BEYOND THE ACHIEVEMENT GAP: HELPING YOUR STUDENTS PLAY/CHANGE THE GAME

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OVERVIEW OF TALK

Effective Math Departments

Lessons Learned

Educational Equity

Dimensions in Learning

Teacher Professional Development

Reclaiming the Profession

EFFECTIVE MATH DEPARTMENTS SERVING AFRICAN AMERICAN AND LATIN@ YOUTH
(GUTIÉRREZ, 1995; 1996; 1999; 2000; 2002A,B; 2008)

- Successful Outcomes
  - Scored better than expected on standardized tests
  - Took more than required number of math courses
  - 81 students in calculus classes
  - Calculus students representative of student population
  - English learners some of higher achieving students

WHAT WORKED?

- Rigorous & common curriculum
- Commitment to collective enterprise (e.g., rotation of courses)
- Commitment to students (e.g., accessible)
- Innovative instructional strategies (e.g., technology, relevance, etc.)

- Facilitated by teacher community

BEING AN ADVOCATE FOR STUDENTS

- "I think, many many teachers get overwhelmed by the demands of the job and feel punched around by the bureaucracy or the principal or other teachers. It's complicated so it's really hard as an individual to kind of maintain a stance of believing in kids and, and constantly thinking of new and creative ways to move them forward. And… I think having other teachers, particularly other math teachers [in the department] that have a similar stance and similar ideas, I think that we help each other continue to be creative and idealistic and non-alienated." *[EH01, 6, 7]*

TRANSFORMING SCHOOLS

- "And, I think we got a more concrete sense of what high expectations meant. Maybe as much as anything else, we got empowered as teachers. We came to believe, maybe in similar ways I came to believe as a student and union activist, that we could really change what our schools were doing."

BUILDING IDENTITIES

- “I mean, besides the academic benefits of possible college credit, the grades, I think they get, there's somewhat of an esprit de corps like "we are the smart kids, we are the cool kids, we are the, kids who went together over the summer, we've been through something together,” that I think is valuable…I also think that Union as an integrated school has this effect…kids from different cultures working together…there's a kind of nice spirit of people working together at a high level seeing each other as achievers, as smart, you know, the smart kids are not of one race.” (JS004, 4)

BUILDING IDENTITIES

- “I mean I think there’s a million things we can do to like educate, organize, the vision, I mean I think we more than anything provide a vision for kids… having them believe in themselves, having them believe in themselves as a group, having them be able to do math as a group, having them believe they can go to college as a group, individually and as a group…Um, and then at a whole 'nother level, it's like a political level…my way of teaching tries to organize them to be actors rather than acted upon…” [EH001, 5, 7]

WRITING COUNTER NARRATIVES

- That's part of what drives my teaching because I got sick of the racists I used to work with in the [wood working] shops. I mean, some really nice guys. But, their image of inner city kids is like, every stereotype you can imagine. You know, and partly I'm teaching cause I want to say "In your face!" you know, it's like, these kids are just as good as the New Trier [prestigious school] kids. (BL005, 14)

SOME LESSONS LEARNED FROM EFFECTIVE MATH DEPARTMENTS

- Doing more than just getting kids to take higher levels of math
- Not all T's on board, but critical mass important (whole > sum of its parts)
- Constantly struggling to reach more students (representative)
- Definitely about identity and power, but subtle

IDENTITY AND POWER

- Calculus students normalized their presence, yet used it to their advantage ("calculus card")
- Teachers saw themselves as writing a counter-narrative in society
- Reclaimed their profession by deciding themselves what was considered successful

PREVAILING BELIEFS ABOUT IMPROVING TEACHING AND TEACHER EDUCATION

(Ball & Bass, 2003; Ball, Thames, & Phelps, 2008; Hill, Rowan, & Ball, 2005; Hill et.al, 2007; Leonard, 2007; Civil, 2007)

