. Last year, when the FDA started tracking "adverse events" linked to supplements, it received more than 600 reports, including at least five deaths, in the first six months alone.

Perko — the author of the books "Taking One for the Team: The New Thinking on Dietary Supplements and Young Athletes" and "Can You Win Without Supplements?" — has testified at Senate hearings, served as the NCAA Expert Speaker in this area and been quoted in publications including Sports Illustrated and The New York Times.

In October, he shared his expertise about performance enhancing supplements at the U.S. Army base in Vicenza, Italy, at the invitation of the base's health promotion coordinator.

Soldiers are considered professional athletes, Perko says. And just as performance enhancing substances are used in every professional sport, they are heavily used by soldiers and their use has been documented in every war. He urged soldiers to use extreme caution if considering taking these products so that they may better understand the risks.

As for his own studies, Perko is more interested in the why than the what. The specific products being used by athletes change, but the thought process stays the same. By shedding light on how athletes make that decision, he's helped make prevention programs more effective.

"What in a young athlete's world is saying 'do this' or 'don't do this?' We make decisions based on a feeling in our gut and we balance that with what others would think if we did this."

Cultural education

Understanding what's unsaid

IMAGINE A CHILD being referred for special education — not because he has a disability, but because he is quiet. Dr. Belinda Hardin, assistant professor of specialized education services, says this is an all-too-frequent occurrence she is working to alleviate.

Hardin's interest in Latino children began years ago while she was working on her dissertation in Mexico and North Carolina. She conducted subsequent studies that confirmed the growing challenges faced by school systems that serve children and families from immigrant communities. "It was obvious that 4- and 5-year-old Latino children were being referred to special education classes and speech pathologists because teachers did not know what to do with non-English speaking students," she says.

The large influx of immigrants into the state since the early 1990s was not one which most educators were prepared to handle.

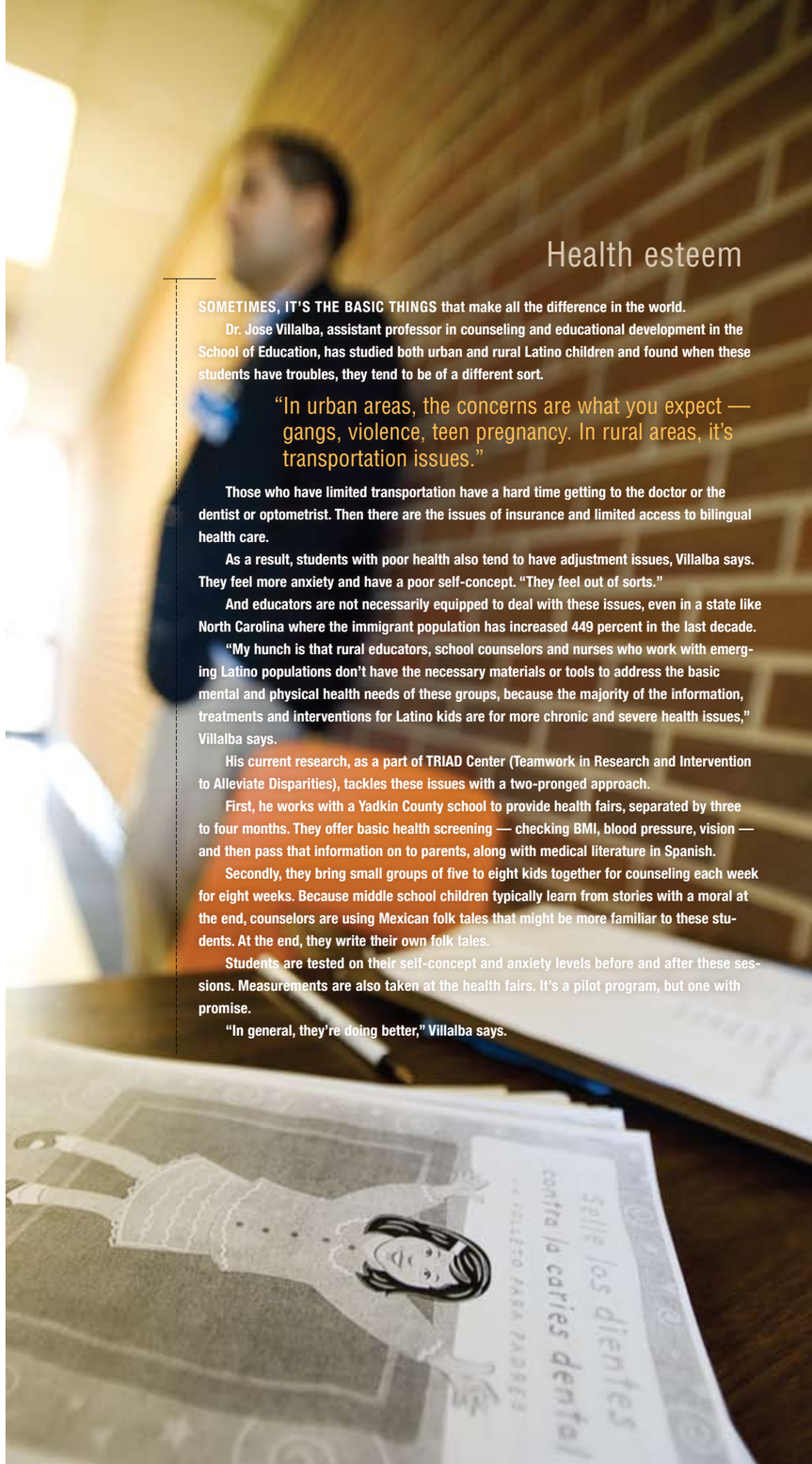
"Often teachers don't understand the stages of second language acquisition," Hardin says. "In a new environment, immigrant children initially observe more than they speak, which can be mistaken for a disability."

Teachers are now being trained to use new strategies that boost students' self-esteem by continuing to recognize their home language and culture.

Other issues remain barriers to communication. For one, North Carolina does not have enough translators/interpreters in school systems to deal with the large immigrant population. Additionally, Hardin says immigrant parents are often left out of the education loop and they must be given a voice in the decision-making processes if the gap is to be closed. This issue is further complicated since many immigrant parents are not English speakers.

To address this need, Hardin has submitted a proposal to the Institute of Education Sciences along with Dr. Catherine Scott-Little in human development and family studies to develop a bilingual parent report screening tool.

"Improvements are happening in the education system but the bottom line is that our schools need to be ready, which means schools, parents, teachers and students."



Health esteem

SOMETIMES, IT'S THE BASIC THINGS that make all the difference in the world.

Dr. Jose Villalba, assistant professor in counseling and educational development in the School of Education, has studied both urban and rural Latino children and found when these students have troubles, they tend to be of a different sort.

> "In urban areas, the concerns are what you expect — gangs, violence, teen pregnancy. In rural areas, it's transportation issues."

Those who have limited transportation have a hard time getting to the doctor or the dentist or optometrist. Then there are the issues of insurance and limited access to bilingual health care.

As a result, students with poor health also tend to have adjustment issues, Villalba says. They feel more anxiety and have a poor self-concept. "They feel out of sorts."

And educators are not necessarily equipped to deal with these issues, even in a state like North Carolina where the immigrant population has increased 449 percent in the last decade.

"My hunch is that rural educators, school counselors and nurses who work with emerging Latino populations don't have the necessary materials or tools to address the basic mental and physical health needs of these groups, because the majority of the information, treatments and interventions for Latino kids are for more chronic and severe health issues," Villalba says.

His current research, as a part of TRIAD Center (Teamwork in Research and Intervention to Alleviate Disparities), tackles these issues with a two-pronged approach.

First, he works with a Yadkin County school to provide health fairs, separated by three to four months. They offer basic health screening — checking BMI, blood pressure, vision — and then pass that information on to parents, along with medical literature in Spanish.

Secondly, they bring small groups of five to eight kids together for counseling each week for eight weeks. Because middle school children typically learn from stories with a moral at the end, counselors are using Mexican folk tales that might be more familiar to these students. At the end, they write their own folk tales.

Students are tested on their self-concept and anxiety levels before and after these sessions. Measurements are also taken at the health fairs. It's a pilot program, but one with promise.

"In general, they're doing better," Villalba says.

Marking memories

> "The name Cone is everywhere in town, but the names of the anonymous people who made that system work, their lives have been kind of forgotten." Dr. Benjamin Filene

The path of the newspaper delivery route. Knowing which vending machine had the coldest sodas. The thud of a Christmas ham thrown on the front porch. The site of a first kiss.

Everyday memories like these usually aren't preserved in history books. But they are an important part of the historical record, a catalogue of people and places usually carried in the heart rather than the hand.

Now, thanks to the efforts of Dr. Benjamin Filene and UNCG history graduate students, these memories and more from people who grew up in Greensboro's Cone Mill villages will be recorded for future generations.

This spring, the group canvassed parts of northeast Greensboro with a 6-by-7 foot map of the region, inviting current and former residents to share their memories of the mill village area by marking the location of events directly onto the paper.

The "Memory Map" is the first stage of a project to record and remember mill village life. Latter stages of the project will include one-on-one interviews with mill village residents, which will be archived at the Greensboro Historical Museum and in the University Archives, and the creation of neighborhood tours.

"This is an opportunity for the students to see how they could broaden the historical record by talking to people, and an opportunity to deepen our understanding of the place where we are by uncovering or engaging with the life stories of the people who lived here," says Filene, the director of UNCG's public history program.

"Historians have written about the factories and they've written about the mill life, but they haven't really written about them in the more recent decades since the 1930s," he adds. "I meet people who are former mill village residents who feel a sense both of loss and grievance that their lives — and the lives of their parents who were mill workers — that their experiences and their contributions to the economy and the city have been kind of overlooked."

The Cone Mill Villages — Revolution, White Oak, East White Oak, Proximity and Proximity Print Works — were built by the Cone Corp. in the early 1900s to house thousands of mill employees. The company began selling off the worker housing in the late 1950s.

Students are working to fill in the gaps, talking to people like 79-year-old Barbara James, who has lived in the mill village area all her life. She remembers the good schools, good health care, nearby company stores and plenty of outdoor activities available to residents.

"If you didn't learn to swim, you didn't take advantage of it," she says.

Charting change for nurses

WHEN YOU ARE ADMITTED TO THE HOSPITAL, you expect those who take care of you to be healthy. That isn't always the case.

Dr. Susan Letvak, professor of nursing, wants to know how working with health problems impacts hospital nurses, their patients and the health care system at large.

And Letvak wants to use what she learns to improve working conditions for registered nurses, the majority of whom work exhausting 12-hour shifts, care for too many patients and are expected to compete physically with their younger counterparts.

Letvak's preliminary research has won her a highly competitive $264,106 grant from the Robert Wood Johnson Foundation – grants awarded to only eight research teams across the country this year. She is backed by an interdisciplinary team that includes Dr. Christopher Ruhm, a health economist in the Bryan School of Business and Economics, and Dr. Sat Gupta, director of the statistics division.

While doctors' health and work environments have garnered a great deal of attention, Letvak says, nurses have been overlooked. "No one has really looked at this before. We're one of the first teams to look at the link between nurses' health and the care they provide."

UNCG awarded Letvak a $5,000 research grant to complete preliminary research. She used the money to conduct personal interviews with 14 RNs working with their own health problems in North Carolina hospitals. What she found was a proliferation of chronic musculoskeletal problems (caused by lifting patients) alongside depression. Several of the nurses did not disclose their health problems to their managers and even insisted on meeting outside of the towns where they work because they feared their health problems might cost them their jobs.

"We need research to speak for them, to initiate policies and changes. Nurses at the bedside don't have the power to change practice," Letvak says.

Valuing older nurses for their experience rather than their brawn would benefit nurses, patients and hospitals, she adds. "We're losing our experience, and nothing's being done to assist an older nurse. A healthy work environment for an older nurse is a healthy work environment for a younger nurse."

Now, armed with the Johnson grant, Letvak will survey 2,500 RNs working in hospitals across the state. She will also conduct focus groups for nurses working with health problems, their healthy co-workers and nurse managers to get an accurate picture of "the whole dynamic."

Gupta and Ruhm will analyze Letvak's data, and Ruhm will look at the financial impact on hospitals and the health care system when nurses work with health problems.

"That should get the attention of hospitals."

Tourism for the future

FOR SOME FLOUNDERING COMMUNITIES, tourism can seem like the answer to a host of economic problems.

Tourism can bring badly needed jobs and revenue to towns in rural areas, places where farms and factories have closed at an alarming rate, but it has a price. Visitors bring trash and traffic, and can change the character of a community.

Dr. David Cardenas and Dr. Erick Byrd, faculty members in the Department of Recreation, Tourism and Hospitality Management, share a dedication to helping communities considering sustainable tourism as a means of economic development. Sustainable tourism balances economic, social and environmental resources for the present and the future.

