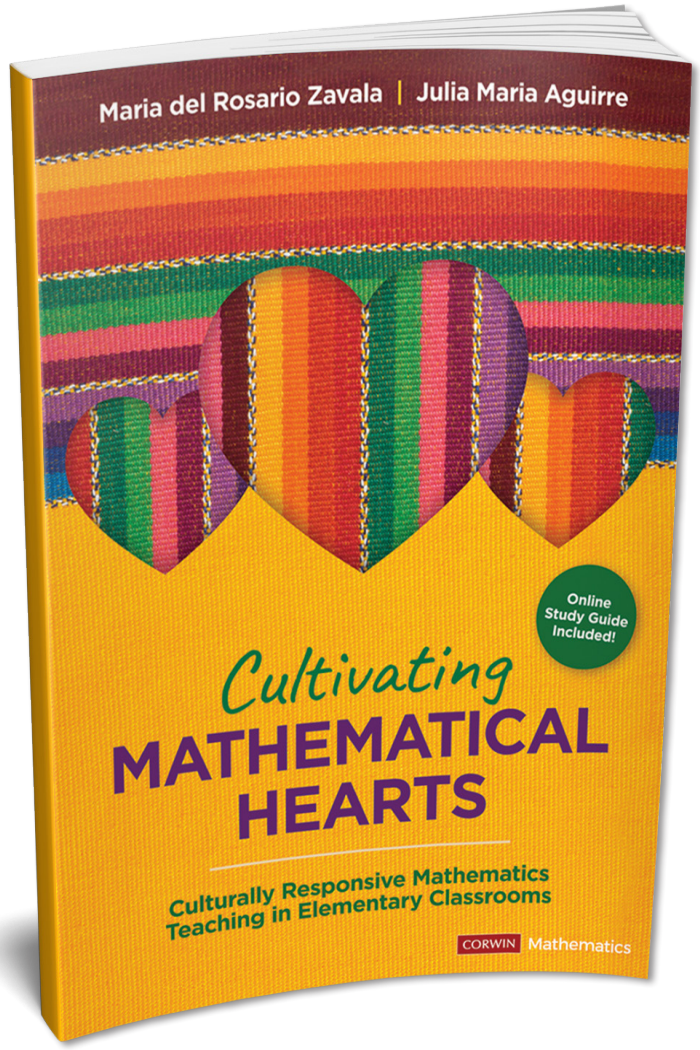

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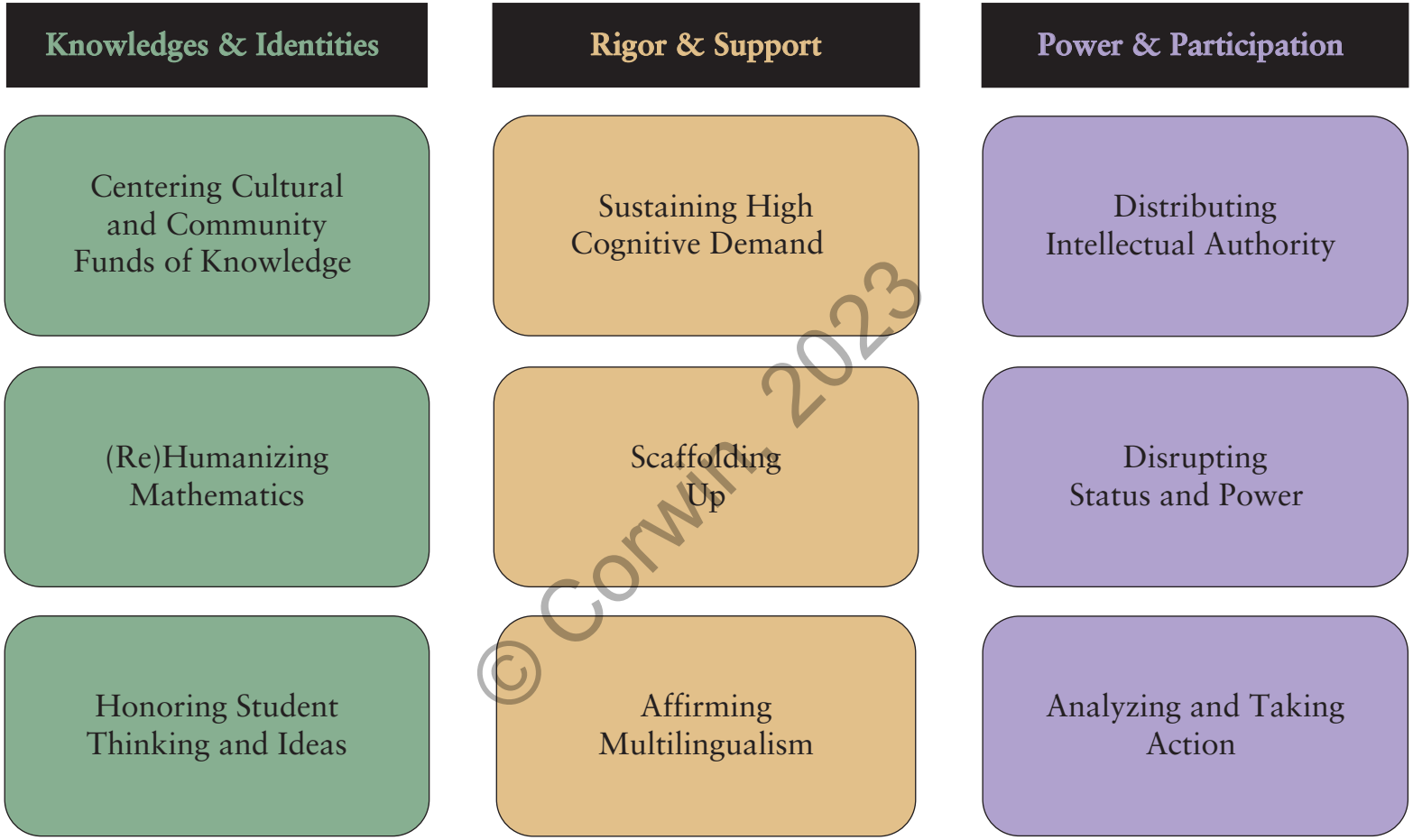

STRAND: KNOWLEDGES AND IDENTITIES

1. **Centering Cultural and Community Funds of Knowledge (CFoK):** ***How does my lesson help students connect mathematics with relevant/authentic issues or situations in their lives?***

Fragile/ Margin  **Strong/ Centered**

1	2	3	4	5
There is no evidence of connecting to students' cultural funds of knowledge (parental/ community knowledge, student interest). This could include claims of "cultural neutrality" and appeals to a universal nature of mathematics.	There is at least one instance of connecting a math lesson to community/cultural knowledge and experience, such as during the lesson launch. Lesson briefly draws on student knowledge and experience, but they are not central to the lesson. The focus is with one student or a small group of students.	There is at least one sustained episode of sharing and developing collective understanding about mathematics that involves connecting to community/cultural knowledge to analyze authentic situations or issues in students' lives.	There are many sustained episodes of sharing and developing collective understandings about mathematics that involve connecting to cultural/ community knowledge (e.g., student experiences are mathematized, student/parent connections with math work; math examples are embedded in local community/ cultural contexts and activities such as games).	The creation and maintenance of collective understandings about mathematics that involves intricate connections to community/cultural knowledge permeates the entire lesson. This would include hook/intro, main activities, assessment, closure, and homework. Students are asked to analyze the mathematics within the community context and how the mathematics helps them understand that context.

