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Edmund T. Hamann
University of Nebraska-Lincoln, ehamann2@unl.edu

Jenelle Reeves
University of Nebraska-Lincoln, jreeves2@unl.edu

Bradley Baurain
University of Nebraska-Lincoln

Graciela Valenciano
University of Nebraska-Lincoln

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Hamann & Reeves with Baurain & Valenciano in Closing the Achievement Gap series (April 2008).
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Accessing High-Quality Instructional Strategies

Edmund T. Hamann, PhD - University of Nebraska, Lincoln
Jenelle Reeves, PhD - University of Nebraska, Lincoln
with Bradley Baurain and Graciela Valenciano

> *"Sadly, too many people view (California's) diversity as a big problem. I don't. Instead, I say: Imagine! Imagine the potential of that diversity in today's—and tomorrow's—global economy. If we educate these students well, our state would not only be able to compete more effectively, but it would be able to lead our nation and the world economically." —* State Superintendent Jack O'Connell [1]

Introduction

Superintendent O'Connell's [1] 2007 call for greater public attention to the racial achievement gap in education provides the backdrop for our report. This report is intended to provide research-grounded policy recommendations related to assuring all students access to high quality instruction. This includes describing what California teachers should be helped to do in California classrooms if these classrooms are to be rich and successful learning environments where students from the many backgrounds represented in the nation's largest system of schools are all to fare well academically.

Superintendent O'Connell has expressed particular concern with inequities in current practice and current outcomes, so a starting point for this review is the research on practices that seem to be particularly successful with ELs, Latino children, African American children, low-income children and other categories of students who, as a group, are not being as successfully supported by current California schooling as are students of white, Asian, and more affluent backgrounds. Comparing the academic performance index (API) in 2006 of various populations of all grades of California students, white (non-Hispanic), Filipino, and Asian students were +80, +87, and +126 points ahead of the overall API average of 721, and all three groups exceeded California's target for schools of 800 (Whites by +1, Filipinos by +8, and Asians by +47), although White and Filipino 9th-11th graders fell below the 800 threshold. In contrast, African American, Hispanic/Latino, American Indian/Alaskan Native, and Pacific Islander were each groups whose average score was below the overall average API and well below the target threshold of 800. This was true at all grade levels. The API for African Americans was 635 (-86 in relation to the overall average and -165 in comparison to the target threshold of 800). Hispanics/Latinos' average API was 656 (-65 below the overall API and -144 in relation to the target threshold). The same analysis also shows socioeconomically disadvantaged students, ELs, and students

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with disabilities to have average scores well below the overall API average and well short of the target threshold [2].

Work from UC Accord/UCLA IDEA [3] documents that "California lags behind most other states in providing fundamental learning conditions as well as in student outcomes," and that, "The state's educational problems are most severe in schools serving the highest proportions of African American and Latino students" [3, p. 2]. The premise of this report is not to reiterate or substantiate these ills but to lay out a research-grounded depiction of what good instructional strategies are to help address them. There is also the related challenge of assuring that those learners who most need access to these strategies get such access.

In taking on this task we recognize that struggles in California classrooms are a product of much more than the instructional strategies used and that neither challenges resulting from the stresses of students' personal lives nor those related to school, district, and state organizational issues are created by existing instructional strategies. Yet instructional strategies can be more or less responsive to the challenges these non-instructional factors create.

As another caveat, noting that the research recommends a certain practice does not mean that schools have the resources necessary to create the teacher/student ratio the research presumes, nor that the requisite technology is available, nor that schools and school districts are organized to make instructional improvements in one or another classroom part of a coherent improvement effort, nor even that professional development budgets exist to support teachers as they learn and practice with new strategies. The *a priori* logic behind a report about what the research says about recommended instructional strategies is that existing instructional strategies explain existing problems and that there are means available to change the existing instructional strategies. These conditions may or not obtain in various California schools. Nonetheless, instructional strategies figure centrally in what happens in classrooms; they do matter for educational outcomes, and they are centrally relevant to both existing achievement gaps and the narrowing of those gaps. Thus, this report is intended to co-exist with the other reports commissioned for California's P-16 Closing the Gap project—e.g., the reports on culture and climate, teacher preparation, assessment and benchmarks, out-of-school resources, other states' policies, and so on. Broad improvement in California schools, including the narrowing of achievement gaps, will depend on changes in instructional strategy, but also on many other changes.

In many instances the needed change in instructional strategy is to have teachers who work with Culturally and Linguistically Diverse (CLD) students learn how to do what the strongest and best teachers do; in other instances the challenge is to enable prospectively effective teachers to pursue the strategies that, per their professional expertise, they know are necessary. That is to say, a lack of teacher knowledge about high-quality instruction may not be the reason for the paucity of high quality instruction. The issue may be environmental constraints. When a lack of knowledge is the problem, there are two ways of solving it: Building the knowledge of the teacher who lacks it or replacing that teacher with one who has the needed skills and strategies. Hiring and/or transferring teachers may be as apt a strategy for improving access to high quality instruction as is training.

While the scope of this report is PreK-12 (per the initial charge), it is intentionally weighted toward elementary and middle

school levels, as another report in this series [4] is specifically focusing on high school reform. After an explanation (next section) of the methodology that was used to assemble this report, the bulk of the paper is devoted to considering what the research literature tells us about accessing efficacious instructional strategies. That explanation is divided into three main categories: 1) issues of access (getting the teachers with the most effective practices to the students who most need such teachers) in Section III; 2) strategies for creating instructional relationships that the student finds credible (relational conditions necessary for Zone of Proximal Development [ZPD] learning) in section IV; and 3) techniques that most quickly and effectively support a learner who is learning in their ZPD in Section V. The report then concludes with some considerations for policy (Section VI).

In their recent meta-analysis of teaching and learning, Seidel and Shavelson [5] emphasized, "Learning is a set of constructive processes in which the individual student (alone or socially) builds, activates, elaborates, and organizes knowledge structures. From this conception of learning, it follows that teaching should maximize the opportunity for students to engage in activities that promote higher order learning" [5, p. 459]. The emphasis here on constructivist ZPD instruction is consistent with this finding. Seidel and Shavelson then continue, "Intentional learning…is content specific and, thus, depends on the corresponding knowledge domain. Thus, teachers should create an environment in which students are able to engage in domain-specific learning activities" [5, p. 459]. A substantial portion of Section V is devoted to explaining domain specific activities, although it is more important in a report like this to highlight that there is a literature on effective math instruction strategies for CLDs, a literature on effective science strategies, and so on, rather than to flesh out each of these in detail.

There is a distinction in the literature discussed in this paper that revolves around the universality or specificity of the research claims. That is to say, the research literature consistently identifies certain themes regarding what constitutes effective instructional strategies; themes that pertain to both math education and literacy teaching, to both instruction of second graders and instruction of eighth graders, and to the learning of both monolingual English speakers and those for whom English is a second language. In contrast, other important themes in the literature seem to not be as broadly applicable (or the studies they come from did not claim broader application). For these second kind of findings, the grade level of students, the topic of instruction, the students' racial or ethnic affiliation, and like variables seem to matter. It would be a mistake to over-generalize the lessons from this second category, but it would be equally mistaken to dismiss them. Good instruction in content areas with particular grade levels seems to be a product both of universally applicable instructional strategy themes and themes specific to the discipline, the developmental level and identities of students, the site of instruction, and/or other contextual variables. Universal and particular co-occur and both matter.

Underlying this whole report is a particular understanding of instruction and what can transpire in classrooms. As McDermott [6] notes there are "relational foundations of successful pedagogy" [6, p. 199]. In particular, successful instruction requires trusting relations between children and educators; conditions that may be easier to create with some learners than others [7]. This trust is relational, not a characteristic of a given teacher or students, but rather the

underlying condition for an environment where "children have sufficient time and energy to devote themselves to the intellectual tasks set before them" [6, p. 199].

Teacher-turned-literacy-scholar, Jeff Wilhelm [8] illustrates the point vividly:

> My classroom project has always involved getting kids to love reading, literature, and learning and helping them get good at it. I've come to understand that these processes are inextricably intertwined. In the research on boys [9,10], we found that boys privileged competence above all else. As one informant told us: 'I'd rather say reading is stupid than maybe look like I might be stupid.' [8, p. 147].