Cardenas has seen the toll tourism can take in his native Ecuador, where tourism has, in some cases, been accompanied by pollution, prostitution and drugs. That's why after visiting 300-person Ayampe on the country's coast and meeting with its leaders, he created a course to help the town develop a sustainable tourism plan.

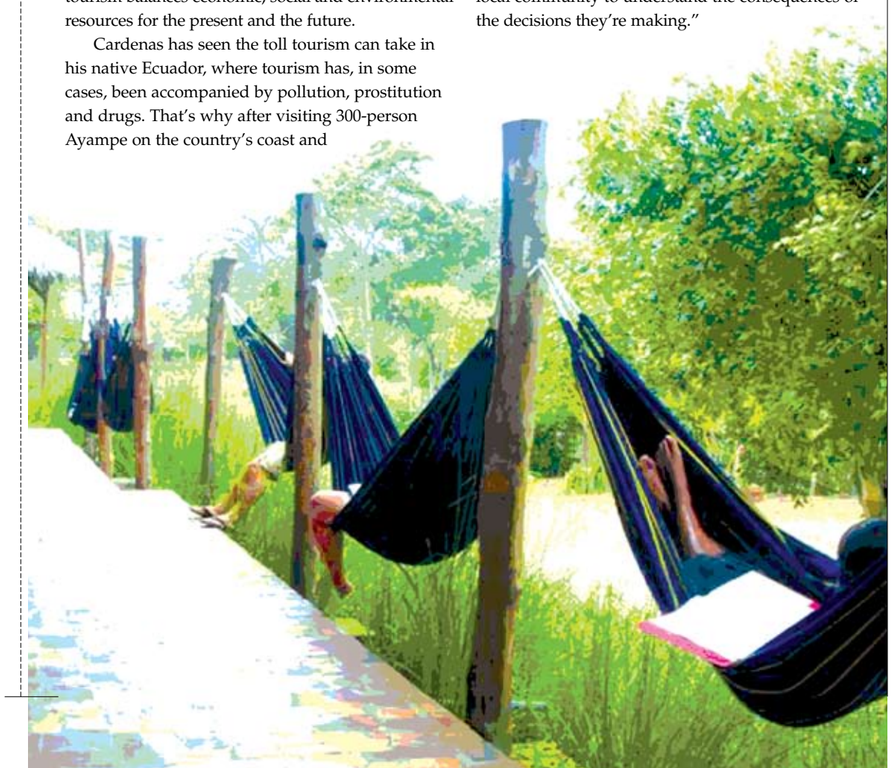
The annual summer program, now in its third year, provides an opportunity for students to put into practice the lessons learned in the classroom. Students have collected data about the use of locally grown ingredients in area restaurants and interviewed local leaders about what they want from tourism. They've performed service projects, and plan to work on a town park this summer.

"We're hoping this will eventually be a model for small, rural communities around the world," Cardenas says. "Whether in Mebane, North Carolina, or Ayampe, Ecuador, the principles remain the same."

Byrd has developed a survey to measure how well local decision makers understand sustainable tourism development. He's tested the survey in five counties — Alamance, Tyrell, Guilford, Wayne and Stokes — and plans to publish the results soon.

Byrd says leaders in many towns feel like they are trying to put together a complicated puzzle without being able to look at the picture on the box. The two faculty members try to help local leaders envision what they want their future to look like.

"We don't want to go in and tell people what to do or what not to do," Byrd says. "We want the local community to understand the consequences of the decisions they're making."



The medicinal best of East and West

GROWING UP IN CHINA, Dr. Wei Jia was aware of traditional Chinese medicine (TCM) but was raised according to Western medical practices. As a doctoral student at the University of Missouri-Columbia, he followed the conventional Western model. Now, through his research, he's bringing East and West together.

Jia, co-director of UNCG's Center for Research Excellence in Bioactive Food Components, specializes in developing TCM products that can affect metabolic diseases such as diabetes and obesity. For example, he's spent years working on a product drawn from a plant called Arctium lappa L, used for centuries to treat people with symptoms of diabetes. Jia's research indicates the extract brings down blood glucose levels while enhancing renal, or kidney, function.

For Jia, the appeal of his work lies in its holistic nature. "Human beings are so complicated; our tissues and organs are interconnected. The Western approach is to use a single chemical compound toward one disease. It's like using one bullet to hit a target. If you overkill, you generate a toxicological effect."

TCM-derived products, on the other hand, have multiple components that work systemically. "With this approach, you don't hold a gun to shoot. You gently hit several targets with a relatively low dose. You hit them again and again."

Jia, who taught at Shanghai Jiao Tong University before joining UNCG in 2008, has been doing TCM-related research since 2000. He's received funding of $1 million annually, much of it from the Chinese government. In time, and with FDA approval, his TCM-derived compounds will be tested on humans in clinical trials.

And therein lies the irony, for these products have been tested — albeit informally — on many generations of Chinese families. "With that kind of history," says Jia, "the success rate of our clinical trials should be high."

Star struck

*Research Excellence Award winner **Dr. Anatoly Miroshnichenko** has always been interested in the stars — specifically, stars that are hotter than the sun. For more than a decade, he's researched a group of approximately 40 to 50 early-type stars, each surrounded by a mass of atomic material, or interstellar envelope. Some primary questions of his research are: How old are these stars? Where are they in their evolution? Why are they producing so much material? Miroshnichenko became an assistant professor in the Department of Physics and Astronomy in 2005.*

THE BIRTH OF AN ASTROPHYSICIST: One day when I was 12 or 13, I looked at the sky — and I got my profession. Just like that. It was a moment. I don't know what switched in me. Right after that moment I brought some paper outside and started to copy constellations.

OPENING THE INTERSTELLAR ENVELOPE: When you look at stars, you see points of light in the sky, like distant light bulbs. But if you take a picture of the sky with a large exposure time, you can see clouds of material around stars. These clouds have a signature in the spectrum, and there is a huge difference between the spectrum of a star that is not surrounded by a significant amount of gas and one that is. I found a group of stars with anomalously strong emission lines in the spectrum, and physics could not explain that much material.

THE MYSTERY OF STARS AND MASS LOSS: Stars are formed in large clouds of gas. In their early stage of evolution, stars are surrounded by gas naturally. As stars leave, they burn chemical elements and convert them into other elements. As this conversion goes on, a lot of energy is released. From the center of the star, where energy creation is happening, to the surface, this energy is getting shared — from particles of radiation to atoms. Some atoms can give off enough energy to escape from the star. This can create some additional material — so there are evolutionary stages of stars associated with strong mass loss. We started to learn about this process about 150 years ago. When you see such a situation, one of the rules of research is to figure out what is the cause: It could be a young star forming, still surrounded by a parental cloud. It could be an evolved star undergoing a lot of energy production. We're trying to catch all possible situations when this large mass occurs and to explain it in terms of the physical parameters of stars and their evolution.

DOUBLE TROUBLE: I concluded that a star emitting a lot of material may actually be a system of two stars close together. These stars abide by the force of gravity and cannot split; if one star comes too close to the other, gravitational force can pull some material out of the surface, and this will accumulate around it.

COMPETING FOR TELESCOPE TIME: Recently I discovered a new group of double stars. In order to understand their nature, you need to take spectra with very large, high-precision telescopes. There are not many large telescopes in the world, and in order to get access to them, you need to compete. Last year I won 10 hours of observing time at the Spitzer Space Telescope. For each hour of observing, the Jet Propulsion Lab gave me $5,000 to analyze the data.

PRIDE POINTS: One source of satisfaction is that these stars were discovered 70 or 80 years ago. People tried to do some observations, but when they saw the complexity of the phenomenon, they either gave up or reported results that did not penetrate into the nature of these objects. Also, I recently started a series of papers which have been published in the leading astronomical journal of the world, called the Astrophysical Journal.

SPECTROSCOPY IS NOT JUST FOR PROFESSIONALS: Nowadays amateurs are getting more involved in what 20 or 30 years ago was considered to be a purely professional interest. These amateurs attach spectral devices to small telescopes in their backyards and do spectroscopy. Since 2004 I've been involved with amateur groups in Germany and France, and we have published joint papers. It's interesting that they are already successful in their careers — they range from people in banking to a ministry worker in Germany.

Child restraint

*Senior Research Excellence Award winner **Dr. Susan Calkins** has long been fascinated with self-regulation in children — in other words, how they regulate their physiology, emotions, behavior and thinking. She's involved in numerous research projects, but her longest running is the Right Track Research Project, a longitudinal study of self-regulation in children from age 2 through adolescence. Calkins joined the UNCG faculty in 1994. She received a Research Scientist Career Development Award from the National Institute of Mental Health, allowing her to focus solely on research from 2005 to 2010.*

THE PRINCIPLE OF SELF-REGULATION: Human beings operate a bit like thermostats, in that we're constantly trying to keep ourselves well regulated. For instance, we regulate our attention (e.g., staying focused during a boring lecture) and our emotions (keeping anger in check while stuck in traffic). As adults, we've mastered it pretty well. The question is: How do kids learn to do this, particularly when it comes to regulating anger and frustration?

ON THE RIGHT TRACK: We have about 350 children in the Right Track study. We've been following them since 1997, when they were 2. Some we targeted for having difficulty regulating anger and frustration; others had no such difficulty. We've looked at how they transitioned to school, how they're doing academically, how they're dealing with peers. Now they're adolescents. We're very interested in looking at risk for substance use and early sexual activity.

SURPRISING AND UNSURPRISING RESULTS: We found that kids who have difficulty regulating their emotions have more academic challenges. We've seen that not all kids who had difficulty as toddlers go on to have continued problems. In fact, about 50 percent of them show improvement. Not surprisingly, parenting behavior has a lot to do with these improvements.

IN THE FIELD: Our research team, which includes UNCG professors Dr. Susan Keane and Dr. Marion O'Brien and an amazing group of students, sees these children every year. We do all kinds of laboratory tasks that challenge them, and we test academic achievement and IQ. We also go into their homes and their schools to get information from families, teachers and peers.

CREATING A BETTER LEARNING EXPERIENCE: Strategies can be taught to help kids help themselves. I'd like to think that some of what we found shows that very small children do use strategies. We see a lot of kids early in school who can't manage their emotional frustration with the demands of school, and that disrupts their learning. If we can tackle that part of it early, presumably these kids will do better in a learning environment.

OTHER LINES OF RESEARCH: A lot of the things I've done since starting the Right Track study have followed from this idea. Marion O'Brien and I started a kindergarten readiness project, the S.T.A.R. Project, which looks at what it takes for children to have a positive transition into kindergarten, with the focus on self-regulation. Two years ago we started an infant study where we use EEG to learn about the infant origins of self-regulated behavior. We're looking at basic things like memory, attention and emotion to see how these change over time, what brain patterns map onto those changes, and what might facilitate growth.

VIOLIN PLAYING AND SMARTS: We have 50 kids from Greensboro who are taking Suzuki lessons, and 50 kids in a control group. We did a pretest of their cognitive abilities and collected brain electrical activity before they started lessons. Next summer, after they have a year of lessons, we'll do follow-up tests. The idea is that you'd see improvement in cognitive skill and differences in brain electrical activity.

GREATEST LESSON LEARNED: This sounds so obvious now, but when I started, I thought of children and their behavior as being reasonably predictable. I'm amazed at the degree of change there can be in any given child over a period of time. Sometimes we as parents get caught up in labeling, or teachers label kids — but that really sells them short. There's an amazing capacity for change in children, and I like to see that in a positive way.

MODEL POLICE WORK

BY MARY BEST '84, '89 MA

PHOTOGRAPHY BY DAVID WILSON, STAFF PHOTOGRAPHER

Buttressed by UNCG's Center for Youth, Family, and Community Partnerships, a gutsy law enforcement strategy in High Point has curbed drug-related violence and engaged the regenerative power of community. Where drug deals ruled, kids now play.

A SMALL, WHITE ROCK.

There's nothing pure or decorative about solid, distilled cocaine. For about 20 bucks a pop, crack cocaine seduces with an almost-instant orgasmic high. While it steals your humanity and chews away at your body, it punishes with a frenetic craving.

Equally addictive is the economy crack creates. A trade that's murderous at times, but its profit potential often outweighs retribution. There is no shortage of users or sellers.

Fueled by the brutal calculus of neighborhood drug markets, the police in High Point pioneered a bold initiative to shut down the sale of crack and other drugs on its streets and in crack houses. Based on data analysis, vigorous prosecution, restorative justice and community engagement, the overt drug market strategy (ODMS) has reduced violent crime in the city by 37 percent since it was introduced in 2004.

Here's how it works: The most violent repeat offenders are given priority in the court. Less dangerous criminals receive a clear, concise message — go to jail or change your lifestyle. If they decide to change, the community will extend a helping hand.