STRAND: KNOWLEDGES AND IDENTITIES

2. **(Re)Humanizing Mathematics:** ***How does my lesson support creativity, broaden what counts as mathematical knowledge, and affirm positive mathematical identities for all students?***

Fragile/ Margin  **Strong/ Centered**

1	2	3	4	5
There is no evidence of humanizing practices. This could include mathematical knowledge treated as impersonal and unquestionable, mathematics of only the dominant school culture in the United States, and lack of connection to students as human beings.	There is some evidence of at least one aspect of humanizing practice in part or all of the lesson, which could include incorporating cultures and histories of students in the classroom, support for physical and emotional components of mathematical knowing, and students taking ownership of ideas or being asked to analyze/question mathematics as presented.	There are some instances of shared and collective construction of knowledge that • expands traditional notions of who can be good at mathematics, • may honor students' histories and cultures, • in other ways affirm mathematics identities across student groups, or • being asked to analyze/question mathematics as presented.	There are many instances of shared and collective construction of knowledge that expands and challenges traditional notions of who can be good at mathematics **and** honors students' and/or marginalized people's histories, cultures, and perspectives *in service of* affirming mathematics identities.	There is a deliberate and continuous presence of humanizing practices, such as students drawing on many different knowledge bases to contribute to the construction of mathematical ideas, honoring of students' histories and different ways of knowing, in particular students from marginalized communities, as well as other forms of affirmation of mathematics identities.

STRAND: KNOWLEDGES AND IDENTITIES

3. **Honoring Student Thinking & Ideas:** ***How does my lesson create opportunities to elicit, express, and build on student mathematical thinking in multiple ways? (e.g., through gesture, pictures, words)***

1	2	3	4	5
The lesson does not include attention to student thinking. Mathematical contributions in the lesson are almost exclusively from the teacher. Shared understanding or collective meaning making is absent.	The lesson includes some attention to student thinking. Teacher elicits student thinking of an individual student or small subset of students. Sharing of mathematical ideas is among a few select students or between a student and the teacher. Shared understanding is minimal.	The lesson includes at least two strategies aimed at making student thinking public. Teacher elicits student thinking among students in at least one phase of the lesson (launch, explore, or summary). Shared understanding about mathematical ideas and contributions are evident in at least one part of the lesson.	The lesson includes multiple strategies to make student thinking public. Teacher elicits mathematical thinking across all phases of the lesson. Multiple forms of student mathematical contributions are encouraged and valued by teacher and students. Shared understanding between teacher and students as well as among students is evident across the lesson.	The lesson includes multiple strategies to make student thinking public. Teacher and students elicit mathematical thinking across all phases of the lesson. All contributions are valued and respected by teachers and students. There are multiple and sustained opportunities for teachers and students to collectively respond to each other's thinking and contribute to refining mathematical ideas core to student learning.

STRAND: RIGOR AND SUPPORT

4. **Sustaining High Cognitive Demand:** ***How does my lesson enable*** all ***my students to closely explore and analyze math concepts(s), procedure(s), and problem-solving/reasoning strategies?***

1	2	3	4	5
Students receive, recite, or memorize facts, procedures, and definitions. There is no evidence of conceptual understanding being required. There are no opportunities for mathematical problem-solving, mathematical analysis, or exploration.	Students primarily receive, recite, or perform routine procedures without analysis or connection to underlying concepts or mathematical structure. There are some opportunities for mathematical exploration, but activities do not require analysis to complete. OR A select group of students get access to activities requiring authentic problem-solving, analysis of procedures, concepts, or underlying mathematical structure.	At least one sustained activity involves all students with complex problem-solving, analysis of procedures, concepts, or underlying mathematical structure. There is at least one sustained activity that requires mathematical exploration, analysis, and explanation.	Most of the lesson involves <u>all</u> students in activities that require close analysis of procedures, concepts, or underlying mathematical structure. OR involve complex mathematical thinking, use multiple representations, and demand justification.	The entire lesson involves <u>all</u> students in activities that require close analysis of procedures and concepts, involve complex mathematical thinking, use multiple representations, AND demand explanation and justification.

