MST Times
Department of Mathematics, Science and Technology Newsletter

MST Department Welcomes Sandra Okita

Dr. Sandra Okita will be a new Assistant Professor in the Communication Computing & Technology in Education (CCTE) program, beginning this fall. Sandra earned a B.A. in Policy Management, an M.A. and a Ph.D., both in Media and Governance from Keio University, in Japan. She earned both an M.A. in psychology and a Ph.D in Psychological Studies in Education from Stanford University. Sandra’s research interest is “the learning partnership between individuals and technology, and in how technology intersects with learning and instructional processes. More specifically, I study how students can learn and build social relationships with technology.” Sandra has been involved in multiple areas of research, both in the US and Japan. Recently, she has been a researcher on several projects in Learning Science and Educational Technology, funded through the National Science Foundation (NSF). The most recent grant-funded project she has been involved with is one of the NSF Science of Learning Centers called “LIFE,” which stands for Learning in Informal and Formal Environments. Internationally, Sandra was a research associate at Keio University, and was on grant-funded projects from the Ministry of Education, Culture, Sport, Science and Technology in Japan. Throughout her research, Sandra has been able to use a great deal of innovative technology (i.e., robots), some of which is not currently or readily available to the public. As such, she has received research funding or donations of equipment from companies and public research organizations such as Sony, Omron, Honda and Advanced Industrial Science and Technology (AIST). One characteristic of Sandra’s research is the “use of technological boundary objects as a threshold to learning, instruction, and assessment.” The term “boundary object” represents computational artifacts where animate and inanimate features overlap between fantasy and reality (i.e. agents in virtual reality environments.) Her interest in boundary objects is due to their strong social component that enables students to build a peer-like relation with technology, and reveal new insights to the role of social relationships in learning. Besides research, Sandra has experience in the classroom, both in the US and abroad. In Japan, she was a teacher at an after-school learning center, and she also taught elementary school mathematics. She has also taught undergraduate courses, both at San Jose State University and Keio University. Sandra says that she has always enjoyed doing research and has “always been interested in examining the learning effects and social components of technology. I like to manipulate certain features in technology to gain an understanding of the influence on learning and behavior.” On becoming part of the TC community, Sandra says, “I am very excited about joining the TC community and working with students, faculty members, and other researchers and administrators who are committed to scientific inquiry. The scope and nature of work pursued by faculty and students is truly impressive.” Her hope is that her students will be able to design, develop, and evaluate their own work from multiple perspectives. In her free time, Sandra enjoys playing tennis and traveling. She also likes, “to browse through items and exhibits at children’s museum, toy stores, and bookstores to feed my own curiosity.”
Fast Fact
In late May, Mayor Bloomberg announced plans to slash the city's 2009 public school budget $428 million below what was initially promised. The mayor states that it is due to "Economic downturn, leading to budget deficits."
-Daily News

CCTE Student Directs Feature Film
Ronald (Ron) Mears, a doctoral student in Communication and Education, recently co-directed a feature film entitled, The Bloodlines Video Diary Project. In this film, two inner-city students from Philadelphia, Ebony Graves and Dennis Midiri, are given video cameras to chronicle their life for one year. What resulted is an intimate and fascinating glimpse into the lives of two seemingly average teens, including their families, schools and day-to-day emotions and desires. The movie debuted at the Philadelphia Film Festival in April.

Preschool Students to Study Botany Using Technology
The CCTE program, in collaboration with the Hollingworth Preschool, will be engaging pre-schoolers in a technology-rich environment as the students study tree botany. The students will examine trees in the community, including maple, oak, cherry and ginkgo, and develop stories around their findings. They will search for images of the trees on the internet and, through the use of technology, will use storybook design software to create and communicate their stories. This project is directly related to the mission of the Hollingworth Preschool, which is to "enhance children's problem-solving abilities, conflict-resolution skills, creative thinking, social development and love of learning.