It's a simple plan, really, executed by a tightly woven cast — dogged members of the High Point Police Department (HPPD) and the U.S. Attorney's Office; a street-smart criminologist; dedicated ministers, activists and residents; and UNCG's Center for Youth, Family, and Community Partnerships (CYFCP), the academic and research arm of the initiative. Established in 1996, the center brings an outside, objective voice by conducting interviews with community members and practitioners to provide a qualitative perspective, analyzing data for a quantitative view, helping other cities replicate the model and lending an objective eye to community-based policing.

While the center's role has not been in the limelight, it has been substantial, demonstrating the energy and connectivity that genuine partnerships generate. Together, the logic, leadership, commitment and actions of this alliance have transformed the city and rebuilt relationships between law enforcement and troubled neighborhoods. Today, through a series of grants, the center is helping law enforcement agencies across the country replicate the "High Point Model."

"This project is reflective of all the work we do at the center. Our role in [High Point has] varied. Part of it, as we try to do in all our initiatives, was to help community folks get to where they want to go. … Too often university partners are perceived as coming in, raping and pillaging the data, and then you never see them again. And that's not our role and it never will be." — *Dr. Terri Shelton, director, CYFCP*

'I CAN'T HEAL YOU'

In 2003, High Point experienced a spike in violent crime. According to FBI records, the city of some 95,000 residents logged 857 violent crimes, 68 more than in 2002. The increase in assaults, murders, prostitution and disorder were primarily related to the open sale of crack.

"Everywhere we had a report for street robberies and aggravated assaults, it was around a drug market," says Marty Sumner, assistant chief of police.

Since the mid 1980s, the city known as "the Furniture Capital of the World" had struggled with the distribution and use of crack and the violent crime associated with it. According to Sumner, crack breeds violence because it's sold one dose at a time, buyers and sellers often don't know one another and there is direct competition between dealers who are jockeying for space.

Especially in the West End, Daniel Brooks, Southside and Greater East Central neighborhoods, High Point residents had been contending with the toxic combination of poverty, illegal drugs, gangs, guns and cash for years.

"When I came on the scene in 1992, there was a horrendous open-air drug market there," says Jim Summey, a former

minister in West End and the executive director of the High Point Community Against Violence (HPCAV), a grassroots initiative of pastors, citizens, service providers and non-profit organizations including the CYFCP that works to reduce violent crime.

"All the connected vices were there — unrelenting prostitution, a lot of violence, assault, gunfire," Summey adds. "The neighborhood was in terrible shape. Residents were afraid to be outside. There was a lot of concern but no method to take care of it. It was like, 'I'm sorry you are sick, but I can't heal you.'"

The police shared the community's frustration. Police crackdowns and drug stings led to the arrests of large numbers of alleged drug dealers, but such methods overcrowded the jails, clogged the court system and overwhelmed the district attorney's office. Within a few days, the same offenders were on the same street corners selling crack.

There were other unintended consequences as well. Such highly visible tactics scared residents and alienated the community. Residents interpreted these techniques as racially motivated, and tensions simmered.

"I was involved initially [in HPCAV] and then switched it off to Jim Frabutt, who is now at Notre Dame. Jim was very instrumental in the work and was the one who had initial contact with [criminologist] David Kennedy." *— Terri Shelton*

'GIVE ME 30 MINUTES'

Following the appointment of Police Chief Jim Fealy in 2002, the HPPD was ready to try something — anything — to eradicate the overt drug markets that plagued the city. "We were looking for something specific," says Sumner.

In October 2003, Sumner, Fealy and HPPD vice and narcotics majors drove to Winston-Salem to meet with David Kennedy, then a researcher for Harvard's Kennedy School of Government and a criminologist.

"The first thing Kennedy said was 'Give me 30 minutes before you think I'm crazy,'" Sumner recalls. "We all chuckled and sat there and listened."

"Look at this as a drug market problem and not a drug problem," Kennedy began.

Sumner explains. "What the community cannot tolerate is the way [crack] is marketed. There are drugs sold in every neighborhood in this city. But in these particular neighborhoods, they do it out in the open, they do it with guns, they shoot back and forth at one another. David explained that if we 'sour the market,' we will reduce criminal activity."

Kennedy argued that contrary to popular assumptions, crack dealers behaved rationally — the rewards of selling drugs outweighed the risk of being arrested and receiving swift and harsh punishment. To change that behavior, focus on prosecuting the really bad guys — those who are habitual and violent. For the others, catch them in the act and then give them a chance to change.

To be successful, this type of community-based policing required buy-in from law enforcement, courts and the community as well as a commitment from the city's leaders to ensure the strategy's initial success and sustainability. Kennedy believed his

Using Geographic Information Systems, the Center for Youth, Family and Community Partnerships performed a crime analysis of the area. In this map, the circle shows the location of drug houses surrounding the area of highest density in West End.

theory would reduce drug-related activity, earn back the trust of troubled neighborhoods and re-establish common ground with the community.

"After about an hour," Sumner says, "the police chief and I looked at each other and said, 'That's not crazy. That makes perfect sense.'" By the time they had driven from Winston-Salem to High Point — about 20 or 30 minutes —they had decided to try Kennedy's plan. What did they have to lose?

"We know that community folks — a minister, community activist, the police department or a treatment provider — are busy doing their day-to-day thing. They often don't have the luxury of looking at evidence-based models and asking how they can be more effective. They don't have the time to read the literature, and, most of the time, the literature isn't written in such a way that helps translate the research into practice. … [This initiative] has mutual reciprocity. We have engagement by all the partners, and leadership that is service leadership — leading by serving rather than leading by telling everyone else what to do." *— Terri Shelton*

THERE'S A NEW PARADIGM IN TOWN

In essence, the philosophy "pulls every lever" a community has to affect behavior.

Heavy hitters from law enforcement and criminal justice — police, FBI, ATF, DEA, parole and probation officers, district attorneys and federal prosecutors — target potential offenders, such as convicts re-entering society or criminals whose names show up frequently in incident and crime reports.

"Our center works upfront with law enforcement to analyze

West End was once paralyzed by an open-air drug market. Now residents like Jearld Canady, above, and Faith, below right, enjoy time outside, whether preparing the ground for a garden or sitting on their front steps reading a book. **BELOW** Jim Summey, former minister in West End and the executive director of the High Point Community Against Violence, stops to talk with a resident during a drive down a West End street. Wherever he goes, people feel free to approach him to report concerns or ask for advice.

their crime data, usually looking at 10-year trends to determine what kind of offenses they need to focus on," says Kristen Di Luca, research associate and evaluation manager for UNCG's CYFCP.

Churches, social agencies, families and other concerned citizens could help hold offenders accountable and locate jobs, food, clothing, services and support.

"We don't turn anyone away," says Quentin Bogar, pastor of High Point's Word of Reconciliation Ministries and former head of the High Point Community Against Violence. "It may be a dry-cleaned shirt, a tattoo removed, help with a resume or a conversation between a man and his father.

"It's a series of carrots and sticks," Bogar says with a warm chuckle, "but that carrot can become a stick."

To corral all these elements, High Point appointed a full-time resource coordinator to work with local service agencies and help offenders garner resources.

"From the center's perspective, the success of this strategy is changing the way law enforcement and the community do business, changing the way they think about working together to approach a problem, and changing some of the misperceptions that you commonly find in high-crime-rate areas. To us, success is when you have honest conversations about those concerns between law enforcement agencies and communities. … It's also the development of real partnerships built on trust, accountability and seeing normative change." — *Kristen Di Luca, evaluation manager, CYFCP*

SHOWTIME! WEST END'S CALL-IN

In late 2003, the HPPD selected West End, considered High Point's most crime-ridden neighborhood, for its first drug-market initiative. West End was chosen for four reasons: GIS mapping had indicated that the five-block area generated 30 to 54 crimes per acre per year, the city's most recent drug-related homicide had been committed there, three churches had formed West End Ministries, and a neighborhood needs assessment survey reported that 51 percent of residents thought "crime was a big problem."

Fealy and Sumner laid out their plan to the police department and then to members of the West End neighborhood, explaining they wanted to try a new approach that was transparent and community-based. Fealy assured the ministers there would be no unintentional harm to the neighborhood and asked them to help give it a try. "The chief assured everyone that the initiative would be data driven and focused. There would be no more carpet bombs; now only smart bombs," says Sumner.

The community's only question: "How can we help?"

Patrol, probation and vice/narcotics officers worked with the community to identify offenders. According to the project description, "Some 200 residents in West End were being impacted by as few as 20 dealers. The officers' perception had been there were many more dealers involved; suddenly it seemed manageable." Narcotics officers then used informants to make undercover drug buys, which were recorded and videotaped.

Seventeen offenders comprised the final list, three of whom were arrested the night before the first call-in session. The remaining group received an "invitation" from Fealy to meet at the police station. They were assured they would not be arrested that night. The

[STEP BY STEP]

UNCG'S CENTER FOR YOUTH, FAMILY, AND COMMUNITY PARTNERSHIPS SYNTHESIZED HIGH POINT'S DRUG MARKET INITIATIVE INTO THE FOLLOWING 10 STEPS:

1] MAPPING: The focus area is identified by mapping crime data. A density map [using Geographic Information Systems (GIS)] is created by overlaying all crimes related to open-air drug markets. The "hot spots" are then analyzed and the target neighborhood is selected.

2] MOBILIZE COMMITMENT OF COMMUNITY: A series of public meetings are scheduled in the target area to identify and inform the stakeholders. City Council members, the mayor and the city manager are also briefed.

3] SURVEY: A survey of police officers, probation officers, vice officers and community members identify persons actively involved with street dealing in the focus area.

4] IDENTIFICATION: A list of offenders is created from the surveys. Exact locations involved with dealing are compiled.

5] INCIDENT REVIEW: Vice/narcotics detectives conduct a complete incident review of all offenders. The list of offenders is refined to include only the street dealers. A final list is approved.

6] UNDERCOVER INVESTIGATION: Each location and offender is investigated. Drug houses are photographed. Undercover purchases are made from individuals. Each "buy" is video- and audiotaped. The investigation requires only a judge's signature to make the arrest.

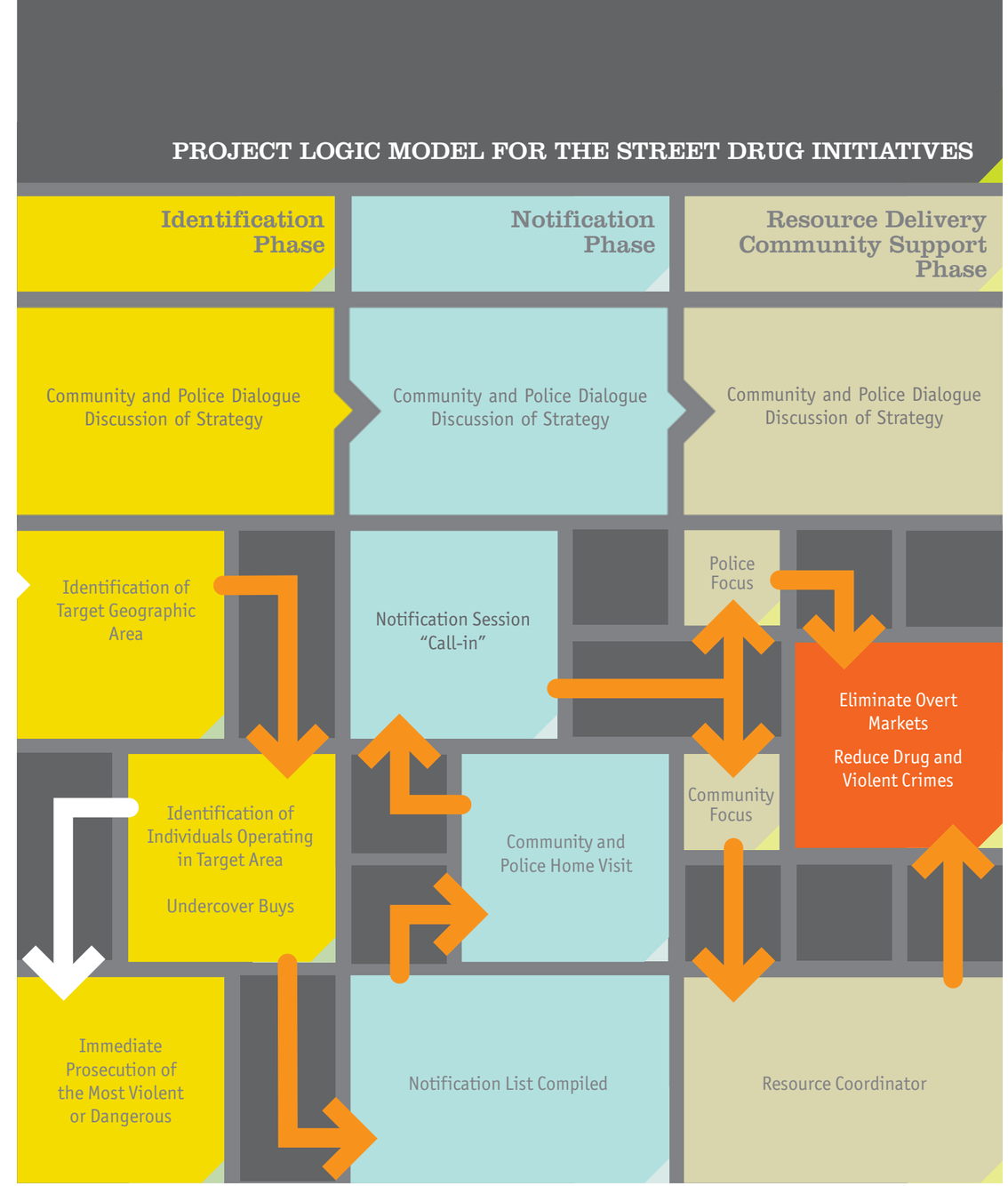
7] CONTACT WITH THE OFFENDER'S FAMILY: Small groups of officers, community members and members of faith-based organizations visit immediate family members of the offenders. The team explains the goal of the initiative and invites the family to join in asking the offender to quit. Family members are encouraged to attend the call-in with the offenders. A letter from the chief of police inviting the offenders to the call-in and promising they will not be arrested that night is delivered.