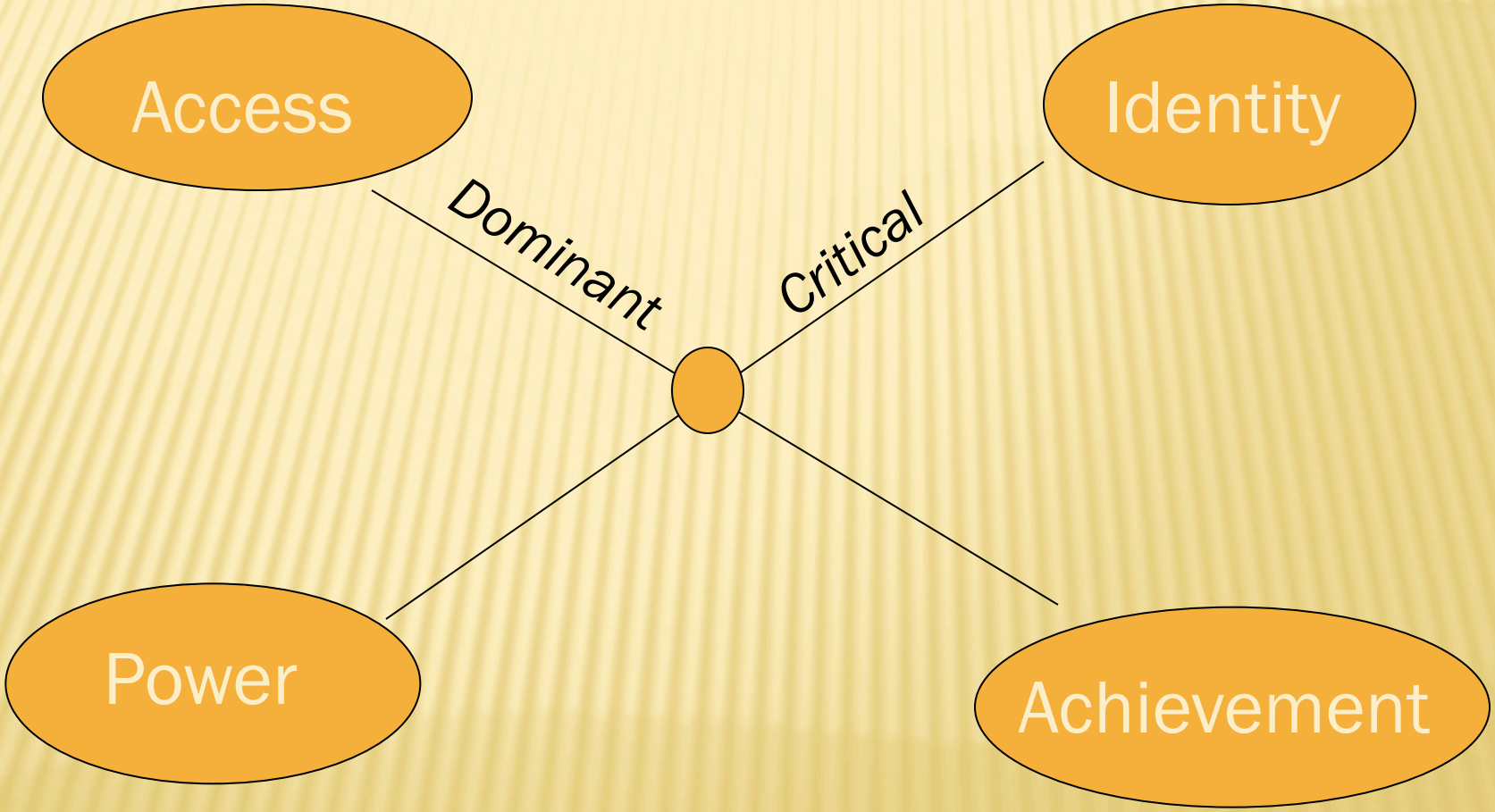
- Mathematical knowledge for teaching (MKT)
  - Common content knowledge versus specialized for teaching
  - Requires more than accurate execution of procedures (e.g., analyzing student errors)
  - Expanded PCK
- Knowledge of students
  - Horizon content knowledge
  - Funds of knowledge (building on students' culture)

WHAT'S MISSING IN THESE MODELS?