STRAND: RIGOR AND SUPPORT

5. **Scaffolding Up:** ***How does my lesson maintain high rigor with high support for all students?***

Fragile/ Margin  **Strong/ Centered**

1	2	3	4	5
There is no evidence that the teacher has planned supports in ways that maintain the rigor of the task while providing access for students.	Planned supports provide too much scaffolding and diminish the rigor of the task. OR Planned supports may only attend to access at the start of the task, not throughout the lesson.	Planned supports maintain rigor but may not connect to either this *specific mathematics task,* or draw on the strengths of students. Planned supports may only attend to access at the start of the task, not throughout the lesson.	Specific planned supports ensure most of the class understands the task and has a way to get started. Planned supports are used throughout the lesson, although planned supports for individuals or subgroups may not directly connect to known student strengths. There is no evidence or minimal evidence of supports planned or used for individuals or subgroups of students.	Specific, planned supports address the whole class, as well as individual or subgroup needs. Planned supports are used throughout all phases of the lesson, including launch, students, work time, strategy sharing, or lesson wrap up. Planned and enacted supports for subgroups differ from those for the whole class and build from students' known strengths.

STRAND: RIGOR AND SUPPORT

6. **Affirming Multilingualism:** ***How does my lesson make space for multilingual learners (MLL) to be central participants in mathematics activities?***

Fragile/ Margin  **Strong/ Centered**

1	2	3	4	5
There is no acknowledgment of MLLs' linguistic funds of knowledge. MLLs who are not yet fully proficient in English are ignored and/or seated apart from their classmates.	There is acknowledgment of MLLs' linguistic funds of knowledge, but they are not leveraged in lesson design. Students' use of L1 is tolerated. Teaching focuses on correct usage of English vocabulary only. There is no explicit attention to scaffolding access for MLLs.	There is at least one instance of attention to MLLs' linguistic funds of knowledge that is central to the lesson, such as encouraging translanguaging. Even if a teacher does not use L1, it is evident that MLLs' linguistic repertoires are valued and that they are encouraged to build on them (e.g., students can present in L1, students work in groups in L1). There is at least one instance in which an English as a Second Language (ESL) scaffolding strategy is used to develop academic language (i.e., revoicing, use of graphic organizers, activation of prior knowledge, strategic grouping with bilingual students).	Clear attention is paid to MLLs' linguistic funds of knowledge throughout the lesson. Focus is on mathematical discourse in L1 and English, not students' production of "correct" English. There is sustained use of at least two ESL scaffolding strategies, such as the use of revoicing and attention to cognates, direct modeling of vocabulary, strategic grouping with bilingual students, use of realia, graphic organizers, or encouragement of L1 usage is observed at least between teacher and one student or small group of students. The focus is on positioning of multilingual students as central participants through recognizing their mathematical competence.	Extensive and sustained attention is paid to MLLs' linguistic funds of knowledge throughout lesson. Sustained encouragement of L1 usage, or hybrid language (e.g., code-switching) is observed between teacher and students and among students, in a variety of interactions (teacher-students, pair, small group, and whole class). The main focus is the development of mathematical discourse and meaning making in both L1 and English. Deliberate and continuous use of multiple ESL strategies, such as gesturing, use of realia, use of cognates, revoicing, graphic organizers and manipulatives are observed during whole class, and /or small group instruction and discussions. The main focus is the development of mathematical discourse, identity, and meaning making as learners are positioned as mathematically competent leaders and thinkers.