Fernand Brunschwig, Adjunct Professor, Science Education
Fernand Brunschwig is currently an Adjunct Assistant Professor in the Science Education Program. Being on sabbatical from Empire State College, Fernand has been at Teachers College since September 2007 and has taught the Concepts in Physics I and II courses. Fernand says that he was, “fascinated with the ideas of physics from the earliest I can remember,” including planets, movement of objects, and mathematics. While thinking back on his education, he recalls a professor he had while pursuing his undergraduate degree at Harvard, Edward Mills Purcell, who taught Quantum Mechanics and History of Physics. Purcell had an extraordinarily strong appreciation for the beauty and depth of physics, plus an equally strong commitment to understanding the essence of the key ideas, and explaining them in simple terms. While attending Harvard for his MAT in Science Education, Fernand attended a summer program sponsored by the school, in which he taught a seventh grade class under a master teacher. The following fall, he had a full-time internship teaching physics in a local school. He remembers his first experience creating a lesson plan, teaching it and thinking, “That was really fun! It’s amazing that they pay you to do this!”

After receiving his MAT, Fernand taught science in American schools in Switzerland and Italy. He loved the experiences he had and says, “Looking back, it was a wonderful time.” While overseas he learned Italian, translated scientific articles, and began to discover the international nature of science. Fernand completed his Ph.D. at UC Berkeley and credits his advisor, Robert Karplus, with influencing his attitude, knowledge and approach to teaching. Although he once taught physics at the high school level, Fernand says that there was no dramatic switch from teaching that to teaching about pedagogy in physics; founding Empire State itself in the early 70’s and, more recently, the new Master of Arts in Teaching program, made him begin thinking about the interaction of pedagogy and content in the classroom.

In his spare time, Fernand enjoys being outdoors, especially photographing birds in Central Park. He also enjoys bike riding, playing squash and being with his family while experiencing New York. Currently, Fernand is very interested in a computer program entitled, Mathematica, which performs mathematical functions and produces interactive demonstrations for students. An interactive Mathematica demonstration of his, entitled, “Interference of Waves from Double Slit (Young’s Experiment)” was recently reviewed and accepted by the Mathematica Demonstrations Project Team. The demo, and several other, have been published on the Wolfram Research website and can be seen, and downloaded, by going to demonstrations. wolfram.com and searching under “Fernand.”

Dennis Midiri and Ron Mears

Students researching leaves

Fernand Brunschwig

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Christopher Emdin Receives Phi Delta Kappa Award

This year, Christopher Emdin, Assistant Professor of Science Education, was awarded the Phi Delta Kappa award for Best Dissertation. Out of the forty dissertations that were submitted for this award, the committee voted unanimously for his dissertation, entitled, “Exploring the Contexts of Urban Science Classrooms: Cogenerative Dialogues, Coteaching and Cosmopolitanism.” A ceremony was held on April 17th, at TC, to recognize Chris for this prestigious honor. President Susan Fuhrman gave the opening remarks of this event, congratulating Chris on his award and stating, “Your scholarship is a model for what we value most at Teachers College.” Next, Provost Thomas James spoke about the importance of science education and the impact of Chris’s work on it, saying, “He has made science accessible to students and has discovered the reciprocity of learning in his work, showing that teachers continue to learn as they teach.” PDK Region H representative, Frank Nappi, spoke about the PDK association and presented Chris with his award. Before Chris spoke about his dissertation, Janice Koch, Professor of Science Education at Hofstra University, said a few words. She commended Chris on his excellent work, especially on “the way he teaches science and authentically teaches teachers to teach science.” She also added that, “Chris is what we hope for in science education and science teacher education. He created a community and established an intervention that will live beyond his dissertation. The intervention itself is his real reward.” For the final part of the ceremony, Chris highlighted certain aspects of his dissertation, along with the students that helped him, from Marie Curie High School in the Bronx. Chris also thanked PDK and Teachers College for the award, saying, “I’m really excited about my work being recognized. My work is less about what I have done and more about what [my students] have done.” Chris dedicated this award to his late sister, Monique Emdin, and added that, “her life inspired the kind of work that I did.”