Trust is built (or impeded) based on how the participants in the relationship (i.e., teachers and students) learn to make sense of each other and of the task at hand. Do they feel competent? Does the task seem worthwhile? What are the social risks? These acts of sense-making mean there is no such thing as a good instructional strategy apart from the context it is implemented in (and that it helps shape).

McDermott's [6] emphasis on relationships does not mean that instructional technique does not matter, nor that curriculum is irrelevant. To the contrary, instructional technique matters because of the relationship it creates between educator and learner *and* the way it situates the learner in relation to the learning task (i.e., Does the learner have access to the teacher's and classmates' or others' expertise and support? Is the learner being asked to perform within his/her ZPD? Does the learning task seem credible and worthwhile?). Consistent with this understanding, the joint task of instructor and learner is for the learner to discover how to build new understandings and reconcile them with previous ones and for the educator to tap her/his knowledge of the curriculum, of the learner, and of pedagogical technique. In other words, the educator's task is not one of just technique alone and it is not just the transfer of information from teacher-expert to student-novice. This relational or social/affective perspective helps explain why instructional strategies that include personal interactions—i.e., cooperative learning, feedback, reinforcement, differentiation of instruction, and high expectations—all appear in Scheerens and Bosker's [11, p. 305] research synthesis to have higher correlations with positive academic effect than other tasks (e.g., homework) that do not.

McDermott [6] also does not mean that no learning occurs in the absence of trust. Indeed, some students are sufficiently interested in certain subjects that they pursue them irrespective of what the teacher is doing. Such serendipitous routes to student learning may be interesting, but they better explain individual exceptions to learning gaps than remedies for such gaps. The goal of this report is to depict successful instruction by an instructor that precipitates student learning.

As a final introductory point, it is crucial to remember Ladson-Billings' [12] recent caution, from her presidential address to the American Education Research Association (AERA), that though much effort has been devoted in the last 40 years to studying why certain groups of students struggle in school, such inquiries rarely provide large-scale relief. Emphasizing an "achievement gap" can naturalize that gap, make it seem inevitable, and take attention away from the "historical, economic, sociopolitical, and moral components" [12, p. 3] that have co-created it. Ladson-Billings [12] wants to see instruction change, but she raises an important challenge to reports like this: Listing the strategies that *should be* does

little to illustrate why those recommended strategies have not already been made commonplace. For this report (or any like it) to be consequential, it will need to displace the understandings that have made current distributions of teacher expertise and current instructional practices seem viable or inevitable.

Report Methodology

> *"The literatures for some of the most prominent topics in education are multivocal. They are characterized by an abundance of diverse documents and a scarcity of systematic investigations. Despite the nature of the literatures, the salience of these topics generates interest in, and requests for, reviews of the available information."* —Rodney Ogawa and Betty Malen [13, p. 266]

This paper is the product of a review of a broad range of topics. Of central concern are two overlapping literatures on instructional strategies and general effectiveness and the body of literature on students from racial, socioeconomic, ethnic and other groups that have historically fared less well at school. But also pertinent, as they relate to access, are topics like teacher training, induction, and placement strategies that assure struggling learners have consistent access to high quality instruction.

The literatures in instructional strategies and access are rich and varied and include a broad range of research traditions including experimental designs and meta-analyses, but also ethnographies, ethnologies, lesson studies, action research projects, surveys, and more. The report authors concur with the alarm of many scholars about how contemporary educational research politics narrow what is counted as research (e.g., [14]) and are aware that even carefully constructed meta-analyses that attempt to portray effect sizes for various strategies are subject to underlying theories for the numbers their models generate [5, p. 483].

So this report relies on the logic of the National Research Council's [15] *Scientific Research in Education*, whose authors noted, "rarely does one study produce an unequivocal and durable result; multiple methods, applied over time and tied to evidentiary standards, are essential to establishing scientific knowledge" [15, p. 2]; the strategy here has been to substantiate recommendations through triangulation. That is to say, if several different strategies of inquiry point to the same conclusion then such a conclusion is particularly robust. Triangulation can be a result not just of comparing multiple articles (although that is a good way), but also of finding articles that find the same effects at multiple sites, for example, Anderson-Levitt [16], who compares literacy education in the United States, France, and Guinea. In using triangulation to look at instructional strategies we are following well-established precedent. Scheerens and Bosker's [11] book-length treatment of the subject consciously juxtaposed qualitative and quantitative studies and sought cross-national comparisons.

This methodological strategy was also crafted conscious of the challenges of future policy implementation. Any implementation of instructional strategies noted here will occur in the dynamic environments of schools. A strategy that works in controlled conditions has a lot to recommend it, but if it also works because teachers buy in to it and emphasize it even when other challenges and efforts vie for their attention, then it has real promise of helping to close instructional gaps. Rarely does an educational research

finding from one setting unproblematically and without adaptation transfer to another and, because policy implementation depends upon implementers' understanding of how to act, any translation of a research finding into policy and practice will be subject to mediation and adaptation [17]. Action research, ethnographies, and other research strategies that examine how teachers and students make sense of proposed practices shed light on the likely success of those practices if/when they are externally encouraged.

As Bransford, Darling-Hammond, and LePage [18] have recently reminded:

> Even when teachers are provided with texts and other materials for their classrooms, they must still …make a wide variety of curriculum decisions, ranging from evaluation and selection of materials to the design and sequencing of tasks, assignments, and activities for students based on their learning needs…A curricular vision for teachers rests in an understanding of learning and learners as these intersect with educational goals and purposes, principles of instructional design, and an understanding of teaching options and possibilities [18, p. 35].

Thus, even in the sincerest effort to follow the recommendations named here, teachers will make sense of the task at hand based on a complex coterie of calculations. Some kinds of research provide particularly detailed accounts of what these meaning making processes look like, so such accounts should be part of the calculations that ground this report.

It is also true that policy implementers who want to follow recommendations made in this report should look at additional literatures as they consider how to make research findings compelling to those who are not researchers (e.g., teachers). For example, in *Teaching for Diversity*, Garcia, [19] offers guidance, synthesized from research in a training textbook for pre-service teachers on multicultural education. Sections III, IV, and V do not build on Garcia's list because his list is not a research product. However, readers of Sections III, IV, and V who want to figure out ways to make educators more capable of providing accessible, high quality instruction, will find little to dispute in guidance like Garcia's:

- Create a climate, a context, and a set of conditions to allow students to pursue their own curiosities.
- Identify and clarify the general purposes for the learning activity.
- Assist students to identify and clarify their individual purposes within the learning activity.
- Organize a wide array of resources for the students or teach them how to use the library, data banks, museums, and so on.
- Become a resource to students and share knowledge and experiences.
- Be alert to feelings that are expressed by students and adjust the structure of instruction accordingly.
- Accept personal limitations (teachers do not have to know everything).
- Model attitudes of a lifelong learner.
- Intervene when students get stuck or waste time. [19, p. 66]

To craft this study, the authors used three strategies. Inevitably, their starting point was what they already knew as scholars of school reform, adolescent literacy, school responsiveness to ELs, and the role of teacher belief systems in teacher practice. But this starting point was quickly followed up with a systematic review of the last ten years of a number of leading education research journals—i.e., *American*

Educational Research Journal, *Review of Educational Research*, *Educational Researcher*, the *Harvard Education Review*, and *Teachers College Record*. Aware that journals that focused on linguistic and cultural diversity or that examined effective school practices in other countries might provide particular illumination relevant to closing achievement gaps, the authors also systemically pored through *Anthropology and Education Quarterly*, *Comparative Education Review*, *the Journal of Education of Students Placed At-Risk (JESPAR)*, and *TESOL Quarterly*. Studies of EFL instruction (English as a foreign language) often seemed to raise apt points (e.g., [20,21,22,23].

In general, the comparative perspective is important, because it reminds us, for example, that Korean-descent students can be consistent low-achievers in Japan (compared to other groups of students) and consistent high achievers in the United States [24]. This suggests that low (or high) achievement outcomes are not an intrinsic property of a category of learners, but rather are a product of the interface between learners and educators, as informed by social expectations and stereotypes (resisted or not) from the larger society. Achievement gaps are not inevitable, and instructional strategies are pursued in relational contexts laden with culturally informed expectations, hierarchies, and dispositions.

The point of these journal sweeps was to peruse a broad cross-section of current research. The third and ultimately most important strategy, however, was the examination of three meta-analyses on educational effectiveness [5,11,25] and then selective further review of studies that these sources pointed to. The points raised in these three syntheses tended to echo (or triangulate) findings that came from other sources, while adding the explanatory power of effect sizes and multi-site corroboration.