- Deep connection with students, families, and communities
- Math as dynamic, human practice
- Acknowledgment that "achievement gap" is a social construction, connected to racism
- Equity> access to rigorous curriculum
- Recognition that teaching is a negotiated practice (with students, families, administration, colleagues)

Dimensions of Learning

(Gutiérrez, 2007; 2008b; 2009)



Play the game/Change the game

SUMMARY OF DIMENSIONS OF LEARNING

- Access=human and material resources
- Achievement=student outcomes
- Identity=affirming and expanding oneself
- Power=voice in school; agency in society

HOW WOULD YOU CLASSIFY IT?

- Parents are invited to the school to learn how to support their student with the new Interactive Mathematics Program (IMP) curriculum that was adopted.

Access (+)

HOW WOULD YOU CLASSIFY IT?

- Students practice problems like the ones that will appear on standardized tests. Later that year, their school makes AYP (Academic Yearly Progress) under NCLB.

Achievement (+/-)

HOW WOULD YOU CLASSIFY IT?

- Mr. Taylor's students learn how to use geometry to solve a problem about the school's redistricting policy that threatens to bus families to other schools. They present their "better" solution to the school board.

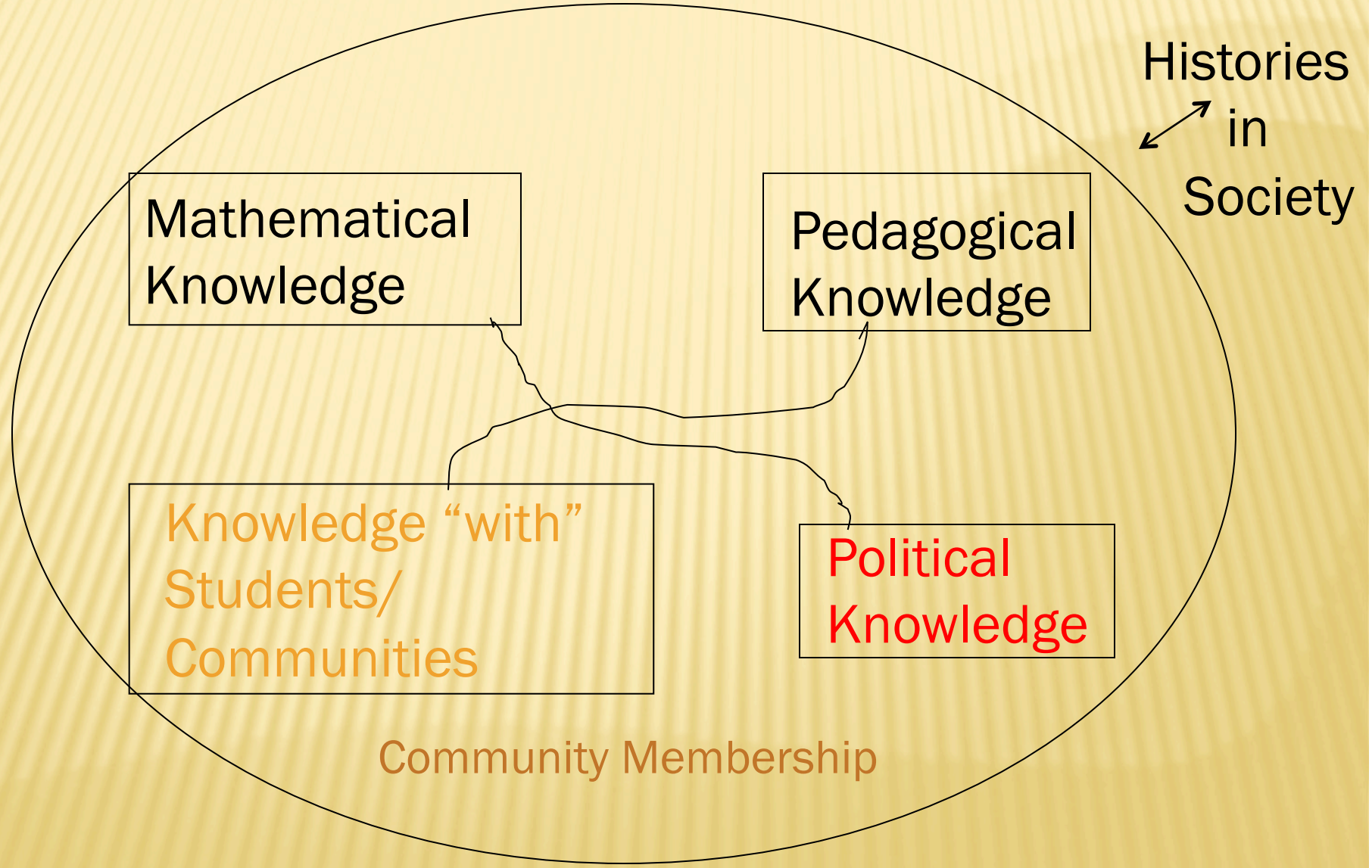
Power(+)

