

Moving Beyond Stereotypes:
The Complexity of Language in
Teaching Latina/Latino Students
Mathematics

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Effective Teaching: Some Consistent Findings

- Students working in primary language
- Materials in primary language
- Knowing linguistic backgrounds and needs
- Building on familiar knowledge domains
- Stressing the language of mathematics
- Students working in groups
- Involving families

Research Site

- Non-select, comprehensive Chicago public high school
- 42 languages spoken
- 67% Latina/os (primarily Chicana/o)
- 87% qualified for free lunch
- 40% drop out rate
- Gang activity
- Incoming skills below grade level

Signs of Success

- Recognized by local researchers/teachers
- High rates of student participation
 - (e.g., almost 40% seniors taking calculus)
- Calculus students represent student body
- Students can articulate math concepts
- 80% calculus students planning for college

Data Sources

- 22 semi-structured teacher interviews
- 13 months of field notes/observations
- Student interviews (22 of 60 calculus)
- Student open ended questionnaires

You know, I'm not sure to what extent [Spanish] plays a role. I mean I think it does and it doesn't . . . so yesterday, it was interesting. Manuel was working with two weak students, who were entirely lost and asking him questions. It was fairly hard in places, so he was asking me a few questions and some other kids, and then he was talking to Hesael in Spanish about the problems. I don't know that I've seen him that much in here talking Spanish, I could be wrong. But hearing it, I've seen other kids talk Spanish more. He speaks English quite well and he feels comfortable and maybe some other kids feel less comfortable, but they were really animated. And my comment to Hesael afterwards was, "Well, that

was really neat to see you guys really into that.” So it seemed like it was more real or more vital [to them] in doing it. It was like they were really at a much greater level. “I’m interested in this, doing this in my language, that maybe I feel a little more comfortable,” or whatever. They probably did feel a little more comfortable, but they were, it seemed, more animated, so it was very neat. So I don’t know what that says about your question, but it was an interesting revelation.

RG: Well, let me ask you this. What went through your head, other than noting that it was an interesting and neat conversation between them? Did you want to know what they were saying? Would that help you teach?

JS: Not necessarily, not necessarily, not necessarily. . . . If they are speaking in Spanish and I don't understand Spanish, that's right [I don't understand what they are saying]. But I think they were doing well. (JS05, 12)

Know the Linguistic Needs of Students

- Knowing who prefers to speak Spanish and under what conditions
- Recognizing the link between language and identity (not just skills)

He's a nice guy, meaning he doesn't seem arrogant or standoffish. He's young, energetic, talks to people, outgoing. I think that's really good in a teacher. It's nice to have that. And the main thing, though, is philosophically he's a constructivist. He would love to teach in a school that supports IMP [Interactive Mathematics Project]. But he's willing to settle for here where we're "closet" IMP. And also he's bilingual. Which is another real plus for this school, . . . and mathematically he is strong and I think he's on the right wavelength about learning how to engage a student. [BL05, 9]

No problem. Have you noticed, it's not really a problem except when they isolate other students. That could be a problem in some groups. There was a problem with Joi being the only Black woman in class. She was very aware of it. She really got into it with Samuel. They got into this racial point, Joi and Samuel. And part of it was she was sensitive. People were talking [about] math in Spanish and she couldn't understand them. She couldn't get into the group. And that happens in my geometry class sometimes, too. I don't discourage it, though. I really try and say, include this person in English. And I don't push it much beyond that because at least at the calculus

level, I know it's incredibly productive for them to talk. They switch back and forth. It's Spanglish. Noel is a master at that. He'll explain something in English and switch to Spanish. He'll go back to English. He'll be all over the place with it. When talking with Chaco, usually, or with Lali or Monica.
(BL05, 26)

Encourage Discourse

- Beyond translation, vocabulary
- Strong math and relations with students
- Student groups that draw upon resources

To me, it's a critical piece 'cause we do have a lot of LEP students that need that. They need someone that could say something in Spanish, even if it's one word, to try to create meaning a little quicker. I mean, they do fine with [Mr. Shulman and Mr. Lake], but to ask somebody about a personal problem, they can't do that. But it's good. It's a plus. It wasn't the overriding plus, but it's a plus. (MS07, 10)

Yeah, I'm not like the best. I can fill in what I can, get an idea, if I have to. Meaning making, I call it. I call it meaning making. I can carry a common conversation. [But] I would need lots of practice [to use it in the classroom]. I need to look up vocabulary that's common to math. And some of the word problems and stuff. I don't know some of the words, like "sloping." . . . I try to make meanings and do gestures. I call it meaning making. (MS07, 11)

Use Spanish Where Appropriate

- Recognizing the limits of fluency
- Spanish as a way to connect with students
- Meaningful encounters

Classroom Observations

- Students working in groups
 - in primary language
 - hybrid language practices
- Building upon previous knowledge
 - Teacher-made materials (80% time)
 - Multiple points of access for students

Some Key Issues for Teachers

- Teaching strategies paralleled research on ELL's and in earlier grades
- Developed local knowledge
- Learning context is more than instruction

Further Issues for Research

- Role of language in teacher education
- Developing spaces for hybrid language practices
- Developing political dispositions of teachers

This presentation was based upon the following article:

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