Issues of Access

High quality instruction is clearly a technical task in that the research shows certain instructional techniques are more effective than other ones. But there are dimensions to accessing high quality instruction that are not, per se, knowledge of craft issues. If, for example, available wages and working conditions are not enough to attract a well-qualified teacher to a classroom or to keep him/her there, and, relatedly, if CLDs and other students in that classroom thus lack access to high quality instruction, the problem to be solved is more one of access than of what the literature says is good practice. Thus, before moving on to the task of defining what research shows is high quality instruction, it is worth indulging Gloria Ladson-Billings' [12] question about the achievement gap and wondering whether that gap is better explained by uneven access to high quality instruction rather than a missing understanding of what high quality instruction is.

There are multiple dimensions to assuring *access* to high quality instruction but they generally relate to just two core concerns: Are learners in classrooms being taught by highly skilled instructors? And, are those highly skilled instructors circumstantially able to frequently deploy their well-developed skills? Put another way, is access to good instruction impeded by obstacles like those that were identified to be overcome in California SB 550 (the Sept. 2004 bill that was the legislative response to the Williams settlement)? That law added reporting requirements for the State Accountability Report Card (SARC) relating to 1) any needed maintenance to ensure

"good repair" of school facilities, 2) the number of teacher "misassignments" and "vacant teacher positions," and 3) the availability of "sufficient textbooks and other instructional materials" [26]. Given that CLDs in California are more likely to attend (or have previously attended) facilities in poor repair, to have teachers teaching outside of their certification area, to have emergency credentialed teachers, to have long-term substitutes, and to have older and less well-provisioned curricular materials, it is straightforward to identify many of the hazards that can limit CLD's access to high quality instruction [3,27]. Those same obstacles reduce the likelihood of narrowing the achievement gap.

California is nationally famous for its statewide effort to reduce class size in early grades and for the general failure of that policy implementation to lower achievement gaps [28, p. B-2]. That strategy should have increased access to high quality instruction and thus narrowed achievement gaps. It is instructive to review why it did not. As Gallagher [29, p. C-1] notes, the advent of class-size reduction in California created a demand for a 43% increase in California K-3 teaching force. This huge new demand enabled the movement of some of California's strongest teachers to its most satisfying work environments. The environments veteran teachers moved to, however, were not always its most needy schools. Indeed, California's wealthiest districts were the earliest to transition to reduced class size so they were the first to be able to recruit for the newly created openings. Charts describing California teacher movement during class-size reduction implementation [29, p. C-12] show that teachers who changed schools consistently had fewer ELs, minorities, and free-lunch eligible students in their new schools than their previous one. In short, if experienced schoolteachers are more likely to deploy high quality instructional skills than novices (and, given that many new hires were emergency credentialed and/or teaching outside of their trained subject areas, this is likely [Wechsler, et al., 2007]), then this reform intended to reduce achievement gaps could actually have exacerbated them by decreasing the likelihood that the California students most needing access to high quality instruction were less likely to get it. The presence or absence of experienced, well-trained teachers needs to be on the table in any consideration of access to high quality instruction. Novice teachers (those in their first or second year) tend to be less effective than their longer serving peers [30].

A more subtle access issue has to do with skilled educator's latitude to use all of their instructional skills. Scripted curricula—(e.g., Open Court, whose implementation in California has been controversial [31])—that reduce an instructor's discretion to respond to a given student a particular way could limit that student's access to high quality instruction. That said, this report's authors have also noted situations where teachers overwhelmed by unprecedented growth in their CLD student populations have found scripted curricula to be a key source of instructional coherence [32]. So there are two points here, neither of which is to argue definitively for or against scripted curricula. The first point is to raise the prospect that access to high quality instruction can be inhibited by the parameters teachers are asked to work within. For example, teachers who know that they could productively improve communication with students' parents, who know that they could give more guiding feedback on coursework, and/or who know that they could find local and familiar examples that would help learners engage with content, but who lack the time to pursue these strategies in a sense fail to give learners in their classrooms

access to the high quality instruction they know is necessary or efficacious. Knowledge of what constitutes good instruction is not the problem.

The second point, however, is a reminder that teachers are learners and that they too face a ZPD in relation to their existing practice and its prospective improvement. Thus it is possible, as observed, that by learning a highly scripted curricula, like Open Court or DISTAR, some teachers may gain tools and strategies, while for others there is no net gain. Taking this one step further, one should remember that policies intended to improve instructional capability vary in their relevance and appropriateness, as the objects of such policies (i.e., teachers subject to professional development) will vary by experience, circumstance, training, and other qualities. The helpfulness of a professional development strategy and its relevance to helping CLDs and other learners access high quality instruction vary depending on what the teacher already knows and does.

There is a long established instructional strategy literature that notes that the time students spend engaged in academic tasks relates to how much they gain academically (e.g., [33,34,35,36,37]. While effective instruction includes much more than students' time on task, from the standpoint of access, it is important to ask how often students have access to high quality instruction. Those who have more access are likely to gain more than those with less access. It is straightforward to anticipate a learning and achievement gap between those with more access and those with less. In her classic study on tracking, Oakes [38] famously noted that students in lower track classes spent less time academically engaged. Many dynamics (e.g., more time in those classes disciplining, less experienced teachers leading lower track classes) contributed to this inequality, but her core point remains: those students who got less high quality instruction made less progress. Given the preponderance of CLDs in lower track classes, this often meant CLDs got less.

Part of the craft of teaching is to figure out how to engage multiple learners, each with different interests, energy levels, and realized levels of attainment. Failing to do this varies the level of access different students have to high quality instruction. Successfully doing this, in contrast, is often accomplished through what the literature refers to as student-centered or learner-centered instruction [39]. A learner-centered classroom is deliberately designed to maximize all students' chances for academic development. In such classrooms, teachers expect all students to actively use speaking, listening, and thinking skills across contexts. Interactive discussions and experiential learning regularly occur. A learner-centered classroom builds upon students' background, interests, and experiences. Research suggests that this emphasis supports reading comprehension, student engagement and motivation, and the development of positive academic identities. In such environments, the teacher is more typically facilitator or coach than lecturer (e.g., [40,41,42].

Williams [43], in describing the benefits of a student-centered or workshop approach to literacy instruction, notes:

> One result of the workshop approach is that it provides students with the means to assume a more active role in learning. Members of work groups are always busy talking, writing, thinking, and researching. Unlike the traditional classroom, in which students assume a passive role as they listen to teacher-talk, the workshop requires teachers to say very little. This approach is referred to as *student-centered instruction*, and it is a

central component of process pedagogy [43, p.104, italics in original].

A key component of a learner-centered classroom is the effective use of collaborative learning experiences (e.g., [40,44,45,46,47]). Two other aspects of an effective learner-centered classroom referenced throughout the literature are flexible grouping (e.g., [48]) and a focus on inquiry-based learning with or without computer support [49]. Used together, these three structures for learning enable teachers to be maximally responsive to students' literacy and learning needs. Based on her review of the literature, Curtis [50] summarized that "the types of classroom environments shown to promote literacy development include ones that use a variety of approaches to skills instruction, integrate test preparation into instruction, make overt connections among in-school and out-of-school applications, enable strategy use, engage students in uses of their knowledge and skills, and incorporate collaborative work" [50, p. 10]. Curtis' summary seems to apply more generally to a classroom environment where a broad range of learners each has access to high quality instruction.

Attending to the Relational / Culturally Relevant Teaching

> *"The construction of knowledge takes place within the community of students in a classroom. In various classroom settings, students are encouraged to build knowledge within the community of learners…"* [5, p. 459].

As Seidel and Shavelson [5] note above (and in their meta-analysis), the process of learning is social. Students see themselves as learners (or as non-learners [51,52,53]) based on the cues they receive from teachers, peers, parents, and others. Much can distract from a teacher's attempt to build a viable relationship with a learner, although much can complement and support that same effort. Not all teachers have the skills, goal, or orientation to cultivate a ZPD-enabling relationship with all learners, making an important if amorphous and sweeping target for professional development.

Small qualitative studies and aggregating meta-analyses alike have illustrated that teachers interact differently with successful students and unsuccessful ones. Good [54] noted in a meta-analysis more than 25 years ago:

- Teachers tended to communicate less with low achievers and call on them less often;
- Teachers made less eye contact with low achievers when they did call on them and offered low achievers less time to respond;
- Teachers praised low achievers less than high achievers in instances when students were unsure of the answer;
- Teachers criticized low-achievers more than high achievers for making inaccurate responses to questions;
- Teachers tended to provide fewer details and less precise feedback to low-achievers;
- Teachers demanded less homework and less effort from low-achievers.