CCTE Students Travel to Panama

The Communication Computing and Technology in Education (CCTE) Internship Program has had a long-term relationship with a nonprofit organization called Reach the World (RTW). RTW’s mission is to help New York inner-city public school students, and their teachers, develop the knowledge, attitudes, values and thinking skills needed for responsible citizenship in a complex, rapidly changing world. They accomplish this by linking students and teachers online, global expeditions. Along with graduate student interns from CCTE, teachers have adapted their curriculum to explore other countries and cultures through the use of technology. In the 2006-2007 school year, Shawna Bu Shell, Director of Interns, surveyed teachers and found that 92% of them did not even have a passport. This brought up the bigger issue of how a teacher can expand his/her curriculum, and become excited about discovering new places, without even venturing out of his/her own neighborhood. The CCTE program realized that in addition to expanding student learning, teacher exposure also needed to be increased dramatically. Shawna proposed to take experimental learning trips to different locations around the world to accomplish this goal. These trips would be curricular-based, have a social studies theme with a sub-focus on mathematics and science. The first of these trips was to Panama this past April. The teachers that participated in this experience recorded their thoughts about traveling in a learning journal. The questions were reflective in nature, asking teachers how this experience was changing them, as individuals, and the way in which they will teach with the RTW tools. The results will be featured in the fall issue of MST Times. 

Did you Know?

More students from Queens got offers to specialized high schools this year than from any other borough, according to data released by the Department of Education.

Did you Know?

TC Trustee, John Merrow, argues that student performance data does, indeed, tell us a great deal about the quality of teaching. This was published in the May 9th edition of the Wall Street Journal.

Fast Fact

Since 2003, the NYC schools have gotten 339,000 new desktops, laptops, and tablet computers.
Dr. Allen Rauch, Alumnus, Science Education

Dr. Allen Rauch is an alumnus from the Department of Mathematics, Science and Technology. He received three degrees from Teachers College – his MA in Secondary Education in 1973, his MS in Science Education in 1975 and his Ed.D. in Education in Biological Science in 1978. While completing his Ed.D., his area of expertise was on the effects of long and short wavelengths on algae. Allen worked for 35 years in public education on Long Island. He first began working at Southside High School as a biology teacher for fifteen years, the last five of which he was also the head of the science department. He then became the Assistant Principal at Lawrence High School for five years, followed by becoming the Principal of Malverne High School. After Malverne, he became the West Islip School District Director of Mathematics and Science and finally was the East Meadow Director of Mathematics, Science and Technology, before retiring from public education. Before retiring, he was doing adjunct work at Molloy College, and was asked to become a member there once he retired from the public school system. Currently, Allen is an Assistant Professor of Science Education at Molloy. He has taught classes including History of Biology in the 21st Century, Methods of Teaching Science in Inclusive Classrooms and Science Curriculum and Methods for Childhood Diverse Learners.

In his free time, Allen enjoys sailing, SCUBA diving, traveling and writing. In late June, Allen will be conducting a workshop at the European Learning Styles Information Network (ELSN) 13th Annual Conference in Belgium. ELSIN is an association interested in the theory and application of learning and cognitive styles and strategies of learning and thinking. The title of Allen’s workshop is, “Linking learning styles and cognition to cognitive dissonance through scientific discrepant events: an elementary level experience.” Summing up his TC experience, Allen says, “Teachers College has a great reputation and was a great education for me. It prepared me very well for my 35 years in education. I am very happy to have attended there.”