8] THE CALL-IN: This is a face-to-face call-in, or offender notification session, attended by the targeted offenders, any significant others, law enforcement partners and community. Face-to-face takes away their anonymity. First, the community group offers help. Second, law enforcement delivers a two-pronged message that street drug dealing and violence will no longer be tolerated, and offenders are hereby put on official notice. The use of notification sessions in this initiative is a natural extension of their original intent (directed at chronic, violent offenders).

9] ENFORCEMENT: Any reports of dealing are immediately investigated. Any involving an offender who was called in results in the warrants being signed and their immediate arrest.

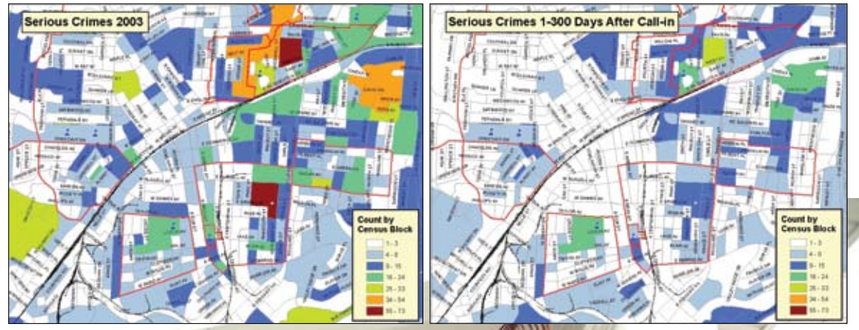
10] FOLLOW-UP: Follow-up contact is made with offenders about one month later to see if they are getting the help they need. Community members are encouraged to keep in contact with those notified through phone calls or visits. Newsletters to the community contain information of arrests or success stories. Officers attend community watches in the area and maintain the lines of communication.

Source: Eliminating Street Drug Markets through Focused Deterrence: Summary of Preliminary Findings and Scope of Current Evaluation, June 2007



SOURCE: Dr. James M. Frabutt et al., at UNCG's Center for Youth, Family, and Community Partnerships

GRAPH BY ERIC PETERSON, STIR CREATIVE



The map on the left depicts 2003 serious crimes by color block. Light blue represents areas where 4-8 serious crimes occurred, while the most serious trouble spots are marked with green (16-24/25-33 crimes), orange (34-54 crimes) and dark red (55-73 crimes). The map on the right records the number of serious crimes in the area 300 days after the call-in. Most areas are color-coded white, meaning only 1-3 serious crimes occurred in those areas. The success of the program means people living in what was once a high-crime area now feel comfortable enough to sit on their porches and visit with neighbors.

[FOLLOW THE MONEY]

THE CENTER FOR FAMILY, YOUTH, AND COMMUNITY PARTNERSHIPS (CYFCP) at UNCG has received a variety of grants to offer training and assistance to cities across the country interested in implementing High Point's innovative, focused-deterrence initiative.

The National Institute of Justice (NIJ) awarded the center a grant for $283,001, which began in 2007. Similar to the center's other projects, this is a collaboration among multiple entities with the grant funding personnel from UNCG, Notre Dame's Institute for Educational Initiatives, John Jay College of Criminal Justice and Winston-Salem State University.

In addition, the CYFCP recently received a grant from the N.C. Governor's Crime Commission to implement the focused deterrence model for group and gang violence reduction in 10 to 12 cities around the state. The grant awards $250,000 a year for two years and will fund training and technical assistance. It is a collaborative effort between UNCG and John Jay College.

police also visited family members or other influential people in their lives to explain they had evidence against the offender and would like to discuss alternatives to prosecution.

On May 18, an armada of police, prosecutors, ministers, citizens, family members, social workers and others greeted nine offenders. After an initial meeting during which leaders confronted their guests and explained the initiative, offenders met with law enforcement and prosecutors. For maximum impact, posters of West End's drug houses hung in front of the table. Labeled case files sat on top of the table. Photos of the offenders arrested the night before were taped to the backs of three empty chairs. The other nine chairs contained contact information for the resource coordinator.

"We said, 'From this point forward, no one is going to be able to do this out in the open,'" says Sumner. "And we can back it up. We don't have to make any further case."

Fealy closed the meeting with this observation: "Things have changed for you. You have to make a choice. Make the right one."

"We are so rich in our areas of expertise and so diverse. Terri is a clinical psychologist and understands mental health and substance abuse issues. We have people who understand trauma and the effects of trauma on crime and mental health. We have experts on re-entry, juveniles, juvenile delinquency, early childhood education and health literacy. Cobbling all of that expertise together and understanding where it intersects gives us something broader to say." *— Kristen Di Luca*

NOT HUG-A-THUG LAW ENFORCEMENT

The results were astounding. "Amazingly, overnight, the market shut down," says Sumner. "And when you collapse one of these drug markets, other violent crime almost disappears."

By 2008, crime in West End had declined by 57 percent. The police department reported that in the year following the May 2004 call-in, no homicides, rapes or gun assaults were reported in West End. From the 100 days before the call-in to 365 days after, violent crime decreased 51 percent. The average drug crime decrease was 34 percent.

"Between 1993 and 2003, one out of every 10 murders in High Point occurred in West End. There have been no murders there since 2003," Sumner says.

The initiative restored a sense of safety. About six weeks after the drug market intervention, West End resident Melissa Nichols told Greensboro's News & Record, "Now we can sit on the front porch, and it will be quiet. It's kind of spooky."

The police department's West End project description included this anecdote: "Jim Summey, pastor of English Road Baptist Church, gave the best illustration. He reported that 35 neighborhood children attended Vacation Bible School in June. This was significant because he had never had more than seven or eight attend in the past. Pastor Summey said he overheard one child tell another that 'Mama said it was safe to walk to church now.' He believes this was a direct result of the initiative."

High Point has reaped ancillary benefits as well. First, the model is cost-effective — an important consideration, especially for a city that has been weathering a tough economic climate. For West End, Sumner only spent about $5,000 for the undercover buys. By redirecting personnel, the ODMS does not require extensive funds, more officers or long-term planning.

It's easily replicated. The police implemented a similar strategy in the city's Daniel Brooks, Southside and East Central neighborhoods, which also experienced dramatic reductions in violent crime. According to the police, "Of the 75 total drug dealers notified from the four different neighborhoods over the past 3.5 years, only 20 have re-offended and required prosecution. That is a recidivism rate of only 26 percent." That rate is a half to a third of the three-year national re-arrest rate, according to U.S. Bureau of Justice statistics.

The High Point model has been successfully replicated in other cities as well, namely Winston-Salem; Raleigh; Providence, R.I.; and Rockford, Ill. In 2008, following a drug market intervention, one neighborhood in East Nashville reported a 91 percent drop in crime and prostitution, according to a Jan. 31, 2009, Newsweek article.

It's sustainable. Sumner says after seeing focused and data-driven results, the HPPD made a philosophical shift by restructuring the agency around the ODMS. "The model is now part of the departmental DNA of the High Point Police," Sumner says.

And it has fundamentally changed the police department's relationship with the community, which, by engaging its residents, makes it easier to prevent and deter violent crime.

Pastor Summey explains: "When you come right down to it, the whole thing is a success story because it does what it says it's going to do. It takes the open-air drug market off the street. That is its intended success. It lets the police do what police do, and working along with them has been a beautiful marriage."

"We have graduate assistants who are learning how to become action researchers. Often we [sociologists] are trained to be a fly on the wall and an observer and incredibly objective in silence. It doesn't have to be that way, and it is much less effective when it is that way. At our center, we enjoy … [having] a relationship with communities and partners who are willing to listen to us because we have a lot to say." *— Kristen Di Luca*

AMERICA'S TOP MODEL

The success of the High Point ODMS has received national press coverage, from The Wall Street Journal to Rolling Stone, as well as from academic and law-enforcement journals, National Public Radio and network news shows.

High Point's model has also garnered numerous awards, such as the 2007 Innovations in American Government Award from the Ash Institute for Democratic Governance and Innovation at Harvard University's Kennedy School of Government and the 2006 Herman Goldstein Award for Problem-Oriented Policing.

"It's good quality work," says Terri Shelton. "It's been a privilege to work with this."

David Kennedy agrees. "The High Point work is the most gratifying I've ever done," he said in a Swarthmore College alumni magazine article. "I got into the crime prevention field because of the crack epidemic and what it was doing to communities, and after all this time perhaps we're finally getting somewhere."

RHYTHM *of the* APES

Dr. Patricia Gray's long-term research with a group of bonobo apes shows that the roots of music go deeper than you might think.

BY BRIAN CLAREY

PORTRAIT BY CHRIS ENGLISH, PHOTOGRAPHY EDITOR
ADDITIONAL PHOTOGRAPHY COURTESY OF GREAT APE TRUST

Snap your fingers to a song on the radio. Pick up the beat and tap your toes in time. Now deconstruct it into quarter notes … eighth notes … sixteenth notes … rhythmic mathematics that you can probably handle without even thinking about it. It's called "entraining a beat."

It comes in handy on the dance floor, certainly, but this ability to entrain a beat and sustain it is also what enables humans to synchronize and work in groups to complete tasks, whether they are recording songs or building houses.

"It was thought that humans were the only animals able to do that," says Dr. Patricia Gray, senior research scientist in biomusic.

But a breakthrough with a very special group of great apes led Gray and her team to believe that this sense of rhythm — this talent for entraining a beat, synchronizing to it and sustaining it — may be an evolutionary gift that existed in primates before humans and the apes went their separate ways.

"If you want to figure out where music came from, if you're dealing with just the artifacts, you get stopped at 50,000 years ago. Those are the oldest musical artifacts we have," says Gray. "But this story allows us to go back 6 million years. That's where we have a common ancestor with bonobo apes."

The bonobo ape (*Pan paniscus*), also formerly known as a pygmy chimpanzee, is a primate native to the Congo. In the wild, the 10,000 to 50,000 remaining bonobos live in matriarchal societies with clear hierarchies and much vocal communication. But their reclusive nature as well as other geographical factors, make them difficult to study in their natural habitat.

"They live in the middle of civil war in the Democratic Republic of Congo," Gray says. "Their existence in the wild is very scary."

Still, bonobos offer researchers a great window into the lives of the early hominids. Genetically

speaking, they are about as close to human beings as exists on the planet, a roughly 98-percent DNA match.

And at Great Ape Trust of Iowa there lives an extended family of bonobo apes, seven of them, that demonstrate their behavior and abilities to scientists in an environment wholly unlike conditions in the wild.

The bonobos interact with each other and with scientists. They communicate through vocalizing, gesturing and pointing at lexigrams — icons printed on plastic sheets or large electronic touchscreens that represent nouns, verbs and adjectives that can be combined to express desires, opinions and complaints. They have lessons and conversations, time to play and nurture. They even have a say in how they spend their days. In this manner the research is more interactive than observational.

"They listen to you speak English," Gray says. "They understand that just fine, and they will invite people to be a part of that, but they can't speak. They don't have the same vocal apparatus. And we're not going to wait around for them to be able to speak."

But these bonobos are able, in their privileged existence, to forego the pressures of life in the wild and live, in a manner of speaking, a life of the mind.

"They live in a remarkable environment, very much like a wonderful child care center," Gray says.

One of the most notable apes is Kanzi. Among scientists who study primates, Kanzi is considered the first to understand human speech and he currently has a 500-word vocabulary, equivalent to that of a human 2-year-old. He learned to make stone tools from an Indiana anthropologist and has improvised music with Peter Gabriel, who is perhaps best known, ironically, for the 1982 hit song "Shock the Monkey."