To put Good's review in the context of the previous section: Low achievers had less access to high quality instruction within the very same classrooms as more successful peers. To put it in the context of this section: Teachers build different relationships using different interaction strategies and different amounts of those strategies with successful

and unsuccessful learners. These ways of interacting with the unsuccessful and expectations that such interactions cultivate both need to be interrupted if unsuccessful learners are to become more successful.

Attending to Cultural Identity

While it impossible to attend to all of the reasons why teachers might treat successful and unsuccessful learners differently, one starting point is that teachers, like every other human, absorb cues about who they are working with and filter those cues through previous experience and understandings. Teachers learn to expect certain kinds of performance from certain kinds of learners, which favorably (as in the case of students placed in gifted programs [55]) or unfavorably often becomes a self-fulfilling prophecy as students respond to how they and those like them are understood. Given achievement patterns related to race and ethnicity, it seems that race and ethnicity are relevant variables in this teacher/learner relationship, a point echoed in an extensive body of scholarship (e.g., [7]).

Osborne's [56] ethnology (i.e., a comparative examination of multiple ethnographies) of research on teaching practices that have proven effective with indigenous, minority, second language, and other historically disadvantaged student populations in the United States, Australia, Canada, and elsewhere highlights the centrality of relationship cultivation in the production of successful learners (and the narrowing of achievement gaps). Based on his analysis, Osborne made nine assertions about culturally relevant teaching. Each has implications for practice in California classrooms:

- Culturally relevant teachers need not come from the same ethnic minority group as the students they teach.
- Socio-historico-political realities beyond the school constrain much of what happens in classrooms and must be understood well by the culturally relevant teacher.
- It is desirable to teach content that is culturally relevant to students' previous experiences, that fosters their natal cultural identity, and that empowers them with knowledge and practices to operate successfully in mainstream society.
- It is desirable to involve the parents and families of children from marginalized and normalized groups.
- It is desirable to include students' first languages in the school program and in classroom interactions.
- Culturally relevant teachers are personally warm toward and respectful of, as well as academically demanding of, all students.
- Teachers who teach in culturally relevant ways spell out the cultural assumptions on which the classroom (and schooling) operates.
- There are five components of culturally relevant classroom management: using group work, controlling indirectly rather than confrontationally, avoiding "spotlighting", using an unhurried pace, using the home participation structures of the children.
    a. Culturally relevant teachers tend to use group work rather than to foster individual competitiveness.
    b. Culturally relevant teachers tend to avoid using direct, overt management strategies and to use indirect, private forms of control.
    c. Culturally relevant teachers tend to avoid excessively "spotlighting"

individuals, that is, calling on them to make public performances, particularly in elementary settings.

d. Culturally relevant pedagogy may involve moving at an unhurried pace, particularly in the lower grades.

e. Particularly in early grades, culturally relevant teachers tend to use participation patterns similar to those used by students in their homes and communities

- Racism is prevalent in schools and needs to be addressed. Some recent studies show that it can be tackled.

Osborne's [56] first assertion is welcome news for California in that both the state's current teaching force and those entering the profession do not match the demographics of the student enrollment. Current California teachers and those entering the profession are more likely to be white and middle class than the students they teach. This means most education for CLDs will occur across a cultural boundary. As Erickson [7] points out, cultural difference creates an additional but not inevitable chance for misunderstanding and the breakdown of a credible, ZPD-supporting relationship. In some senses, the remaining eight assertions Osborne identified in the literature then clarify how a cross-cultural teacher/learner relationship can be made viable. It is worth considering McDermott's [6] directive to appraise how Osborne's assertions would affect the trustworthiness of instructor/learner(s) interaction in relation to academic task. In so doing, it is not difficult to see how practices more familiar to learners might be more quickly found trustworthy. It is similarly straightforward to see how acknowledgement of one's identity and group affiliations might make a learning environment more credible.

Social/Affective

Research reviews, such as Marzano et al. [57], indicate that cooperative learning techniques produce gains in student achievement. It is worth querying why that is so. Likely both time on task (noted in Section III) and the relevance and accountability to peers (i.e., relational factors) pertain. Peer review, peer tutoring, and response groups were also found to produce gains in ELs' English language development [58,59]. In their study of peer tutoring, Xu et al. [59] paired native English speakers and ELs, increasing interaction across linguistic and cultural identities. Not only did ELs benefit from peer tutoring by making gains in English development, but also an open, trusting community was created in the linguistically heterogeneous classrooms. "The strength of [peer tutoring] lies in the equal opportunities it provides for all students to learn and interact in the same setting, regardless of their different skill levels" [59, p. 101].

In essence, the viability of instruction depends on how learners understand the task at hand and whether they find the learning environment to be sufficiently trustworthy to pursue that task. That trustworthiness is powerfully shaped by the teacher, but as the rich (and very different) literatures on both cooperative learning and bullying suggest, other individuals figure into the trustworthiness of the environment as well. These are individuals whom the teacher can influence but not control. Also, as Seidel and Shavelson [5] bring up, learners' self-concept as learners figures centrally in their readiness and willingness to learn. Teachers do not control this learner self-concept (it is shaped by previous teachers and many, many other sources), but they can attend to it directly and strategically. Failing to adequately instruct in relation to these issues can create or exacerbate low achievement [54].

The observation that particular cultural groups are more likely to fall into an academic achievement gap than others suggests that instruction that has been identified as effective for all students may, in fact, not be so universal. Some groups of students have not been served well despite, as Ladson-Billings [12] points out, years of research into effective instructional strategies. Two of the groups—Latinos and African Americans—will be discussed more directly in a moment.

Utilizing Learners' Background Knowledge

Activating learners' prior knowledge and utilizing their lived experiences in the instruction of new material can be highly effective, not just because of how it sets up ZPD scaffolding but also because of the relational affirmation it offers. To value and support learners' background knowledge helps teachers engage learners during instruction. Too often the background knowledge of learners from non-dominant linguistic and cultural backgrounds has not been received with the same legitimacy as that of non-CLD learners. Quite often educators know the historic, cultural, and linguistic experiences of non-White groups less well [60] and thus have fewer starting points for engagement. It follows that, absent active learning about these groups, these educators would know less well how to shape instructional environments that would seem familiar and trustworthy. The point of the short pieces below is to highlight the existence of a rich literature about the instructional strategies some educators have used successfully with Latino students, African American students, and/or students of other backgrounds. There is much, much more on these topics than is shared here. But three core points are that learners' group identities were respected, teachers learned a lot about such students' background, and students were subject to high expectations.

Latinos and African Americans have fared less well in California schools. It follows that instructional strategies need to change if these groups are to fare better. Cazden and Mehan [61], among others, have appropriately warned that short-hand checklists about how to work with particular populations can reiterate stereotypes without offering much in terms of more efficacious instructional strategies. That caution applies here, but it is also true that present in the equation regarding what makes classroom interaction and completion of task trustworthy [6,7] are the racial and ethnic affiliations of the learner, the history of their group's experience with school, and educators' understandings and expectations about learners related to learners' group memberships. As Pollock [62] has memorably noted, race matters when we talk about it *and* when we do not.

A Category of Students Not Always Served Well by Schools: Latinos

Studies of Latino student schooling and achievement in U.S. public schools suggest that their teachers play a significant role in Latino students' connection (or disconnection) to school [63,64,65]. Teachers' relations and interactions with Latino youth, for example, signal acceptance or rejection of a Latino identity. Teacher/student interactions that allow and encourage students' identities, particularly minority ethnic, cultural, and linguistic identities that differ from a traditional and/or dominant norm, is a critically importance stance for teachers to take in order to facilitate Latino youth's connection with school. Conversely, a subtractive approach in the schooling of Latino youth requires learners to abandon Latino identities, including, for example, the use of non-English languages, in order to achieve

academic success and / or acceptance in school. When youth find their chosen identities unsupported or unwanted in school, as signaled by their interaction with teachers (and others), it is far more likely students will have a loose connection to school and far more likely that they will fare poorly or drop out [51].

In *Improving Schools for Latinos*, Valverde [66] notes that Latinos are advantaged when instruction and learning outside of the school is attended to not as an extracurricular but as a necessary and integrated part of a student's school learning (consistent with a holistic approach).

