COLLEGE OF EDUCATION
San Diego State University

FACULTY AND STAFF ASSEMBLY

Spring 2016
Welcome!
Agenda

• Welcome
• Faculty and Staff Introductions & Acknowledgements
• Lisa McCully (Annual Report)
• Randy Philipp (CRMSE Presentation)
• Dean’s Remarks
• Luke Sophinos (CourseKey Presentation)
Faculty & Staff
Introductions &
Acknowledgements
Sascha Longstreth
Interim Chair
Child & Family Development
Maribel Flores
Administrative Support Coordinator
Dean’s Office
Esmeralda Cortez
Administrative Support Coordinator
Dual Language & English Learner Education
Alison Sternal
Administrative Support Coordinator
SDSU/CGU Joint Ph.D. Program in Education and Mathematics/Science Teacher Initiative (MSTI)
Annual Report
CRMSE
The Center for Research in Mathematics and Science Education (CRMSE)

Dr. Randy Philipp
Director
College of Education

Dr. Susan Nickerson
Associate Director
College of Sciences
CRMSE promotes collaboration and cross-fertilization.

Since 2000, more than $50 million in external funding, most of which is full indirect from the NSF.

CRMSE supports an active colloquia series.

The Mathematics and Science Education Doctoral (MSED) program is housed at CRMSE.
Doctoral Students
Foundational Research Studies

- Evolution of students’ ideas during learning
- Teachers’ knowledge, beliefs, & instructional practices
- How innovative technologies and instructional approaches enhance students’ conceptual understanding for success.
# CRMSE Research Activities

## Implementation Projects

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## Foundational Research Studies

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### Foundational Research Studies

- Evolution of students’ ideas during learning
- Teachers’ knowledge, beliefs, & instructional practices
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An Example

• We prepare teachers
• We support teacher professional development
• Master’s Programs

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What Knowledge of Mathematics Do Teachers Need?

Example, Javier, Grade 5

At the time of this interview, Javier had been in the United States about one year, and he did not speak English before coming to this country.

(Javier, VC #6, 0:00 - 1:10)
One Representation of Javier’s Thinking

\[ 6 \times 12 = (5 \times 12) + (1 \times 12) \]  
\[ = [(\frac{1}{2} \times 10) \times 12] + 12 \]  
\[ = \left[ \frac{1}{2} \times (10 \times 12) \right] + 12 \]  
\[ = \left[ \frac{1}{2} \times (120) \right] + 12 \]  
\[ = 60 + 12 \]  
\[ = 72 \]

What would a teacher need to know to understand Javier’s thinking, and where do teachers learn this?
Looking at the mathematics through the lens of children’s mathematical thinking helps prospective elementary school students come to care about mathematics, not as mathematicians, but as teachers.
Randy Philipp, Principal Investigator with 5 other faculty across two colleges

Three research associates
Two post docs
Two graduate students
One teacher-in residence
Several undergraduate student assistants
One Prospective Elementary School Teacher Reflects Upon Learning Mathematics While Taking the CMTE
CRMSE
$12.7 million in funded projects (May 2015)

Example: Noyce Project LEARN Collaborative Project

NSF ($3 million) & Qualcomm ($0.5 million)
• Math and Science Education
• COE (Lisa Lamb, Randy Philipp, Donna Ross, Meredith Vaughn)
• COS (Susan Nickerson, Kathy Williams)

32 Exemplary Secondary School Teachers
5 Year Professional Development
Emerge as Teacher Leaders

Research Component
CRMSE Funded Projects

**Example:** Characteristics of Successful Programs in College Calculus - NSF, 2009-2015, $2,000,000.

**PIs:** David Bressoud, Chris Rasmussen, Linda Braddy, Vilma Mesa

- Build a model of successful calculus programs and disseminate this nationally

**New Project:** Progress through Calculus

**PIs:** David Bressoud, Chris Rasmussen, Jessica Ellis, Sean Larsen, Linda Braddy

**NSF, 2015-2019, $2,225,000**

- Models of change that work for improving Precalculus through Calculus
Investigating a Role Model Empowerment Program: Inspiring Women to Pursue and Thrive in STEM