"Kanzi is absolutely one of the most famous apes in the ape world," Gray says. "He's known as 'The Einstein of the Apes.'"

It was the project with Peter Gabriel that piqued her interest: studio sessions that featured Kanzi and other bonobos, who have been playing with musical instruments for years, essentially jamming with a founding member of Genesis on keyboard synthesizers.

"[It] was not to try to teach them anything," Gray says, "but to support them, like you would a jazz artist … to imitate and expand, you know, go with what the other person is doing. That's what improvisational music is all about."

She has footage of it on her laptop: Gabriel intones chords at once haunting and soothing — the "Grooming Song," Gray says. "Grooming is very important in the ape world."

Kanzi lumbers over to the keyboard and picks out a few notes, first with one hand and then both.

"Do you see what he's doing?" Gray asks. "He's playing octaves."

And she wondered: If Kanzi and his sister, Panbanisha, have a fundamental sensitivity to tonality, would he and the other bonobo apes have a similar propensity for rhythm?

"Beat is universally at the heart of music and it's studied in early childhood research," she says, "and we have details galore of humans all over the world being able to do this."

If she could demonstrate this ability in humanity's closest genetic cousin, it could mean that the ability to entrain a beat is not exclusive to our species.

At Great Ape Trust in Iowa, Gray was able to gain acceptance among the bonobos by interacting musically with them. "It was an investment of many years," she says. "All the bonobos know me. I have spent time singing them to sleep at night the way you would with a kid."

The research consisted of further "jam sessions" between humans and apes to test the bonobos' ability to participate in entrained beats, to sustain them and even to create them, first using toy xylophones, toy drums and plastic pianos.

"They didn't show sustained interest in the toy instruments," Gray says.

They spent more significant time with "real" instruments — recorders, synthesizers and professional drums.

"The thing that changed the equation was when the drumming became purposeful," she says, "when it was used to announce the comings and goings of some individual, or some kind of special treat that was going to happen.

"Then," she says, "they started to practice, so to speak."

As remarkable as the apes' ability to entrain a beat is the fact that nobody else had done any research of this kind. Gray says it is a matter of technology and new analysis techniques. Many new opportunities exist now for understanding the musicality of other species.

"Our register of hearing is not very wide," she says. "Twenty to 20,000 decibels. A lot of stuff goes on beyond that range. And we as a species hear relatively slowly — we can't really understand the chickadee or the thrush's song unless we slow it down."

As a result, she says, science tends to be "vision driven." But new software that allows us to critically listen to and deconstruct the sounds of the natural world has, she says, "allow[ed] us to move across species lines."

And the work is important, she says, because it allows us to look at the human musical capacity along evolutionary lines.

"It's at the core of a lot of things," she says. "Our ability to do things together: How do individuals come together and form groups? These temporal relationships are basic to that bonding. How do you make a stone tool? Underlying that is a rhythm. Play and movement — all of that has this underlying rhythmicity. It's a very fertile place to try to access a whole new extension, to go back on the evolutionary trail."

Gray's area of study, biomusic, looks at natural sounds as part of a big, complex musical system that considers the songs of birds, howls of wolves and songs of whales in quantifiable musical terms. And the link she's establishing between rhythm, tonality and communication opens possibilities for new research in the musical capabilities in other species. With new technology, and with it expanded auditory awareness, this branch of research can be applied to other species as well. Perhaps there is a narrative to a whale song, or maybe context in the lion's roar.

"We know more about how music is mapped in the human brain now, too," she says. "It becomes this perfect storm. Now we can start to ask those kinds of questions."

TOP, Kanzi's sister, Panbanisha, strums an autoharp. On the floor in front of her is a sheet of the symbols the apes and humans use to communicate with one another. **ABOVE,** Kanzi, "The Einstein of Apes," practices playing a recorder. "Real" instruments, such as recorders, synthesizers and drums, appealed to the apes as researchers sought to find out whether they could create and sustain entrained beats.

Through her years of research with Kanzi, Dr. Patricia Gray has developed a close relationship with the bonobo. One time, she sent pictures to Kanzi. In return, Kanzi pored over pictures of himself and selected this one to send back to her.

Getting a better grasp on handedness

BY BETSI ROBINSON
PHOTOGRAPHY BY CHRIS ENGLISH,
PHOTOGRAPHY EDITOR

Scientists once believed that the development of handedness in children was determined by the genes of their parents.

Then Dr. George Michel came on the scene.

Michel's work as one of the foremost developmental psychobiologists in the nation proves just how simplistic that genetic theory is.

In studies spanning more than three decades, the head of the psychology department at UNCG has tracked the development of handedness in infants, from their position in the uterus to grasping at 18 months old, and the role experience plays in determining whether they will grow up to be left- or right-handed adults.

Why, you might ask?

"I hope to learn how babies are educating themselves in something even as simple as how they use their hands," says Michel, noting that about 90 percent of humans are right-handed, including himself.

"I've always been fascinated by how things develop. When I say *how*, I mean the relationship between the experiences that an individual has and how that individual's brain works with that experience. For babies, it's sort of a window into the way they think about things."

Of particular interest to Michel is how individual differences (what makes us each unique) emerge during early development.

Currently he's overseeing a five-year study of handedness in 250 babies ages 5 months to 15 months old. The work is funded by a National Science Foundation (NSF) grant totaling nearly $1 million.

The children come to UNCG's Infant Development Center once a month to, quite literally, play. While sitting on their mothers' laps (the moms are told not to help or guide their children), two video cameras capture what happens when various toys are placed within their grasp. The cameras record reaching, contact, acquisition and manipulation of each toy.

"Some children can come in at 5 months old and do everything. They pick up, they play very well," says Iryna Babik, a student in UNCG's developmental psychology PhD program. "Other kids can do nothing — they are very passive. You can predict their development from that."

Michel, who received his doctoral training in developmental psychobiology and cognitive psychology at Rutgers University, believes such research could have profound implications on how we educate children, although that belief can be difficult to defend.

"It's not important research in the usual way in which most people understand important research, that it will solve a problem that we are currently facing," he explains.

Julia Gladstone, a 13-month-old study participant, reaches for a toy positioned just out of her grasp. During the 45-minute session in the Infant Development Center, Julia reaches, stacks, chews and plays with a variety of toys as they are presented one by one. Each toy offers a new way to measure her preference for handedness.

Michel, who in 2001 was appointed editor-in-chief of the journal Developmental Psychobiology, specializes in "basic research" and is quick to defend it. Although there may be no immediate or obvious problem that the knowledge gained from basic research will help solve, it provides the very foundation for all kinds of solutions to societal problems.

Case in point: cancer.

"Cancer is the uncontrolled growth and division of cells in the body. If we don't know what makes cells grow and divide, then just attacking that growth in the way we have done it — to radiate the individual, for example — we think that cures cancer," he says. "It doesn't."

Such treatments simply stop division of all cells, Michel explains, not just cancerous cells. "As we have come to learn more about what makes cells grow and divide, we are able to target the cancer cells. And yet people wouldn't have thought just studying how cells grow and divide would be immediately applicable to that issue."

Knowing how babies develop their hand skills may not immediately apply to a particular problem, Michel notes. But it may one day help scientists deal with problems of individual differences in the way in which babies develop mental and intellectual skills — the foundations they use to perform well in school.

"Again, we don't see the immediate relationship between using your hands and reading, writing and doing math, but that relationship is there — just as knowing how cells grow and divide is related to cancer," Michel says.

The NSF study on handedness is a labor of love, so to speak — time-intensive and difficult. Much psychological research involves simple tests that can be completed on a computer with adult participants. That's not the case with Michel's study.

"This particular project is going to take five years to collect the data, and then we have to analyze it," he says. "Then we'll come back and look at those individuals when they are much older, so it's more data to collect. That would be the first study of its kind that has ever done that."

Julie Campbell, a research coordinator in the lab who earned a master's degree in experimental psychology at Western Illinois University, came to UNCG to study under Michel, knowing his excellent reputation in the field. Her prior work focused on studies involving rats and mice.

"I thought I might like to try something a little bit different, expand into developmental research, and who better to do that with than Dr. Michel?" she says. "When I read about the study he was doing, I thought, 'This is a really good way to do this research.'"

Working with babies, however, presents definite challenges. Campbell has been sneezed on, smacked with toys and overcome by the occasional stinky diaper.

"A couple of us that do the research have children of our own, so it doesn't bother us," Campbell, the mother of a 3-year-old daughter, says with a laugh. "But it's funny sometimes. Those things definitely happen. We often joke about having to buy helmets for the toy room, because older kids sometimes throw the toys around. That usually means they are having a good time."

But the work also is more rewarding, she says. "Because when you come into the lab, rats don't say, 'Hey, how are you doing today?' The moms are very enthusiastic."

Campbell is working on the NSF study while taking graduate level courses in developmental psychology. She feels she's already learned a lot from Michel, whom she describes as a careful researcher and encouraging mentor.

"He's been studying development for years and years. The amount of knowledge he has to offer students is really immense," she says. "Even just in conversations in the lab, you can learn a lot from him. And you are not even in class."

Michel's colleagues concur. Dr. David Lewkowicz, a professor of psychology at Florida Atlantic University and longtime friend, describes Michel as an extraordinarily bright leader with a stellar reputation in the field.

For starters, Michel co-authored a textbook with Celia Moore in 1995 — colleagues describe it as "the Bible of developmental psychobiology" — still used in classrooms across the country today.

"There is just nothing like it out there," says Lewkowicz, the current president of the International Society on Infant Studies. "It's an amazingly scholarly compendium of all of the work done within the framework of developmental psychobiology."

But Michel's contributions go far beyond any textbook. His research on the development of handedness advanced understanding of the phenomenon once linked almost exclusively to genetics.

"What George did was he showed that actual experience contributes to its development," Lewkowicz explains, noting that Michel's early research shows the position of a baby's head *in utero* influences which hand that baby will later use to reach for objects.

"He showed a direct link between an earlier experience and later outcome, later use of hand. That was really an important advance," Lewkowicz says. "It opened up the possibility that there are all of these experiential factors that contribute to development."

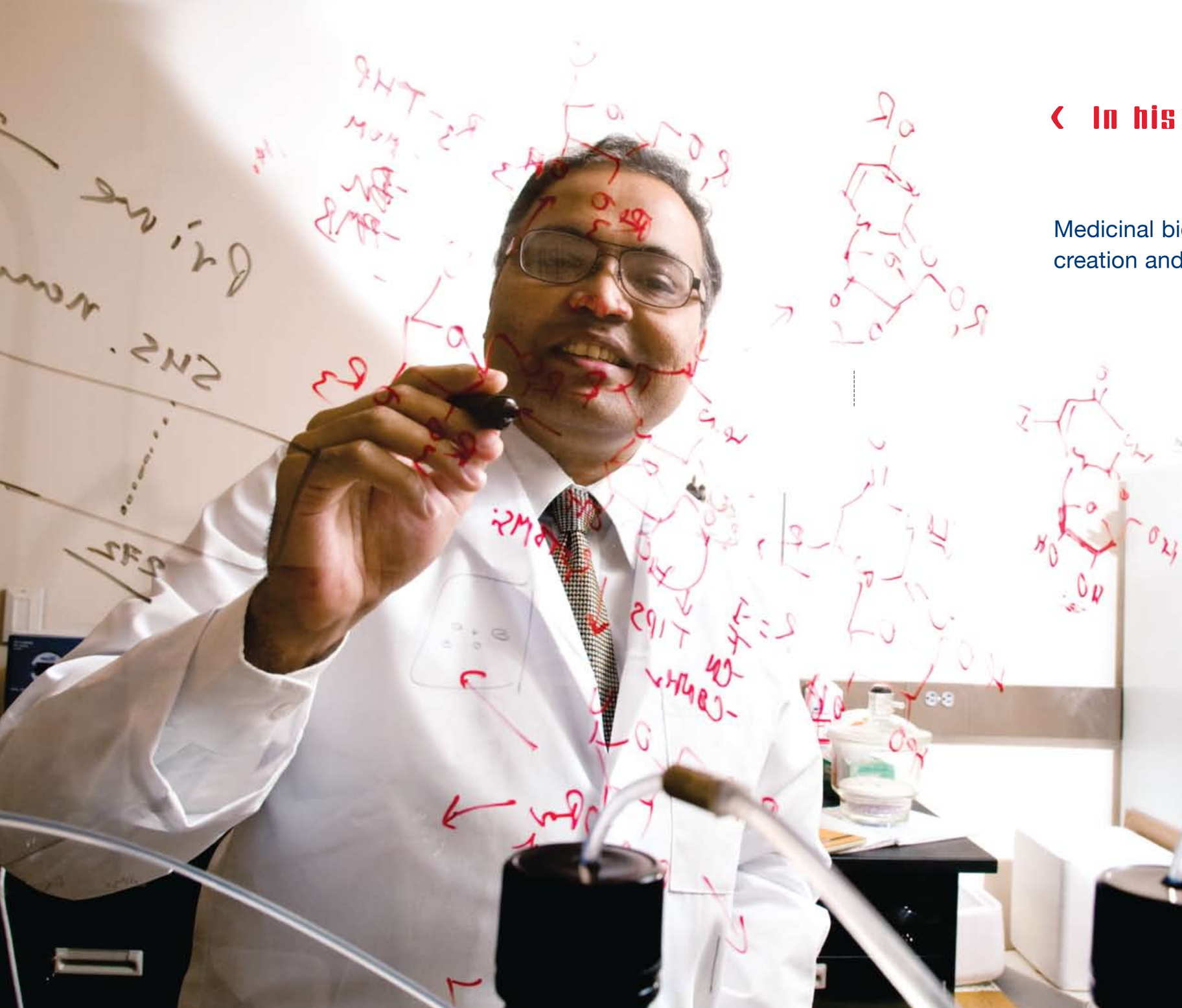
Dr. Robert Lickliter, a professor of psychology and director of graduate studies at Florida International University, has worked with Michel in the International Society for Developmental Psychobiology.