Ricco Wright, Ed.D. Student, Mathematics Education

Ricco Wright, a current Ed.D. student in the Mathematics Education program, received his B.S. in Mathematics from Langston University in Oklahoma and his M.A. in Mathematics Education from Teachers College. As an Adjunct Instructor at the Borough of Manhattan Community College (BMCC), Ricco has taught courses in Basic Arithmetic and Algebra. His passion for mathematics inspired him to begin teaching and thus pursue the professoriate. While Ricco was a tutor in college, he realized that, "tutoring was not only a way to get my peers excited about mathematics, but also an opportunity for me to refresh my mathematical knowledge." Throughout his college years, his mentors were professors and professors-turned-administrators, and he credits them with inspiring him to enter the realm of higher education to become both a professor and an administrator. While at Teachers College, Ricco has been involved with the Black Student Network and was very active in the Student Senate while serving as the Institutional Affairs Committee Chair this past year. In this position, Ricco was the liaison between the students and the administration, and met with the senior administration to address various issues. This position helped him "to quickly learn and understand the infrastructure of Teachers College," and it is to this end that Ricco was slated for, and thus has been elected as, Student Senate President for the next two academic years. He chose to run for president because, as a committee chairperson, he was able to learn about issues that are of concern to TC students, such as proper academic advising and reasonable financial aid. Moreover, he recognized that strong, effective leadership is essential and necessary for such concerns to be properly addressed. He adds, "to serve as Student Senate President requires one to fully understand the structure of Teachers College and the needs of different departments, as well as students in those departments." As Institutional Affairs Committee Chair, he focused on building a good relationship with the administration, and wants to maintain that, as well as working more closely with the Department chairpersons. Two of his goals during his tenure are to improve student-faculty relationships and to incorporate a Student Advisory Board for each academic program. In his free time, Ricco likes to travel; he has been on many study tours with the Program in Mathematics Education, including trips to Iceland, Finland, Russia, South Korea and Guatemala. He also enjoys reading philosophy, shopping, listening to music, watching sports, and exploring NYC. Recently, Ricco has taken up both photography and learning the guitar. After achieving his goal of being a professor, he hopes to get involved in politics, and eventually become a U.S. Senator, saying that two of his main focuses will be proposing a new system of public education and improving health care.
Recent Accomplishments

Luis Alicea, a student in Science Education, has been selected to participate in the 2008 National Science Foundation Alliance for Graduate Education and the Professoriate (AGEP) Summer Research Scholars program at UCLA. AGEP is a partner in the University of California system-wide effort to increase the number of underrepresented minority students in science, technology, engineering, and mathematics PhD programs who are interested in academic and research careers.

Professor O. Roger Anderson, Professor in Science Education, Senior Research Scientist at Columbia University, and Department Chair, presented a major symposium paper on the effects of climate on microbial communities at high latitudes and their role in the carbon cycle, including the effects of their respiratory carbon dioxide on the atmosphere and global warming. The paper is to appear this summer in the *Journal of Eukaryotic Microbiology*. He also is a co-author on a paper describing a new species of rhizopod eukaryotes that he named *Corallomyxa tenera*. It appeared in the journal *Protist*, volume 158, pp. 457-472.

Janell Catlin accepted a position at Teachers College in the Office of School and Community Partnerships as Project Director for the Harlem Schools Partnership for Science and Math Education and the Fu Foundation School of Engineering and Applied Science at Columbia University, through a grant from the GE Foundation.

Professor Christopher Emdin, Assistant Professor in Science Education, was selected by his peers for inclusion in the PDK 2008-2009 Class of Emerging Leaders. Applications are reviewed by former Emerging Leaders.

Doresa Jones, former Secretary for the Program in Science Education, was honored among a group of members at the Riverside Church in May, who received the James M. Washington Award for service to the college.

Susan Lowes, Director for the Institute for Learning Technologies, recently has had her work published on the eSchool News website. The article explains her work in figuring out how online courses can be constructed to be more beneficial for the students. The complete article can be found on the eSchool News website, at www.eschoolnews.com.


