

# University Partnership Professional Development Program

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## Professional Development (USDOE MSP)

- **Project ACE**  
(Achievement through Content Expertise)
  - Involved 7 mathematicians from USF
  - 8<sup>th</sup> largest school district in the nation (over 200,000 students)
- **Florida PROMISE**  
(Partnership to Revitalize and Optimize Mathematics and Science Education)
  - Participants: ~1000 teachers
  - Statewide initiative, with multiple components
  - Involved 25 STEM Faculty (13 M) from USF, FSU, UF, & FIU
  - Participants: ~2000 teachers over two

## Undergraduate Education (NSF Grant)

- **KnoTSS** (Knowledge for Teaching Secondary School Mathematics)
  - Co-teach mathematics content course – Geometry
  - Co-teach mathematics methods course – HS mathematics methods

# Assumptions

- Teachers, as a unique audience
- Mathematics Knowledge
  - What is known teachers, teaching, and schooling?
  - What mathematics do teachers need to know in order to **TEACH** subject matter effectively?
  - How should they come to know this knowledge (e.g., procedurally, conceptually)?
- Model the type of pedagogy that we wanted teachers to use with their students.

# Features of High Quality Professional Development Collaborations

- “REAL” Collaborations between Educators & Mathematicians
  - Collaborate: “to work with another person or group in order to achieve something”
    - What is it that you want to achieve?
    - How will you know that it has been achieved?
    - What type of knowledge is being targeted?
    - What processes (e.g., reasoning, communication) are emphasized?
- Identify & Interrogate Assumptions and Expectations
- Finding Commonality among Perceived Differences
- Being open to unfamiliar notions
- Exchanging roles
  - Educator leads the mathematics discussions

# Things to Consider

- Investment of time
- Experiences of the collaborators
  - Approaches to learning math -- “That is how I did it when...”
  - School Experiences
- Sources of Materials
  - Use of existing materials vs. designing new ones
  - Course text
- Potential Pitfalls
  - Final authority
  - Defending positions and rationales
    - Why? – as a personal affront that is critical of personal knowledge
    - Vs.
    - Why? – an opportunity to share and clarify
- University Expectations
  - Research mathematicians

# Reflection of Math Faculty

*“ The advantage of activities and this assumes that there is a discussion at the end of the activity, because a disconnected activity is just worthless. But the benefits of doing an activity with a discussion combined is that it anchors the learning peoples concrete experiences, so they can make a personal link, a personal connection, and those things tend to help make things stick in people’s minds.”*

*“If I have a choice, yes, yes. I am improving. I will cut a little content to do more in depth”.*

*“My experience will probably affect how I work with*

# What have you gained personally?

*"I gained a better understanding of who are the people who go into math teaching in the US and what I should teach them and how I should teach them. (M)*

*"I have come full circle as far as being a believer in activity-based learning. I wasn't a believer at the time when we last talked." (M)*

*"Got more personal experience that will help me grow as an instructor. I was forced to think about my content [in ways] that I haven't done—it helped me gain a different perspective." (S)*

# Would you continue with such projects?

*“Definitely. Hope for the chance. Sometimes we complain about our students. If we don’t get involved we should not complain. Very important. This is what [a key PROMiSE leader] is trying to do—create bridges between the schools and universities. This is very important. ( M)*