A Category of Students Not Always Served Well by Schools: African Americans

As Morris [67, p. 104] noted in a study of two elementary schools with sustained patterns of success with African American children,

> Efforts to improve urban schools in general, and African American education in particular, cannot be separated from a serious analysis of historical, social, political, and economic forces in U.S. society. School quality is inextricably linked to housing, politics, and economics, which makes it incumbent upon grassroots and established leadership to ensure that these multiple spheres are brought together in the best interests of the students.

Ladson-Billings [68] starts her profile of seven teachers who have been particularly successful with African American youth, by first locating African American education historically and then noting that each of the successful educators she studied affirmed the histories and racial identity that African American youth bring to the classroom. Traoré and Lukens [69] describe an Afrocentric approach that proved popular and effective with urban African immigrant and African American students.

African American student identities, like those of Latino identities, do not always find welcome or validation in schools. The use of Black English (or African American Vernacular English) within the academy is often discouraged or tolerated only as a lesser (or less legitimate) English than so-called "standard English," and, as McCrary [70] argues, the dismissal of Black English is read by black youth as a school's non-acceptance of black identities. As Marilyn Cooper and Michael Holzman explain, some students see standard English acquisition and school itself as "the negation of the home (and of the street), its values the negation of their values, its skills hopelessly beside the point in a different—more pressing—context" [70, pp. 72-73]..

V. Pedagogical Technique

> *For content area teachers to meaningfully and effectively address the inherent challenge of developing academic literacy habits and skills while deepening content area learning, middle and high school teachers must have an extensive knowledge base and a set of promising strategies to employ.* [39, p. 9]

When Meltzer and Hamann [39] wrote the above words, they directed their comments to middle and high school teachers because their report was about adolescent literacy, particularly for second language learners, in academic content areas. But their observation, slightly generalized, pertains here to all preK-12 teachers. In essence, the research shows that effective instructors bring a well-developed knowledge base—

including an awareness of the students before them and a varied series of strategies to engage those students academically. Such effective instructors are prepared for the necessarily *in situ* decision-making that is characteristic of teaching; that is to say, they are ready with multiple tools to address the specificities of context that pertain to a given learner, a given classroom, a given text, a given curriculum, a given moment. This section makes the point that, in addition to instructional habits that are generally wise and effective, there are context-specific factors in the instructional strategy literature that are worthwhile to draw educators' attention to. These factors include those that are discipline-specific (i.e., a teacher's strategies might productively vary if the task is to write a poem, conduct a biology experiment with a partner in a laboratory, join together for a youth chorus trip to a nursing home, or solve a geometry proof.)

The academic task pursued sincerely in a trustworthy environment still needs to be rigorous and technically sound. Another methodological starting point for this review was the general literature on effective instructional strategies, a literature that has become more abundant and concentrated, as the standards movement has highlighted the need for academic rigor across content areas. Seidel and Shavelson's [5] exhaustive recent review of teaching effectiveness research suggests three main domains of attention for instruction: learning processes, cognitive outcomes, and motivational-affective outcomes.

Learning processes includes a key insight of constructivist learning theory—that one assembles new information mediated through the lens of existing knowledge, but it also includes what we call *habits of mind*—the capacity to think meta-cognitively, evaluate information, and self-regulate. Cognitive outcomes refer to gaining mastery of content—particularly content organized into the classic domains of the disciplines—and the literacy and numeracy skills necessary for disciplinary learning. As such, instructional strategies pursued for these ends are also goal directed. "Knowledge building in settings such as school instruction is intentional" Seidel and Shavelson, 2007, p. 459). Motivational-affective outcomes refer to learner disposition towards academic tasks. Here the tie-in to McDermott's criterion of trustworthiness is most obvious (although it pertains to all three) and the relationships between educator and learner and among learners gain attention. Converting each of these categories of learning outcomes into vehicles for guiding instruction, one could ask how teachers teach learners "how to learn" (learning processes), how they teach mathematical or interpretive understandings (examples of cognitive outcomes), and what strategies they pursue—for example, cooperative learning—to attend to learners' motivation and engagement (motivational-affective outcomes).

Of course, there is overlap among these categories and thus among the ways in which they might guide instruction. For example, Seidel and Shavelson [5] report finding that "executing domain-specific activities [which has a big effect on cognitive outcomes] was also one of the most important factors for motivational-affective outcomes (e.g., interest or self-concept of ability)" [5, p. 476]. Acknowledging this overlap, the paragraphs that follow are organized into two of Seidel and Shavelson's [5] three big categories, relabeled here as "habits of mind," content-oriented, and social/affective. Their points on the social/affective were already developed in Section IV.

Habits of Mind

Most good instruction, including instruction that helps narrow achievement gaps, is good

because it helps learners develop skills they can deploy successfully and purposefully as they learn, communicate with others, and negotiate the world. An example of such instruction comes from Gibbons' [71] discussion of teacher-guided reporting in which the teacher models how to orally report findings to the whole class (like from an experiment or small group discussion): a strategy that delivers content well (comprehensibly, serves as a form of review) *and* builds habits of mind (e.g., presentation skills learners can use in multiple settings and other disciplines).

Although regulative may sound like it is oriented towards regulation and even discipline, Seidel and Shavelson [5] actually use the turn of phrase more in the vein of "habits of mind." Whether it is the kindergarten social task of learning to raise one's hand to be called upon, the weekly monitoring by a fifth grade teacher who shares a sequence of activity guide with a pair of students collaborating on a science project, or the "think aloud" modeled when an 8th grade English teacher converts a student's question about whether to do a biography of Willa Cather, John Steinbeck, or Chinua Achebe into a public consideration of questions (like familiarity with author's material, length of texts to review and time to review them, availability of texts at the library, and overlap with topics studied in social studies, etc. All of these can include overt teaching of regulation, of what a student needs to consider as they pursue an academic task. The goal is for students to pick up and start enacting these self-monitoring, self-regulating habits of mind.

Of course, measuring the development of these habits of mind is a complex task and not one necessarily best executed by content area assessments of knowledge. So, while one could be pleased if a student had learned to be comfortable and adept finding resources in a library, had gained the self-awareness to know how much sleep allows them to operate effectively, and/or knew how to evaluate the quality of information found through a web-search, attributing test results to the presence or absence of any of these habits gets difficult.

As we consider CLDs, a crucial habit of mind looms. The knowledge, ways, and language for talking and acting, and the social expectations of school are often different from those that CLD students are familiar with. As Delpit [72] has pointed out, the solution here is not to have CLD students be unaccountable for learning the knowledge and habits celebrated at school (although questioning the bias of school and whose knowledge counts is important). Rather, students whose home culture is not reflected in school culture need to learn how to "culture switch" [73, 1999, p. 116]. As Hamann, Zúñiga, and Sánchez Garcia [74] have described the dilemma for transnationally mobile students, the task is not just to learn how to live and thrive in this place (where one lives) but any place (where one might be about to move). These are habits of mind. A student who can recognize which rules, codes, ways, etc. apply when and who, through instructors' shaping of the learning context, finds the mastery of those rules, codes, and ways to be viable and credible, will be a successful student. As Gibson [75] eloquently described regarding the experience of Sikh immigrants at a California high school, one reason such students were academically successful is that school did not contest their pre-existing identities. School honored existing habits of mind and, as needed, helped students build additional ones.

Content-Oriented Instruction: Overarching Patterns

As previous paragraphs suggest, there are many lists from studies of instructional

strategies and guidance to teachers. Some come from meta-analyses, others from teacher education textbooks and professional development manuals. For example, in a practitioner-oriented book summarizing 1,400 studies on learning-related topics,[a] the Northwest Regional Educational Laboratory (NWREL) [76] made five recommendations related to instructional strategy: 1) orient students to lessons; 2) provide clear and focused instruction; 3) provide feedback and reinforcement; 4) review and reteach for mastery; and 5) use probing, redirection, and reinforcement to promote meta-cognition.

Echoing this report's introduction, NWREL authors emphasized that instructional improvements need concurrent reforms to be viable (e.g., teacher's content mastery, adequate formative assessment measures, and adequate time to revisit and reteach topics as necessary). The NWREL study also emphasized the cyclical nature of instruction and assessment—that effective instructional strategies are parts of an instructional cycle in which instruction is based on assessment of learners and that instruction is, in turn, assessed for its effectiveness in helping learners make academic gains. The relationship between instruction and assessment is symbiotic; effective instructional strategies go hand-in-hand with effective assessment strategies.