$1.5 Million, NSF
Dr. David Marx (PI), Associate Professor of Psychology
Dr. Sei Jin Ko (co-PI), Adjunct Assistant Professor of Psychology
Dr. Susan Nickerson (co-PI), Associate Professor of Mathematics and Statistics
Dr. Lisa Lamb (co-PI), Professor of Mathematics Education

In-depth exploration of similarity between women and peer role models with the goal of identifying ways to make peer role models optimally effective.
Academic Home in the Sciences

- Housed in Division of Physical Sciences at UCSD and College of Sciences at SDSU

- Students enter with Masters in Math, Physics, Chemistry, or Biology
- Only 10% of programs have similar requirement
- Helps prepare students for an academic home in either the sciences or education

Ph.D. Program in Mathematics and Science Education (MSED)
Top Ranked Program

7th in Mathematics Education (2007)

1st in Mathematics Education (2010)

Index of faculty scholarly productivity

• 32 Graduates: land top university positions, publish in top journals, & obtain research grants

• MSED meets a critical national need: 25-45% of university math education positions go unfilled
(Some) CRMSE Connections

• Advisory Board
• CRMSE Graduate Student Representative (Hayley Milbourne)
• STEM Education, Economics, and Equity (SEEE) Seminar Series *(How ‘Smarter’ and How ‘Balanced’ are the New Assessments in Mathematics?, Mark Ellis, CSU Fullerton)*
• Colloquia and Brown Bags
• Distinguished Lecturer
• Visiting Scholars
  Xuefen Gao, China, Current
  Reyhan Tekin Sitrava, Turkey, 2016-2017
Equity Issues

How race, class, and language affect teaching and learning

Her work challenges deficit views of Latin@ and Black students and suggests that to be successful, mathematics teachers need to be prepared with more than content knowledge, PCK, or knowledge of diverse students.
Questions?
Moving CRMSE Forward

**Modest Support**
- Larry and Judy Sowder Quasi-Endowment Fund (Any amount)
- Supporting Colloquia Series (Any amount)

**Intermediate Support**
- Named Positions
  - CRMSE Endowed Faculty Scholarship ($50,000 minimum)
  - CRMSE Endowed Student Scholarship ($50,000 minimum)

**Most Ambitious Support**
- Named Endowed Chairs
  - CRMSE Mathematics and Science Endowed Research Chair ($2.5 million)
Dean’s Remarks
Let’s Keep Learning

Spring Site Visits:

- **Naranca Elementary School**
  - Friday, February 19th, 9:00 a.m. – 12:00 p.m.
  - Location: 1030 Naranca Avenue, El Cajon, CA 92021

- **EarthLab**
  - Thursday, March 17th, 11:00 a.m. – 1:00 p.m. (including lunch)
  - Location: Behind Millennial Tech Middle, 1110 Carolina Lane, San Diego, CA 92102

- **MSTI Tutoring Program at Montgomery High School and Montgomery Middle School**
  - Tuesday, April 19th, 1:00 p.m. – 3:00 p.m.
  - Location: 3250 Palm Avenue, San Diego, CA 92154
Let’s Keep Learning

• **Program Leaders Meetings:**
  – Friday, February 5th, 10:00 a.m. – 12:00 p.m.
  – Wednesday, March 9th, 9:30 a.m. – 11:30 a.m.
  – Thursday, April 14th, 1:00 p.m. – 3:00 p.m.

• **Center Director Meetings:**
  – Thursday, February 11th, 9:00 a.m. – 11:00 a.m.
  – Tuesday, April 5th, 10:00 a.m. – 12:00 p.m.

• **Location:** EBA 342
Let’s Keep Building Resources

THANKS TO OUR MANY DONORS!

Submit Improving Futures Fund Apps -- Due 1/28

Continue to develop “innovative, groundbreaking, creative,” proposals for the President’s Leadership Fund

Continue to submit stories that highlight our strengths through our InformED & InspirED Newsletter

In support of your best ideas, continue to encourage donors to consider:

− One-time gifts
− Pledges with multiple gifts
− Planned gifts
Let’s Keep Building Resources

Consider applying for the GREW Program (applications due 2/19)

In response to requests for proposals, “READY, FIRE, AIM.” Prepare as best you can, submit a proposal, and learn from the feedback.