STRAND: POWER AND PARTICIPATION

7. **Distributing Intellectual Authority:** ***How does my lesson distribute mathematics authority and make space for multiple forms of knowledge and communication?***

Fragile/ Margin  **Strong/ Centered**

1	2	3	4	5
The authority of math knowledge exclusively resides with the teacher (e.g., tightly controls talk in the classroom, teacher decides what answer is correct, IRE patterns may be evident in classroom discourse). Student participation is severely limited (e.g., limited to one-word answers, short choral responses, repetition of teacher).	The authority of mathematics knowledge is infrequently shared and primarily resides with the teacher and a few students. Student participation is limited (e.g., limited to one-word answers, short choral responses, repetition of teacher).	The authority of math knowledge between teacher and students is **sporadically** shared and resides with teacher and some students. Some students participate in math activities in substantive ways, periodically sharing reasoning and different strategies, and understanding the strategies of others.	The authority of math knowledge is **equally** shared among teacher and many students. Most students participate in mathematical activity in substantive ways, and frequently communicate mathematical ideas in at least two modalities (e.g., listening, writing, drawing, speaking, gestures).	The authority of math knowledge is **widely** shared among teacher and most students, and *students* hold most of the math authority. All students participate in mathematical activities in substantive ways and communicate mathematical ideas through multiple modalities (e.g., listening, writing, drawing, speaking, gestures).

STRAND: POWER AND PARTICIPATION

8. **Disrupting Status and Power:** ***How does my lesson disrupt status differences, entrenched stereotypes, and inequitable power relationships present in all mathematics classrooms?***

Fragile/ Margin  **Strong/ Centered**

1	2	3	4	5
No strategies to minimize status issues are evident. Student involvement is structured to privilege a dominant subgroup (in terms of race, class, gender, language, (dis)ability, and other socially constructed identities).	At least one strategy to minimize status differences is evident but superficial and does not challenge stereotypes or other power dynamics. Student involvement is structured to privilege a dominant subgroup (in terms of race, class, gender, language, (dis)ability, and other markers of status, with limited involvement from nondominant students.	Some strategies to minimize status differences among students (and specific subgroups) in the lesson are evident and have some effect. Strategies may have a momentary impact on some subgroup but may not necessarily address a persistent status issue related to race, gender, (dis)ability, language, and other markers of privilege. Student involvement is structured to support particular subgroups, which may include some but not all nondominant groups.	Some strategies to minimize status differences among students (and specific subgroups) are evident and have some effect. Teacher uses one or more strategies that • maximize student mathematical, cultural, and linguistic strengths, • explicitly address stereotypes, and • structure compassionate and inclusive talk (e.g., building each other up, not tearing down) Student involvement is structured to support most nondominant subgroups.	Multiple strategies to minimize status differences among students (and specific subgroups) are implemented effectively throughout the lesson. Teacher and students both work to minimize status issues through strategies that • maximize student mathematical, cultural, and linguistic strengths, • explicitly address stereotypes, and • structure compassionate and inclusive talk (e.g., building each other up, not tearing down). Student involvement is structured to support multiple or all subgroups, with particular attention to historically marginalized and segregated students.

STRAND: POWER AND PARTICIPATION

9. **Analyzing and Taking Action:** ***How does my lesson support student use of mathematics to analyze, critique, and address power relationships and injustice in their lives (economic, social, environmental, legal, political, patriarchal)?***

1	2	3	4	5
There is no evidence of connection to critical knowledge (socio-political contexts, issues that concern students).	Opportunity to critically mathematize a situation went unacknowledged or unaddressed when present.	There is at least one instance of connecting mathematics to analyze a sociopolitical/cultural context, with the purpose of deepening understanding of how mathematics and the social issue connect.	There is at least one major activity in which students collectively engage in mathematical analysis within a sociopolitical/authentic or problem-posing context. Mathematical arguments are provided to solve the problems. Pathways to change/transform the situation are briefly addressed.	There is deliberate and continuous use of mathematics as an analytical tool to understand an issue/context, formulate mathematically based arguments to address the issues, and provide substantive pathways to change/transform the issue.

SOURCE: Adapted from Aguirre et al. (2015); Aguirre & Zavala (2013); CEMELA (2006); Kitchen (2005); Turner et al. (2012).