In this same vein of research synthesis on effective instructional strategies, Marzano, Pickering, and Pollock [77] conducted a meta-analysis of more than 100 research reports. Marzano et al. [77] identified nine instructional strategies that produced effect sizes ranging from 0.59 to 1.61. Effect sizes measure the strength of a treatment's effectiveness, in this case the effect that an instructional strategy has on student achievement; the higher the effect size, the greater the effect of the strategy. From largest to smallest effect size, the strategies are:

- Identifying similarities and differences. Such strategies encourage comparison and contrast between items and categories and include the use of metaphor and analogy in presenting and assessing new material.
- Summarizing and note taking. These strategies require learners to analyze information for the main points and to synthesize large amounts of information into concise statements.
- Reinforcing effort and providing recognition. These strategies address student motivation and engagement through recognition of effort in others and self.
- Homework and practice. Practice of/with information, through application strategies and homework policies, is key to students' comprehension and retention of new learning.
- Nonlinguistic representation. Such strategies provide learners with extra-linguistic pathways into learning and include graphic organizers and other visual representations.
- Cooperative learning. Cooperative strategies utilize strategic grouping configurations so that students learn from and depend upon one another.
- Setting goals and providing feedback. Metacognitive strategies like these invite learners to engage in and plan their own learning alongside their teachers.
- Generating and testing hypotheses. Such strategies involve the application of knowledge and the prediction of outcomes based on prior knowledge and observation. Further, these strategies engage learners as their own hypotheses are tested.

- Activating prior knowledge. Using advance organizers, cues, and questions are strategies that invite learners to locate new knowledge in relation to what they already know.

Like the NWREL study [76], Marzano et al.'s [77] guidance seems both apt and tested (although its finding about homework, different from Seidel and Shavelson [5], is a reminder of Seidel and Shavelson's point that the underlying theoretical parameters have dramatic implications for what the case study "discovers"). It is not the goal here to argue against any of the recommended instructional strategies. But these lists, and others like it, seem decontextualized, incomplete, and lacking an overarching framework. Why is homework (item #4) good except when it isn't? Based on Marzano, should California promote teachers using summarizing and notetaking more (item #2)? What about cooperative learning (item #6)?

As this report has emphasized, guided learning happens within social contexts that are substantially shaped by social relationships which, in turn, bear on how the academic task is promoted and pursued. Seidel and Shavelson [5] note the particulars of good instruction vary by content area: their most robust and consistent finding was that goal-directed, domain-specific instruction had the largest effect of any cluster of variables on student learning. Yet, as Meltzer and Hamann [39, p. 8] noted, there seem to be some instructional strategies which apply to all content area instruction. Thus, though they are deployed in the pursuit of promoting learning in particular academic domains, these overarching instructional strategies suggest universal features of good instruction.

Including those already highlighted elsewhere, these are:

- Addressing Student Motivation to Read and Write[b]
  a. Making connections to students' lives
  b. Creating responsive classrooms
  c. Having students interact with each other and with text
- Implementing Research-Based Literacy Strategies for Teaching and Learning
  a. Teaching thru modeling, explicit strategy instruction, and using multiple forms of assessment
  b. Emphasizing reading and writing
  c. Emphasizing speaking and listening/viewing
  d. Emphasizing thinking
  e. Creating a learner-centered classroom

Literacy Across the Content Areas

Language, in oral and written forms, is the medium of school, and students' facility in comprehending, acquiring, and managing the language of schooling is crucial if they are to learn content knowledge well and develop the habits of mind needed for engaged participation in school. While students who speak non-dominant varieties of English or English as a new language may face particular linguistic challenges at school, *all* K-12 learners benefit from strong academic language skills that serve them well across content areas. Some academic literacy skills, certainly, are content-specific. Other academic literacy skills, however, are cross-cutting, and these include proficiency in all language modalities: written (e.g., reading, writing) and aural/oral (listening, speaking).

Strategies for Academic Literacy Development Across Content Areas

Reading and Writing Strategies

- Utilize whole language and phonological awareness (phonetics) strategies in combination
- Have students write about what they read (e.g., write response journals or summaries)
- Preview textbook readings
- Supplement printed text with verbal explanations, graphics, and other non-linguistic cues
- Allow student choice in reading materials when possible
- Instruct learners in textual analysis/word attack strategies

Aural / Oral Strategies

- Scaffold academic language through teacher-guided oral reporting
- Structure opportunities for interaction (e.g., peer tutoring, teacher/student conferencing)
- Use think-alouds (e.g., have students verbalize what they are thinking regarding a content concept)
- Introduce coping strategies for listening/reading through unfamiliar words and phrases

General Literacy Development Strategies

- Vary language modalities (e.g., reading, writing, listening, speaking)
- Target small amount of new language for instruction at a time
- Explain figurative language
- Expand and elaborate rather than simplify explanations when learners do not understand instructional language (e.g., teacher talk or textbook readings)
- Use predictable patterns in classroom language use
- Restate (rather than overtly correct) minor errors in learners' language use

Written Language

For the instruction of reading, Mosenthal et al. [78] compared the reading instruction practices of 52 elementary school teachers at six high achieving elementary schools with the practices of 25 teachers at three demographically matched less successful elementary schools. Strategies at the effective school included: grouping and guided reading, student self-selected reading, reading aloud, writing story summaries, enabling students to solicit peers' perspectives, interpretive questions, use of phonemic awareness computer games, keeping reading journal entries and working one-on-one with adult tutors (America Reads volunteers), and schoolwide use of the DEAR method (i.e., **D**rop **E**verything **A**nd **R**ead). Mosenthal, et al. go on to note that,

> The factors that the study singles out as imperative for "success" exist to some degree in every classroom: vision and commitment to literacy learning, coherence of approach, well-managed and paced instruction, and communication among faculty and

> administration. It is the combination and interplay of these factors that control the ultimate outcome. [78, p. 30]

Perhaps the key issues are frequency and credible access to these factors. It is known that how students comprehend texts is connected to their interests, their relationship with the teacher, the value they assign to the effort, and their literacy identities [9,79,80,81,82]. Teachers' knowledge of students' strengths, areas of challenge, and socio-cultural backgrounds, as well as teachers' understandings about literacy can strongly affect the quality of their instruction (e.g., [82,83,84,85].

We know that good readers might use up to 30 different strategies in working with a particular text and that weak readers can be taught the strategies used by stronger readers to favorable effect on reading comprehension [86,87,88]. We also know that good early reading instruction pursues a balanced approach, including instruction in phonemic awareness, but only as part of an integrated package that also teaches reading for meaning [16].

Spoken Language

The Vygotskian idea of verbal thinking, in which "the interconnection of thought and speech makes possible the planning function of the latter" [89, p. 179], draws a clear connection between the development of cognition and verbal language use. In a sixth grade class of culturally and linguistically heterogeneous students, Zolkower and Shreyar [89] observed the use of think-aloud strategies as a successful strategy for advancing student understanding of algebraic functions. Gibbons [71], likewise, observed content area through oral skill building, in this case, the teacher-guided scaffolding of the academic register for reporting findings from experiments. These studies are relatively small (with 26 and 60 students respectively), yet their findings, taken in conjunction with the findings of similar studies [90,91,92], collectively point towards the effectiveness of instructional strategies that utilize and build learners' oral production skills as a means of achieving academically in all subject areas.

Discipline-Specific Instructional Strategies

Learning the language of a new discipline is a part of learning the new discipline; in fact, the language and learning cannot be separated. Because students come to school with an everyday language with which they have constructed their knowledge of the world, the school can build on that knowledge and language and move students toward new and more scientific and technical understandings by being aware of the linguistics challenges that accompany the conceptual challenges of learning [93, p. 140].

To some extent, academic literacy skills are generalizable across content areas. For example, learners can learn that there are literacy dimensions to every content area. The task of reading math word problems and a newspaper article, for example, are partially overlapping; i.e., some of those skills learners develop and use in one content area translate to other content areas easily and logically. However, in other ways academic literacy is discipline-specific, and the literacy skills learners develop and use are distinct. In mathematics, one learns that the last sentence in a word problem contains the pertinent question, while it is the first sentences in a newspaper article that provide the most important information. A sample of discipline-specific instructional strategies for mathematics, social sciences, science, and language arts is discussed below. Remembering McDermott [6], part of what shapes the viability of educator/learner inter-

action is the educator's demonstrated adeptness with the pedagogy and content of a discipline.