"The public views handedness as something that is generally determined by your parents. We now know that that is a very simplistic, wrongheaded way of looking at development," Lickliter says.

Ultimately, Michel hopes his research will help us better appreciate how individually different we are and how to build on those differences.

"If we lived in a society more interested in education, we'd be building on those individual skills," he says. "We tend to think of other societies as being more regimented, such as Japan. But they are much more interested in taking the strengths of an individual child and using that to compensate for their weaknesses. In the United States, we take individual differences as limitations, rather than challenges on which to build better educational programs."

1. During the session, cameras film each interaction. Later, others will review the film and painstakingly record what occurred with each of the toys.
2. Julie Campbell, research coordinator in the lab, starts each session by checking the child's motor development by picking up the child to see if they curl up their legs or hold them straight. Older children, such as Julia, tend to leave them straight.
3. With these blocks, Campbell watches how Julia takes them apart and puts them back together again.
4. Julia considers the suspended ring before trying to grasp it.



‹ In his element ›

Medicinal biochemist Dr. Lakshmi Kotra on drug creation and the kind of drive it takes to be the best

BY BETSI ROBINSON
PHOTOGRAPHY BY DAVID WILSON, STAFF PHOTOGRAPHER
AND CHRIS ENGLISH, PHOTOGRAPHY EDITOR

DR. LAKSHMI KOTRA HOPES TO ONE DAY discover a new drug that will improve the lives of millions of people worldwide who suffer from diabetes.

And the beneficiaries of such a scientific breakthrough could include Kotra's own loved ones who suffer from the disease.

His goal? To create a chemical compound that would work like insulin but could be taken orally — one pill a day or perhaps one pill a week — to increase glucose uptake into cells of diabetics. Such a drug would eliminate the need for insulin pumps and injections many diabetics must endure to help their bodies absorb sugar properly.

"This is unlike any drug discovery project I've worked with, the complexity of it at the basic science level," says Kotra, an associate professor who specializes in synthetic chemistry, biochemistry, computer modeling and drug discovery. "We are quite excited about this work. Diabetes is an epidemic, and becoming more so."

Indeed, according to the National Institute of Diabetes, 23.6 million people in the United States suffered from diabetes in 2007 — 7.8 percent of the population. Of those, an estimated 5.7 million remained undiagnosed. Diabetes can lead to premature death.

There's more potentially promising news for diabetics coming from the Kotra Research Group lab on the fourth floor of Sullivan Science Building: graduate students and postdoctoral fellows also are hard at work examining potential drug treatments for nerve damage commonly caused by Type 1 diabetes. The condition, called diabetic neuropathy, causes numbness, pain and poor wound healing that can lead to lower-limb amputation.

Kotra is a partner in a research initiative funded by a $730,000 grant from the

Juvenile Diabetes Research Foundation. "In one to two years, we hope to be in the animal model stage," he says.

Yet Kotra's passion for discovering new drug therapies is tempered by a harsh reality: It typically takes 10 to 15 years for a drug to make it from a lab to a pharmacy shelf. And a lot of things can go wrong along the way.

"I know how long the journey is. I know it might take a decade perhaps," the Indian-born scientist says. "Making something actually translate to the science and technology field from a lab, to the stage where a common man in the community can use it, takes a lot of time, a lot of talent and a lot of dough."

It was, in fact, Kotra's talent that caught the eye of Dr. Patti Reggio, chairman of the Department of Chemistry & Biochemistry at UNCG. She used a grant from the N.C. Biotechnology Center to recruit Kotra from the University Health Network in Toronto to Greensboro in the fall of 2007.

"Our new PhD program has three major tracks in it — bioanalytical, computational and medicinal chemistry. We really needed a medicinal chemist on the faculty," Reggio says. "Medicinal chemists are the guys who make drugs. We recruited him because he can do that.

"We really lucked out."

Kotra began making a name for himself in the field early in his career in Toronto, when he was named the 2003 winner of the GlaxoSmithKline/Canadian Society for Pharmaceutical Sciences Early Career Award recognizing outstanding research achievements and contributions of pharmaceutical scientists.

Kotra was instrumental in establishing a state-of-the-art supercomputer/visualization center specially dedicated for drug research at the University of Toronto during his early days as a faculty member. The $7.3 million center featured advanced molecular graphics software tools that created 3-D images of highly complex molecular systems, which can expedite drug-discovery research.

Using this technology and other resources, a team of scientists led by Kotra at the Molecular Design and Information Technology Center made a potentially life-saving discovery — a synthetic compound that targets and kills malaria parasites, including a drug-resistant strain.

Today Kotra continues his research in antimalarial compounds at UNCG and still directs the center in Toronto, traveling back and forth as needed. Recently he struck up a collaboration with the Australian Army Malaria Institute and Walter Reed Army Institute for Research to conduct advanced studies.

"Our work paves the way for a new class of drugs that could help combat this debilitating disease," Kotra says. "We have the extensive expertise and sophisticated technology to design compounds which specifically target this parasitic enzyme and kill it."

Malaria, a global public health threat that kills more than a million people each year, knows no borders. A tropical disease transmitted by mosquitoes, it once was a scourge confined primarily to poor, developing countries.

Not so today. Half of the world's population is at risk for contracting the deadly parasite, according to *GlobalHealthReporting.org*. And the proportion increases each year because of widespread resistance to conventional antimalarial drugs, increasing international travel and military deployments, deteriorating health care systems and global warming, among other factors.

"In Australia and Canada now, we are evaluating these compounds in mice," Kotra says. "We have a good indication that they are working."

Yet he remains cautious about the outcome.

"In drug development, the risks are very high. There are large numbers of studies that have to be done, and any of those that indicate this is not good will send us back to the drawing board," he notes.

"Good results always make me worry, because we are climbing the ladder higher and we fall down at a longer distance. A lot of time, a lot of money, a lot of resources are at stake."

If all goes well, Kotra hopes to progress to studies with monkeys in the next two years, a step that would take another two to three years to complete.

"If that goes well," he adds, "we'll be well-positioned to initiate clinical trials on humans."

Science is serious business for Kotra, who trained to be a pharmacist at Birla Institute of Technology & Science in Pilani, India, graduating in 1992.

"It's like having the fastest and greatest Ferrari in the world. If you don't have the greatest and the fastest driver, it's no good. And vice-versa. You have to have the best and the brightest minds and the best tools. You must think ahead of the curve, be entrepreneurial, to be competitive."

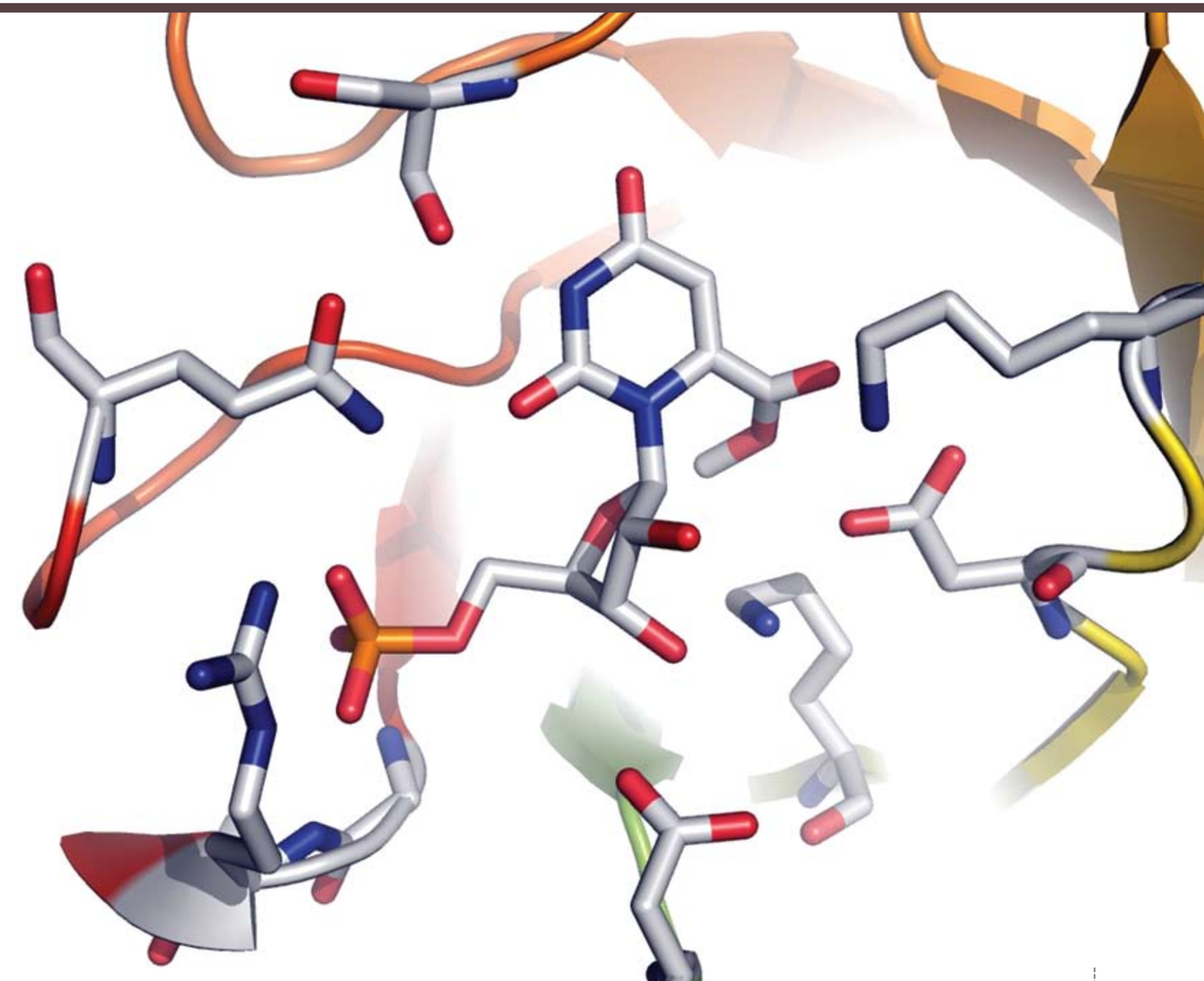


Figure 1 As part of investigating chemical compounds for potential antimalarial activities, the Kotra Group synthesizes and studies interactions of drugs with enzymes. This picture shows the X-ray crystal structure of one such compound bound to the enzyme. The colors on the molecule at the center represent various types of atoms in the compounds, and the enzyme is surrounding this chemical compound.