HOW WOULD YOU CLASSIFY IT?

- Homework assignments are of the form: Here's a problem; now do 30 just like it.

Access (-)
Identity (-)

Knowledge for Mathematics Teaching



TEACHERS NEED POLITICAL KNOWLEDGE

- Professional development around PCK not enough (Gutiérrez, 2004)
- We need to prepare teachers with the knowledge to *change the game*
- Reclaim the profession through creative insubordination

MODEL OF TEACHER DEVELOPMENT

- Partnership with Nationally Board Certified high school math teacher
- *Play the Game/Change the Game* Framework (identifying tensions)
- Language and Teaching Moves for Reclaiming the Profession through Creative Insubordination

WHAT IS MATHEMATICS?

- What is a **quick definition** you use for yourself when you think about what mathematics is? (How do you know you are doing mathematics?)

PREPARED TO CHANGE THE GAME?

- SCENARIO: You've spent most of the year having your students do challenging mathematical problems, often times in small groups. They are used to making conjectures in their math journals and explaining their work to the whole class.
- In April, you're handed the "district final exam" where the problems are all strictly procedures.
- Do you give the exam? (YES/NO)

RECLAIMING THE PROFESSION

- SCENARIO: Student teacher working in a school with a 30% Latino student population. She is teaching calculus.
- "At the school where I am working, there is only 1 Puerto Rican student in the calculus course and I'm concerned about that."
- What would you tell your pre-service teacher about how to play the game and change the game to address her concern?

FORMS OF CREATIVE INSUBORDINATION

- Seek Allies
- Initiate Professional Dialogue
- Counter with Evidence
- Connect with Students

WHAT ARE THE IMPLICATIONS OF THIS FORM OF TEACHER EDUCATION?

- Focus on political knowledge, tensions in equity stance better reflect reality (not easy, no silver bullet, dynamic)
- Reclaiming the profession is an explicit stance, not set of skills
- Prepares teachers for strategic risk-taking (creative insubordination) to engage and transform mathematics teaching and learning
- May help with teacher retention

WHEN AND HOW SHOULD TEACHERS EMPLOY CREATIVE INSUBORDINATION?

- Are there times in teachers' careers when particular moves are more or less effective?
- Do certain math topics or student populations require particular moves?
- Does the identity of the teacher influence how they reclaim the profession?