Mathematics

Strong instructional practice in mathematics has taken a social turn with a new emphasis on socially-mediated mathematical knowledge and reasoning through, for example, cooperative problem-posing and problem-solving [93,94,95,96]. This social turn challenges the widely accepted notion that mathematics is among the least linguistically complex disciplines. (How many of us who are fairly competent in a second language could offer a math lesson in that language?) The study of mathematics employs the *mathematical register*, which is conceptual, abstract, and intertwined with mathematical functions. The mathematical register is language that is unique to math and transcends everyday language and even general academic literacy. What makes this register unique is not only its use of technical vocabulary but also its blending of language and math functions. One example of this blending is the syntax of math [94], which often lacks a clear "one-to-one correspondence between mathematical symbols and the words they represent" [94, p. 24]. (Consider, for example, the mismatch in left-to-right reading of the sentence: 'The quotient of 31 divided by 7 is 4 with a remainder of three' and the way one would write the equation.) Learning math, then, includes the concurrent learning of math language and symbol structures. "This notion of a mathematical register helps us understand the ways that language constructs mathematical knowledge in different ways than it constructs other academic subjects" [93, p. 140]. Effective instruction of all learners in the math classrooms includes instructional strategies that build learners' mathematical language. Teachers' attention to the language of math during instruction is particularly important for CLD students who may encounter this crucial terminology from few other venues.

Not all of the instructional strategies that prove effective are unique to math classrooms. Just as much of what works in math may be exported to another content area, some instructional strategies imported from other content areas can be highly effective in the math classroom. Importing universal or other content area strategies to the math classroom will require teachers to use their *in situ* reasoning. Cooperative learning, as one example, is effective across discipline areas and with a variety of learners. However, in mathematics, cooperative learning should be used strategically, considering the importance of developing learners' math language. In order for learners to acquire the mathematical register, they need interaction with more expert mathematicians (usually the teacher). Peer interaction may well build mathematical habits of mind, but it may not adequately advance learners' math language.

Math instruction, in addition to becoming linguistically responsive to CLDs, needs also to be culturally responsive [97]. Culturally responsive mathematics validates and builds on learners' cultural identities by integrating learners' lived experiences with mathematics study for, example, by demonstrating mathematical concepts in learners' everyday lives.

Effective instructional strategies for CLDs in the mathematics classroom are presented in two closely related categories (see box below): 1) developing learners' mathematical language register; and 2) developing learners' mathematical habits of mind.

Discipline-specific strategies: Mathematics

Making mathematics linguistically and culturally responsive
Distinguish between the mathematical register and everyday language
Give explicit attention to the linguistic features of the mathematical register (e.g., vocabulary, syntax that lacks one-to-one correspondence)
Use learners' first language (L1) to develop the mathematical register in both L1 and L2
Spiral instruction in mathematical language over the long term
Relate mathematics to learners' lived experiences

Developing mathematical habits of mind
Ask learners to verbalize their mathematical thinking (in L1 or L2)
Have learners write (journal) their mathematical reasoning (in L1 or L2)
Revoice learners' contributions to scaffold mathematical language
Focus on meaning in learner language rather than correction of language errors

What not to do in mathematics:
Do not assume that group work is automatically effective; (e.g., development of the mathematical register may require teacher-assisted peer interaction)

Social Sciences

Like math, the social sciences use discipline-specific language to deliver and construct content knowledge. "When we refer to the academic language of social studies, we are considering semantic and syntactic features (such as vocabulary items, sentence structure, transition markers, and cohesive ties) and language functions and tasks that are part of expected social studies routines (such as defining terms, explaining historical significance, reading expository text, and preparing research reports)" [98, p. 4]. Within the field of history, for example, Schleppegrell and de Oliveira [99] observe, "Three motifs that are strong in history discourse are the interaction of *time* and *cause* in the construction of a chronology of events, the use of *abstraction* to generalize from particular events, and the foregrounding and backgrounding of *interpretation* as the historian takes a more or less explicitly interpretive stance toward what is constructed in the text" [99, p. 256]. Unraveling the complex ways language constructs (and is constructed within) social science knowledge is key for effective instruction. Effective instructional strategies include: 1) identifying (and helping students to identify) the linguistic structures used to indicate common social science constructs such as time, cause, and agency [99,100]; and 2) modeling and practicing functional analysis of textbooks (e.g., examining how language is used in texts to create meaning), primary documents and other written materials [94,99,100,101].

In addition to discipline-specific literacy development, effective instruction of CLDs within social science classrooms also includes incorporation of learners' lived experiences and background knowledge [93,101]. Salinas, Franquiz, and Guberman [101] observe that, "Immigrant children's knowledge of history is based on a worldview that extends beyond classroom practices" [101, p. 204]. Inviting and validating learners' worldview opens

Discipline-specific Strategies: Social Sciences

Making social sciences linguistically and culturally responsive
Draw learners' attention to the linguistic features that are commonly used in social science to indicate: time, connection, cause, and participants in texts
Model and practice textual analysis of social science texts through
* Process/participant analysis (what happened, who was involved, and how)
* Construct timelines using temporal markers (e.g., "while," "in turn")
* Unpack generalizations and identify biases
* Map causal relationships
* Link referents/pronouns to their antecedents (e.g., we = Japanese-Americans)
Make history relevant and accessible to learners (e.g., through oral histories)
Use learners' knowledge as an entre to developing historical thinking

Other discipline-specific strategies
Pursue depth over breadth
Use a thematic approach

What not to do in social sciences
Assume newcomers' grade-level knowledge of context-bound fields such as U.S. history

pathways into social science knowledge and provides an entree to developing social science habits of mind.

Science

Making science linguistically responsive to CLD students and to ELs in particular is similar, in many ways, to linguistically responsive instruction in math and the social sciences. One unique aspect of the language of science is scientific vocabulary. Assisting learners with cracking the code of scientific terms is key to learners' science achievement. Effective instruction in the science classroom can include, for example, word attack strategies such as using context to understand familiar words and breaking words into their component parts (e.g., prefixes, roots, and suffixes) [102]. Teacher scaffolding of report-out techniques [71] and teacher use of higher order questions [90] also build learners' scientific language.

In addition to attending to scientific language, effective instruction of CLD learners in the science classroom builds community and inquiry skills. "Students learn science through thinking and reasoning as members of a science learning community" [103, p. 33]. Effective instruction in science helps learners become members of science learning communities. A community-based approach to science adds social dimensions to the discipline of science, debunking the notion that scientists are individuals who work in laboratory isolation. Developing a community of scientific learners requires members to acquire skills not only in scientific inquiry and its processes, but also the language of science and the social skills necessary for community participation. Of course building such a community connects again to McDermott's [6] focus on making learning tasks intelligible and thus trustworthy.

Teaching learners about and giving them practice in inquiry approaches to science is

Discipline-specific Strategies: Science

Making science linguistically and culturally responsive

Give explicit attention to the linguistic features of scientific language (e.g., specialized vocabulary, the discourse of comparison/contrasting and cause/effect)
Structure interaction opportunities between learners and between learners and teachers as a way to negotiate and refine scientific language
Deconstruct scientific vocabulary for component parts (e.g., cognates, word roots)
Model oral reporting techniques
Adapt science texts and other written documents for comprehensibility
Explicitly instruct problem-solving strategies
Involve students in hands-on scientific inquiry

particularly effective with CLD learners who are low-performing [104,105,106]. Utilizing a 5-step inquiry science instruction framework (questioning, planning, implementing, concluding, and reporting), Cuevas et al.'s [106] applied study increased elementary school learners' ability to conduct inquiry, suggesting that "students who often have limited experience with school science may need to become aware of what science inquiry involves" [106, p. 352] in order to achieve in science.