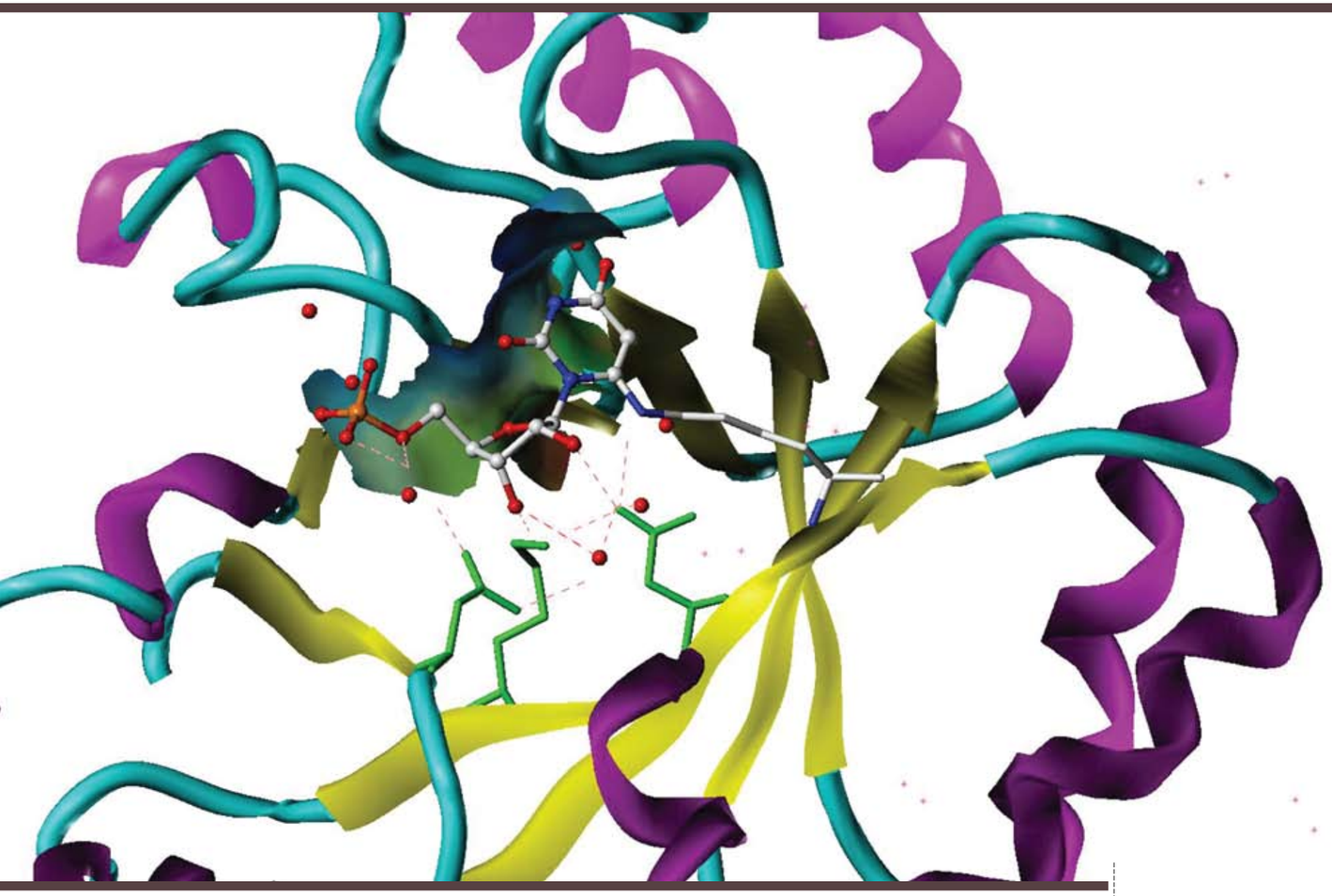


Figure 2 Here, a lead compound code named Kopakamal, an active compound against malaria parasites, is shown bound to a malaria enzyme, killing the parasite. Interactions are shown in yellow lines. This structure is determined through high-resolution X-ray crystallography and helps explain how these drug molecules bind to enzymes. The Kotra Group is pursuing these discoveries into preclinical development.

"The universities were still poor, and they were not doing a lot of research. But we had good professors interested in research," Kotra recalls. "They were able to show that, more than getting a degree and getting a job, we needed to push ourselves to the limit to innovate something, to discover something."

From there, Kotra moved to the United States, where he earned a PhD from the University of Georgia in 1997 and was a postdoctoral fellow at Wayne State University from 1997 to 2000 before landing in Toronto.

Kotra firmly believes that top-notch science and research beget strong communities and a healthy economy.

"At any great place around the world, it is very important to have strong universities with excellence in the faculty members," he says. "Those universities train fantastic students and can generate new ideas that can help the community grow. At UNCG, they see this and are starting this great school of nanosciences."

Kotra is working with Dr. James G. Ryan, the founding dean of the Joint School of Nanoscience and Nanoengineering, to bring advanced technology and instrumentation to the school. The $58 million venture is a partnership between NC A&T State University and UNCG.

"It's like having the fastest and greatest Ferrari in the world. If you don't have the greatest and the fastest driver, it's no good," Kotra explains. "And vice-versa. You have to have the best and the brightest minds and the best tools. You must think ahead of the curve, be entrepreneurial, to be competitive."

It's rare to find a scientist as accomplished as Kotra in so many areas, Ryan says. He's turned to Kotra for expertise in equipment technologies and computer modeling, for example.

"He's also a very innovative guy and a great communicator," Ryan says, "the kind of guy that brings people together. That is so helpful in a joint effort like this."

Patience and persistence are prerequisites for Kotra's line of work.

"For people like us, it's more than the salary. It's, 'Can we make a real contribution? Can we make a change?'" he says. "Those real discoveries are hard to make."

Often such discoveries begin long before a scientist with a potentially brilliant idea steps foot in a lab. Kotra, for example, spent Christmas break writing a grant proposal for nearly $2.4 million to continue antimalarial drug development. He doesn't expect to hear back until April or May.

"I realized after doing this for some years that nothing goes fast. That if something sounds too good to be true, it may not be true," he says. "Anything new takes time, careful planning, careful execution. Sometimes years; sometimes decades. The key is to be persistent and not to take the sight away from the target in any way."

Those who work with Kotra say he excels at keeping his eye on the prize. "Exacting" and "demanding" are words frequently used to describe him.

"He expects a lot out of you, which is good for me because it keeps me driven," says Molly McDonald, a master's student who works in Kotra's lab. "He is very exacting, which is good for students because it is good out in the field after you graduate."

But colleagues say there is another side to Kotra that helps keep them motivated.

"He tries to create a sense of community in the lab. He lets them know he appreciates them," says Ashley Ganoe, a research scientist. "You don't see that a lot in science. A lot of people, they get in a top position, they just take advantage of the people at the bottom. He's very unique."

Ganoe recalls Kotra taking her out for ice cream before she even started the job. "He enticed me here with Yum Yums," she jokes.

Indeed, Kotra's soft spot for the age-old eatery on the edge of campus, famous for its hotdogs and ice cream, is no secret around the lab. He enjoys treating his staff and students from time to time with dinner or an ice cream cone.

"I like Yum Yums," he confesses. "I only wish they made fat-free Yum Yums."

This fall, UNCG "lucked out" again — recruiting Kotra's wife, Dr. Dasantila Golemi-Kotra, to the chemistry faculty. The power couple have a 3-year-old daughter, Radha, and enjoy living in Greensboro.

Lakshmi Kotra came to UNCG for the opportunity and the challenge. The administration supports world-class research, he says. "We're trying to go head-to-head with the bigwigs."

In today's competitive research environment, Kotra believes there is no place for mediocrity. UNCG must compete with the Harvards, the MITs, the Berkeleys of the higher-education world.

In Kotra's words, UNCG must strive to be a Ferrari.

"Not to belittle the Hyundai guy," he explains. "But the reality is, when you are in the race, the question is whether you can be the best. If we want to have the best students graduating, the best research, the best economy, we have to have the best and brightest brains top to bottom."

Toward that end, Kotra hopes to develop in students at UNCG the same drive his professors cultivated in him back home in India.

"Because my parents were able to put me through the best schools, with the best brains, the best faculty with the brightest visions, even though I was only from a small village in India, I was able to see at the world level," he says.

"If we develop that urge and ambition in students in terms of knowledge and innovation, it will take us a very long way."

An identity crisis

> "Their identity as men is always attacked. It's difficult for them to see themselves as wholesome, caring, loving forces of good." C.P. Gause

C.P. GAUSE WENT THE EXTRA MILE to find out why African Americans, especially boys, still lag behind in our public schools: He followed a gang.

Gause, a former teacher and school administrator, is now assistant professor of education administration in the School of Education. He lays out his findings on young black males and education in his latest book, "Integration Matters: Navigating Identity, Culture and Resistance."

"I wondered, Do we have true integration? If so, why do we have so many underperforming individuals?" Gause says. "African-American males have not utilized or assimilated a positive self-image that affords them the ability to succeed as a whole group."

In 2002, black men made up only 4.3 percent of all students enrolled at American colleges and universities. Black women outnumbered their male counterparts by 27.2 percent.

Gause, who was interim vice principal of a school in Ohio when he began researching "Integration Matters," observed and interviewed fellow African-American educators, which led him to Raheem, a high school dropout and the leader of a local gang. Raheem eventually got his GED and encouraged other gang members to do the same; his story figures heavily in Gause's book.

When he was introduced to Raheem, a gang member flashed a gun at Gause. "I later found out that if the kingpin [Raheem] had given the order, I would have been shot then."

Young black males like Raheem are pressured by violent media and a misguided notion of masculinity until they become "victims of anti-intellectualization," Gause says.

Whether or not they join gangs, inner-city kids have it tough, Gause says. One boy he spoke to had to do his homework before nightfall because his family couldn't pay the electric bill. Another was often late for school because he had to stand in line for free clothes, which he found humiliating.

"I include a lot of their stories," Gause says. "These young men talk about the hardships of living in the inner city and trying to do the right thing while just trying to survive."

In "Integration Matters," Gause lays out several strategies for working with black males in schools. These strategies include "being a living epistle and role model," maintaining high expectations, being nonjudgmental and valuing their lived experiences.

Education, he says, is an investment in the future. "I can remember teachers I had who really poured themselves into making viable youth. It's about investment and return, and I don't mean that it's about money. It's about investing in the lives of students who, in turn, will invest in our society."

Memories of Carolinian Immigrants:
Autobiographies, Diaries, and Letters from Colonial Times to the Present

Dr. Andreas Lixl
University Press of America (264 pp.)

The story of the Carolinas is a story of immigrants.

Dr. Andreas Lixl, professor of German, has spent years tracing that history. His new book, "Memories of Carolinian Immigrants: Autobiographies, Diaries, and Letters from Colonial Times to the Present," incorporates writings accumulated from dozens of libraries. It personalizes the centuries-long story of immigration, providing a broad social and historical context.

The concerns of immigrants have changed. From the 1700s through the mid-to-late 19th century, tornadoes and hurricanes, bears and wolves, disease and fever were top of mind.

"For someone from Scotland or Switzerland, the humid climate and the perils of nature were ... seen as an impediment, a threat," Lixl says.

After the Civil War, around the 1880s, North and South Carolina actively recruited immigrants. The region needed more workers and sent agents to Ellis Island to talk up the state's benefits.

One of Lixl's biggest surprises as he conducted research is how negatively the Carolinas were perceived during Reconstruction. Immigrants had heard of backwards thinking, low wages and few educational opportunities. They were inclined to stay away.

He also discovered that by this period, immigrants who did come to the Carolinas were writing more about cultural matters. "Do my kids get enough education?" is a dominant concern, in addition to financial and language acquisition.

These acculturation concerns continue today. Within families, there tends to be a culture clash like never before, with the children straddling both their old and new cultures. Communications patterns and new technologies are creating a greater generational divide — especially as mass media espouse a culture of disrespect to elders and their traditions.

Lixl points out that Greensboro has one of the highest per capita percentages of immigrants, which has grown quickly during the last 20 years.