Mathangi Subramanian, CCTE student, was awarded both a Jacob Javits Scholarship in Communications and a Foreign Language Area Studies grant from Columbia University to study Hindi in Jaipur, India this summer.

Stephen Wefer, a graduate of the Science Education Program, and Professor O. R. Anderson co-authored a paper “Identification of Students’ Content Mastery and Cognitive and Affective Percepts of a Bioinformatics Minunit: A Case Study With Recommendations for Teacher Education” which highlights individual student differences (especially the way they processed information and integrated procedural and analytical thought) and summarizes a variety of critical situations that teachers may encounter when teaching bioinformatics.

Upcoming MST Events

The Mathematics, Science and Technology Department has many exciting events scheduled for the Autumn 2008 semester. Look out for emails announcing the specific dates for these events!

- Program in Science Education Open House
- Program in Mathematics Education Open House
- Program in Communication, Computing and Technology in Education Open House
- Fall MST Welcome Reception
- Welcome Reception for Dr. Sandra Okita, Assistant Professor in CCTE

Did you Know?

NYC schools cover 125 million square feet of floor space in more than 1,100 buildings throughout the five boroughs.

-NYCDOE Website
Ann Rivet Appointed to Editorial Board of Journal

Ann Rivet, Assistant Professor in Science Education, has recently been appointed to the Editorial Board of the Journal of Research in Science Teaching (JRST) for a three-year term beginning Spring 2008. JRST is the official publication of the National Association for Research in Science Teaching (NARST). It is the policy of NARST that every manuscript published in the journal must be reviewed by an editorial board member. The Executive Committee of the organization appoints editorial board members, which they did at their recent spring meeting. One of the responsibilities of the editorial board members is to do very thorough reviews of the manuscripts they receive. The editors of the journal attribute much of the journal’s success to the hard work of the editorial board members.

MST Department Hosts Graduation Reception

On Wednesday, May 21st, the MST Department hosted a graduation reception for all department graduates and their guests. This year, 142 students from the department graduated, either in October of 2007, February of 2008 or May of 2008. Many faculty members from the department attended this reception, and violin music was played by Amy Yeh, a music education student. This year, at the afternoon TC Convocation ceremony, New York State Attorney General Andrew Cuomo spoke on behalf of Governor David A. Paterson, who was hospitalized the previous day. As reported on the TC website, Cuomo commented on No Child Left Behind saying, “Dictating standards without committing the funding and tools necessary to meet those standards is a shallow promise indeed.” At the evening ceremony, both Randi Weingarten, president of the United Federation of Teachers, and Gloria Ladson-Billings, Kellner Family Professor in Urban Education at the University of Wisconsin-Madison, spoke. Ladson-Billings spoke about post-Katrina New Orleans, and used it as an example of the need for scholarship that both partners with and improves that which it studies. She said, “The shame of New Orleans is not just what has happened to its edifices, it is how the city has become a metaphor for urban neglect and systemic failure….How do we not see that far too many of our urban centers are one natural disaster away from becoming another New Orleans? And how is it that we are not called to action as citizen scholars to bring our expertise to bear on our most persistent problems?” The Department wishes the best of luck to all of the graduates!

Grants Awarded to Center for Tech and School Change

Dr. Ellen Meier, Co-Director of the Center for Technology and School Change (CTSC), was awarded multiple grants from different organizations. The grants represent a number of professional development and evaluation initiatives related to the ongoing research agenda at the Center for Technology and School Change: the integration and use of technology to enhance teaching and leading in urban schools. The grants cover a range of activities, content areas, types of schools and target groups in the metropolitan area. These grants include:

- Four Professional Development Grants with Yonkers Public Schools, totaling $225,000
- NYC American History Grant Evaluation for $25,000
- NYC Math & Science Partnership Grant Evaluation for $60,000
- Two Title IID Evaluations for New York for $48,750
- Professional Development Grant with NYC Jewish Schools for $24,000