Think “out-of-the box” about possible partners on research grants.
Let’s Keep Expanding Wisely

Utilize TEACH grants and scholarships

Maximize impact of new RISE Program (Return, Inspire, and become a Sweetwater Educator)

Strengthen the pipeline to our graduate programs through great undergraduate programs
- CFD
- Liberal Studies
- Counseling Minor
- Leadership Minor
- Cultural Proficiency Minor

Maximize effective use of our graduate program enrollment slots
Let’s Keep Valuing Our Students

Remember that our students are the future of our profession!

Encourage participation in the Student Research Symposium on March 4 and 5.

Let’s continue to create transformational learning experiences (e.g., international experiences, powerful engagement with the field, opportunities to influence change).

Let’s strive to make every course better that the last time it was offered.
Let’s Keep Valuing Each Other

Submit nominations for Alumni Award Nominations (due February 15)

Let’s treat our COE colleagues with at least the same respect they receive from educators across the state, country, or globe!

Let’s remember that staff members are an integral part of our team.

Make concrete plans to support a new faculty member. The future of our departments depend on our new faculty.

Get to know someone who is not in your program today! Learn about what they do, what they’re passionate about, and what change they hope to influence.
Have a Successful Semester!
CourseKey
Welcome Educators

Creating Engagement in the Classroom Workshop
The *co-authored* higher education blog. Join other professors and students as we explore the modern university classroom and offer insights into both the student and educator experience.
Student Success Formula

"The educational Circle of Life"

- Time
- Engagement
- Social Learning
The History of (SRS) Student-Response Systems

A quick story on the evolution of classroom technology...

1999

Hardware and RFID

Two professors at University of Illinois create the first-ever student response system.

Cellphones and SMS

Created by university student and moved polling hardware into SMS-based cellular phones

2007

BYOD Smart-Devices

Two university students create the first Bring Your Own Device mobile application student response system.
Front and Back-end Classroom Facilitation

Higher Ed Apps
- i-clicker
- Poll Everywhere
- TOP HAT

CourseKey
- Integrity
- Personalized
- Engaging
- Simple

Social Apps
- Facebook
- Evernote
- YouTube
- GroupMe
- Microsoft Office
CourseKey

Created by university students in collaboration with professors, instructional technology staff, and learning design technology experts.
Awards / Accomplishments

(GSEA) Global Student Entrepreneur Awards

San Diego Lean Model Competition

1st Zahn Challenge Audience Pick

Top 10 out of 3,800 Student Companies

SD's Top Tech Incubator

Closed first round of funding!

Featured by:

Medium
The Aztec
Union-Tribune
EO
GSEA
Today, CourseKey is being utilized by 24 educators from all disciplines in 60 classrooms serving more than 5,000 students in colleges and universities across Southern California. We’re providing real-time data and analytics, per student, that proves we’re making a difference in attendance, interaction, social learning, and grades.
# Our Development Timeline and Success

<table>
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<tr>
<th>Phase</th>
<th>Fall 14</th>
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<tr>
<td>GROW</td>
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<td>COURSEKEY V2.0</td>
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- **BORN**
  - Fall 14: ZAHN CENTER
  - Spring 15: Alphabet EVO NEXUS
- **ALPHA/BETA**
  - Fall 15: Alphabet EVO NEXUS
  - Spring 16: Alphabet EVO NEXUS
- **LAUNCH**
  - Fall 16: COURSEKEY V1.0
- **GROW**
  - Spring 17: COURSEKEY V2.0

**Monetary Milestones**

- **$1,200**
  - Spring 15: 850
  - Fall 15: 5000
  - Spring 16: 15000
- **$19,000**
  - Spring 16: 15000

(CourseKey Logo and Graphic Design)
Our Aztec Educators

- Accounting
- American Indian Studies
- Biology
- Business Law
- Communications
- Economics
- Engineering
- Entrepreneurship
- Finance
- Geology
- History
- HTM
- Management
- Marketing
- Mathematics
- MIS
- Philosophy
- Political Science
- Public Health
- Spanish
Thank You

Don't forget to join subscribe to our blog and join the conversation.