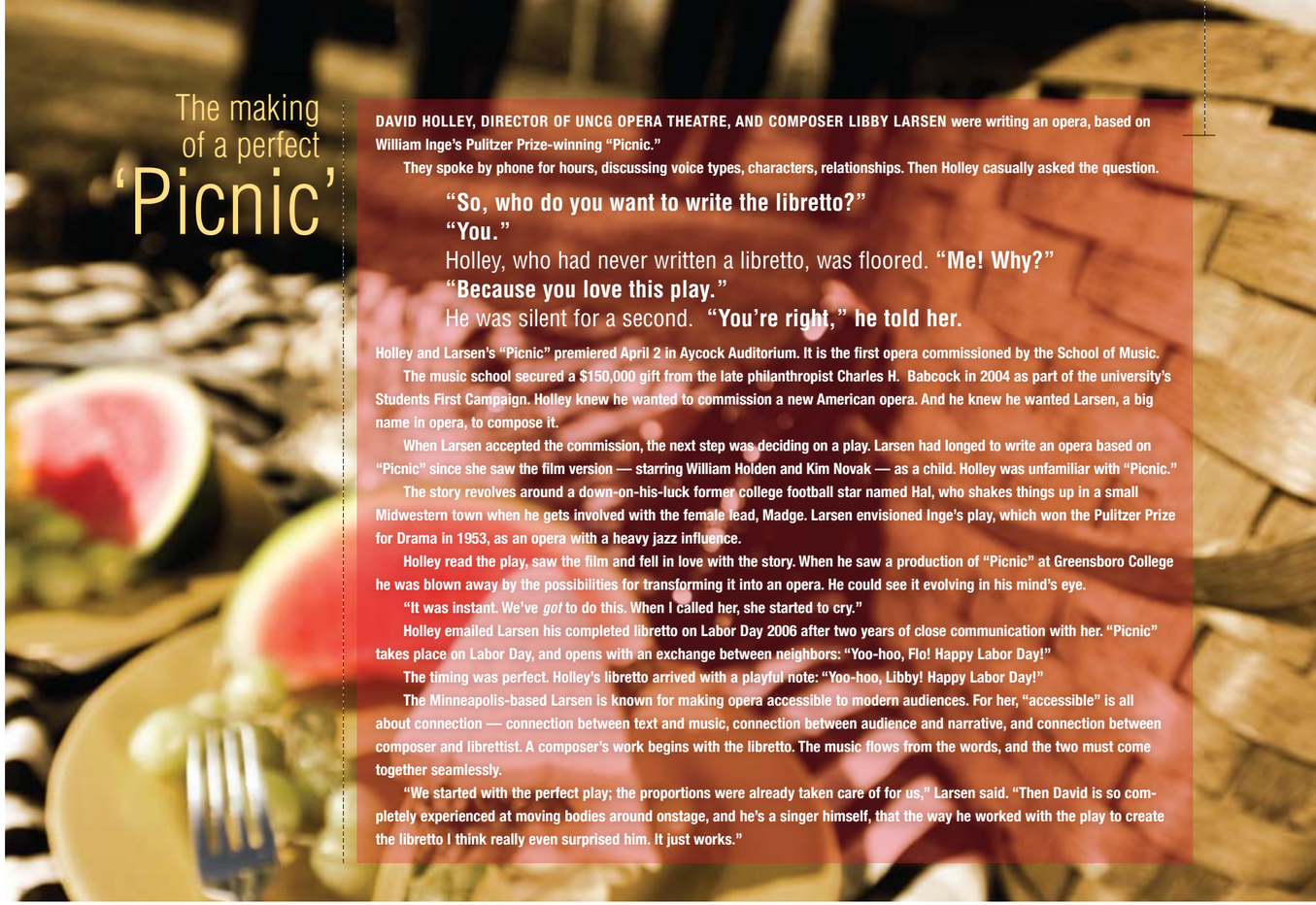
New technologies played a role in this quick rise. Whereas in earlier times an older relative may send a letter back home, the younger generations now text-message their friends and cousins back home, saying "Pack and come on."

Lixl has created a complementary web site, to provide wider access to immigrants' writings.

"'Immigrant' has a negative connotation," he says. "It harms debate. It's a loaded word.

"If we want to understand our identity as North or South Carolinians, we need to know the whole mosaic of our social and cultural history," he adds.

"If you subtract immigrants from the Carolinas, you wouldn't have the Carolinas."



The making of a perfect 'Picnic'

DAVID HOLLEY, DIRECTOR OF UNCG OPERA THEATRE, AND COMPOSER LIBBY LARSEN were writing an opera, based on William Inge's Pulitzer Prize-winning "Picnic."

They spoke by phone for hours, discussing voice types, characters, relationships. Then Holley casually asked the question.

"So, who do you want to write the libretto?"
"You."
Holley, who had never written a libretto, was floored. **"Me! Why?"**
"Because you love this play."
He was silent for a second. **"You're right," he told her.**

Holley and Larsen's "Picnic" premiered April 2 in Aycock Auditorium. It is the first opera commissioned by the School of Music.

The music school secured a $150,000 gift from the late philanthropist Charles H. Babcock in 2004 as part of the university's Students First Campaign. Holley knew he wanted to commission a new American opera. And he knew he wanted Larsen, a big name in opera, to compose it.

When Larsen accepted the commission, the next step was deciding on a play. Larsen had longed to write an opera based on "Picnic" since she saw the film version — starring William Holden and Kim Novak — as a child. Holley was unfamiliar with "Picnic."

The story revolves around a down-on-his-luck former college football star named Hal, who shakes things up in a small Midwestern town when he gets involved with the female lead, Madge. Larsen envisioned Inge's play, which won the Pulitzer Prize for Drama in 1953, as an opera with a heavy jazz influence.

Holley read the play, saw the film and fell in love with the story. When he saw a production of "Picnic" at Greensboro College he was blown away by the possibilities for transforming it into an opera. He could see it evolving in his mind's eye.

"It was instant. We've *got* to do this. When I called her, she started to cry."

Holley emailed Larsen his completed libretto on Labor Day 2006 after two years of close communication with her. "Picnic" takes place on Labor Day, and opens with an exchange between neighbors: "Yoo-hoo, Flo! Happy Labor Day!"

The timing was perfect. Holley's libretto arrived with a playful note: "Yoo-hoo, Libby! Happy Labor Day!"

The Minneapolis-based Larsen is known for making opera accessible to modern audiences. For her, "accessible" is all about connection — connection between text and music, connection between audience and narrative, and connection between composer and librettist. A composer's work begins with the libretto. The music flows from the words, and the two must come together seamlessly.

"We started with the perfect play; the proportions were already taken care of for us," Larsen said. "Then David is so completely experienced at moving bodies around onstage, and he's a singer himself, that the way he worked with the play to create the libretto I think really even surprised him. It just works."

Have guitar, will travel

GOING TO BURMA? A shock. Coming back? Even more so.

You see your culture in a new light, as you suddenly have a fresh perspective.

To associate professor of ethnomusicology Dr. Gavin Douglas, perspectives are important, a point he shares with readers and students. For example, Vietnam is a country. Yet, for most Americans, he points out, it's a war. "The 'American War' is what the Vietnamese call it."

Google "music and Vietnam," he challenges. "You'll find CCR [Creedance Clearwater Revival] and '60s and '70s pop. Are any anti-war Vietnam musicians known here? No." He rattles off several names. The reason Americans know none? "They don't sing in English."

He is passing on his knowledge of Southeast Asia through a book that's part of the Oxford University Press Global Music Series: "Music in Mainland Southeast Asia." He traces the themes of diversity, music and political struggle, and music and globalization. He examines societal and cultural tensions and global forces, and examines how each of the region's countries became modern in different ways.

Some countries had been colonized by the French, for example. How does that continue to affect them, politically and culturally? What does it mean to be Burmese? Or Cambodian? Or Vietnamese? "I'm taking ideas and stretching them across the peninsula there," as he points to a world map written in Burmese, above his computer.

Through his books and courses such as his world music course and bringing in musicians from throughout the world, he opens eyes — and ears. He received the School of Music's 2008 Outstanding Teacher Award.

When he was in college, Burma was relatively unknown in America. "Few people knew about the place. It'd fallen off the map. Only six or seven recordings of the music were available in the West at that time."

Working on his dissertation, he spent three months there in 1998 and 10 months in 1999. He has had three research trips since. Evidence of his passion fills his office. A Burmese steel guitar, a Burmese harp and a pattala, which looks like a curved xylophone, lie ready to be played.

Burmese music has a chaotic feel, he says. In learning the music, he sat at the feet of a piano master, U Ko Ko, every day. "He adopted me, a bit." Douglas traveled with his guitar. He'd play a Spanish classical piece. The 60,-70,-80-year-old musicians would play songs from their repertoire.

"Teach me," was his mantra, in Burmese.

The music is changing in Burma, just like the political climate. The two are linked. Some art forms are patronized and preserved, while others are neglected. A book on that theme? It's on the horizon.

Jazzed up

Stickadiboom
Steve Haines Quintet with Jimmy Cobb

Steve Haines was on the phone with legendary drummer Jimmy Cobb, the same guy who played on Miles Davis' "Kind of Blue."

As they were talking, Haines noticed something wonderful. He could hear his quintet's CD "Beginner's Mind" playing in the background.

"I was flabbergasted," says Haines, director of the UNCG Miles Davis Jazz Studies Program.

Cobb said he loved the CD and that maybe they should make a record together.

And so, "Stickadiboom" was born.

Stickadiboom is a term used by musicians describing the sound that jazz drummers make. Armed with original music composed by Haines (with the exception of one selection from Cobb), the group recorded the CD in Clinton Studios in New York in late 2007. In addition to having Cobb on the drums, the group had another link to music history — the piano used was the same one played by Thelonious Monk, Glen Gould and Bill Evans.

Working with Cobb was extraordinary, Haines says.

"He doesn't imitate the jazz masters. He *is* a jazz master."

From his arrival at the studio before everyone else to his careful attention to detail while listening to playbacks, he demonstrated determination and professionalism, Haines says.

"We're constantly singing to our students — giving them the way we want the music to feel. The way he sang the tune — it knocked everybody out. It was really special."

The CD begins with "The Freightrain," the kind of song you should listen to with the car windows down on a sunny day. From there, the songs start winding down, growing smoother and mellower.

Early reviews have been enthusiastic. "'Stickadiboom' is strongly evocative of the days when creative jazz artists were jammin' in dark clubs everywhere," wrote one reviewer in Blogcritics Magazine.

Jazz drummer Joe Chambers says of Haines: "Behind that retiring attitude is a fiery, imaginative bassist and composer."

The CD, which was released in March, is being distributed worldwide.

Sisterly support

UNDETERRED BY A STEADY RAIN, workers poured 99 cubic yards of Loflin concrete Feb. 27 at 216 York St. in Greensboro's Eastside Park, a site that had been a vacant lot four months earlier.

The concrete has hardened into sturdy walls for My Sisters' House, a design-build project led by faculty member Robert Michel Charest. His interior architecture students are building the 4,500-square-foot home for up to five teenage mothers and their children.

This project makes the most of partnerships on campus and beyond. Loflin Concrete of Kernersville, for instance, has supplied expert advice and materials. Students from Guilford Technical Community College are honing valuable skills alongside the students from UNCG.

Two years ago, 20 students in Urban Studio 01 designed and built a 1,000-square-foot home for an elderly couple in the Glenwood neighborhood just off campus. My Sisters' House, also known as Urban Studio 02, likewise combines learning with community service and applies innovative design and construction techniques to a cost-effective project.

My Sisters' House has won more than $500,000 in grants, with the vast majority of that sum coming from the North Carolina Housing Finance Agency. Greensboro's Department of Housing and Community Development is providing the land.

A cutting-edge program to support young moms and their children is being developed by Susan Cupito of YWCA Greensboro and UNCG's departments of Social Work; Human Development & Family Studies; Nutrition; and Communication Sciences & Disorders, as well as the university's Child & Family Research Network.

As many as 12 people will be able to live in the home's five suites, each equipped with a full bathroom. Three of the suites will be for first-time mothers, while two will be for women with two children. The suites will afford privacy to promote bonding between mothers and their children, while shared areas for cooking, eating and socializing will promote the development of a supportive network among the home's residents.

When the home is completed in the fall it will be managed by Youth Focus, a High Point-based non-profit organization that supports children, adolescents and young adults.

THERE WAS A TIME WHEN PEOPLE DIDN'T WORRY as much about the security of their bank account information. They received statements in the mail, walked into a bank branch to see a teller or held a conversation on a phone that, more than likely, was attached to a wall in their home.

But those days are going the way of black-and-white television. Today, "people are ordering services on their cell phones or using cell phones to check their bank accounts," says Dr. Jing Deng, an assistant professor of computer science.

It's just another way the internet has revolutionized the way we live our lives, from online restaurant reservations to global web conferencing. With wireless internet and smart phones, people can take a computer with them just about anywhere.

But the internet has its flaws, ones that can be exposed and manipulated by those with ill intent. If cyberspace thievery and network fender-benders are a concern, consider Deng an internet police officer. An expert on wireless network security and information assurance, Deng's work ensures that the people sending and receiving information — and no one else — get it quickly.

That is a must in today's global, interconnected world, where a basketball fan sitting in the Greensboro Coliseum can check his credit score or account information on a Blackberry in seconds.

"When you're delivering information from one point to another — from a bank in California to a cell phone at the Greensboro Coliseum — you have to make sure that the information is correct and validated," Deng says. "You want to make sure the information hasn't changed en route."

Deng earned an undergraduate degree in electrical engineering in his native China, but intrigued by computers and electrical devices, he refocused his graduate studies at Cornell University on wireless communication and networks.

Deng started his research as more people fully integrated the internet — which he lists among the best inventions of the last 50 years — with their day-to-day lives. As a graduate student, he paid 80 cents a minute to talk to family in China. Now, the same call is free or costs about two cents using an internet-based phone system.

With more people using computer networks — in classrooms, in restaurants, in parks — Deng's research also helps ensure web traffic doesn't slow to a crawl.

"Nowadays, people prefer to access their information from every corner of the world. My research will help provide the protection of the information delivery and improve delivery efficiency."

"With more and more users accessing information from computer systems, congestions or collisions will occur. Therefore, network efficiency becomes crucial. We develop techniques to reduce potential collisions among competing users."
Dr. Jing Deng

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ANCESTRAL RHYTHMS How much do we have in common with bonobo apes, such as Kanzi pictured here? Maybe more than we thought. Dr. Patricia Gray has studied apes' ability to entrain a beat and believes this talent may be an evolutionary gift that existed in primates before humans and the apes went their separate ways. *Read more about Kanzi on page 16.*

PHOTO COURTESY GREAT APE TRUST