Language Arts

Notions of effective instruction in the language arts classroom have evolved from study of a canon of Western civilization's "Great Books" to include some appreciation and validation of the multiple perspectives (e.g., linguistic and cultural) learners bring to school [70,107,108,109]. Affirmation of diversity manifests itself in language arts instructional strategies not only in what schools ask students to know about language arts, but also in how schools invite students to learn about language arts. Effective instructional strategies in language arts are culturally and linguistically responsive. Responsiveness can be seen in both curricular choices (e.g., literature beyond the traditional Western canon) as well as in instructional approaches (e.g., native language use and validation). Choices in curriculum materials (e.g., short stories, novels, poems) that are familiar to students culturally and that are relevant to their lives not only validate learner identities, they may also be highly engaging and more comprehensible. Choices in instructional approaches, those that, for example, accommodate ELs and validate speakers of non-standard English dialects have also been found to be effective. Linguistic and cultural responsiveness in language arts instructional strategies may require an expansion of the canon and new understandings of literacy, including hybrid literacy [70,109,110]. "In the academy, students are told, in a variety of ways, to leave their native language at the door and embrace, instead, standard English" [70, p. 72]; this pattern draws a sharp and troubling distinction between what is useful at home and what is acceptable at school. Helping students develop a hybrid literacy, one that validates the language of home and the language of school, would be a more trustworthy approach, encouraging students to develop the linguistic resources to function across the multiple contexts of their lives. (Using Chicano/a literature like the children's poetry anthology *Cool Salsa* [111] or more advanced texts like Sandra Cisneros' *Caramelo* [112] are both examples where

Discipline-specific Strategies: Language Arts

Making language arts linguistically and culturally responsive
Select texts relevant to students' lives
Encourage hybrid and bi-literacy
Tailor language arts tasks to ELs' language proficiency
Make texts more comprehensible for ELs (e.g., use graphic organizers)
Provide balance in writing (e.g., writing as a process and writing as authentic communication
Vary approaches (e.g. whole language with explicit grammar instruction)

What not to do in language arts
Correct every error every time

Spanish-inflected hybrid literacies can be seriously celebrated as academic content.)

Instructional approaches in the language arts classroom that have proven effective use language in meaningful ways [107]. Implementing a whole language approach, in addition to more discrete-item instructional practices, is "particularly well-suited to language arts classrooms where students are actively involved in constructing meaning from their own experiences and through encounters with various texts" [107, p. 6]. Promoting whole language here does not discount or betray the balanced approach to literacy noted earlier (e.g., [16,81]). Rather it emphasizes that it is the whole language-oriented portion of a balanced approach that particularly figures in students' making of meaning. That meaning making process is particularly salient in terms of how students construct the trustworthiness of language arts education.

Linguistically Appropriate Instruction for English Learners

As previously noted in Section IV, what is needed for all learners to be successful at school is instruction that builds academic literacy skills as well as subject matter knowledge, but for ELs that language acquisition task is much more acute. As Gibbons [71] wrote, "For students who are learning ESL in English-medium schools, English is both a target and a medium of education: They are not only learning English as a subject but are learning through it as well" [71, p. 247]. ELs have a so-called "double burden" in California's English medium schools. They must learn the knowledge of their content areas, as all students do, yet to do so, they must simultaneously learn English [113]. As a result it is, perhaps, unsurprising that ELs are not performing as well as their English proficient peers. Effective instructional strategies must attend to ELs' linguistic and academic needs and the most promising strategies are those that combine language and content learning. In general, there are two instructional program models for simultaneous language and content instruction of ELs: content-based instruction (CBI) in the language classroom and sheltered instruction (SI) in the content area classroom. CBI teaches language through content typically in self-contained EL classrooms such as an English as a second language (ESL) class. SI teaches grade-level content through linguistically appropriate instructional strategies. SI classrooms may be EL-only or a mix of EL and English proficient learners.

Elements of the Research-based SIOP Model

Lesson preparation: using content and language objectives
Building background: accessing background knowledge and prior learning
Comprehensible input: using clear speech and explanations
Strategies: scaffolding learning and opportunities for learning strategy use
Interaction: varying grouping configurations and opportunities for peer interaction
Practice/application: utilizing hands-on learning and application of knowledge
Lesson delivery: matching instruction to instructional objectives
Review and assessment: adequate and appropriate review, assessment and feedback

The use of a program of instructional strategies for language and content learning, as advanced by CBI and SI models such as those in the SIOP (Sheltered Instruction Observation Protocol) instructional model, seems to be particularly effective in the instruction of ELs. An array of linguistically appropriate accommodations gives ELs access to curriculum and learning. Strategies that open access to content through multiple (including extra-linguistic) pathways and simultaneously build ELs' English language proficiency are most desirable. A 2007 report for Carnegie's Alliance for Education Excellence [113] compiled a list of nine such strategies that promote simultaneous content and language learning.

- Integrate all four language skills [reading, writing, listening, and speaking] into instruction from the start
- Teach the components and processes of reading and writing
- Teach reading comprehension strategies
- Focus on vocabulary development
- Build and activate background knowledge
- Teach language through content and themes
- Use native language strategically
- Pair technology with existing interventions
- Motivate ELs through choice

Although CBI and SI programs are based on sound theoretical principles, namely that ELs' English acquisition for academic purposes is facilitated by simultaneous language and content learning, little student achievement data in either language acquisition or content learning has been documented. One notable exception is the SIOP program model, which has demonstrated gains in ELs' language growth, (particularly in writing) through multiple studies [102].

CBI/SI programs, while promising for their potential to advance ELs' language and content acquisition, may be of limited utility for those ELs at either end of the English proficiency continuum. ELs of intermediate level English proficiency, those recommended for CBI/SI [102] may well benefit from the programs, as the preliminary studies of student achievement through the SIOP program treatment indicate. However, low proficiency ELs will have difficulty accessing English-only instruction, and their ability to understand content instruction, however accommodated, will be insufficient for grade-level content learning. Similarly, low proficiency ELs will

be unable to demonstrate their content knowledge when allowed to do so only through English [114]. Further, CBI/SI programs, as they are currently configured, may be limited in their ability to develop advanced English proficiency and content learning for high English proficiency and exited ELs [71,99,100,115,116,117].

> CBI can be enriched through an understanding that language and content are never separate, that content in school contexts is always presented and assessed through language, and that as the difficulty of the concepts we want students to learn increases, the language that construes those concepts also becomes more complex and distanced from ordinary uses of language [100, pp. 67-68].

One promising tool for enhancing CBI/SI programs is the addition of a system functional linguistics approach to such programs when instructing for ELs at high levels of English proficiency. An SFL (Systemic Functional Linguistics) approach, with its roots in Halliday's [118] work, highlights the symbiotic relationship of language and discipline knowledge, which has its roots in Vygotsky's work on language, socialization and cognition (as discussed earlier). SFL strategies analyze how language is used to construct (and how it is constructed by) content area knowledge. SFL instructional approaches "view language as a set of resources rather than as a set of rules, mak[ing] it possible to consider the appropriateness or inappropriateness of language choices in a given context of use" [71, pp. 250-251]. Effective instructional strategies taking an SLF approach include: teacher-guided scaffolding of report-out techniques [71]; helping students distinguish between everyday language and discipline specific language (e.g., developing a mathematical language register, which often lacks a clear "one-to-one correspondence between mathematical symbols and the words they represent" [94, p. 24]; using text analysis in social sciences to determine the linguistic features of chronology and causality (who did what to whom) [99,100]; and expanding incomplete or erroneous student language with meaning-based teacher responses rather than corrective (grammar-based) teacher responses [115].

While programs and instructional strategies that aim for simultaneous English language acquisition and content area learning for ELs show promise as well as practicality, an English-only approach to EL instruction may limit learners' access to instruction and to fair assessment. There is no evidence that teaching content through a learners' second (or third or more) language, in this case English, is the most effective approach. In fact, it is quite the opposite: instructing learners in content areas through their strongest language (or, at least bilingually utilizing learners' first and second languages) gives learners better access to content area learning and, importantly, better access to fair (valid and reliable) assessment of what they know and can do in the content areas [114,120,121,122].

A myopic focus on ELs' limitations in English overlooks an under-utilized instructional tool and a highly desirable skill: ELs' first language literacy. ELs are not only (or not just) limited English speakers, they are, with rare exception, emerging bilinguals (if not multilinguals) [123]. In terms of content area teaching and learning, when teachers cannot provide instruction in ELs' native language (e.g., teachers do not speak the language or are prohibited from using languages other than English in the classroom), learners' access to content learning is subsequently diminished. Further, when ELs' bilingual skills are not validated by schools (and, in some cases, even discouraged), language

attrition may ensue and school's non-acceptance of learners' linguistic identities (as bi- or multilinguals) could imperil their connection to school.

Finally, when reviewing research literature on ELs, instructional strategies, and academic success, we found a body of work on the role of paraeducators in EL education. Much of this work identified effectiveness in the collaborative instruction of ELs, in which teachers (both ESL and general education) and paraprofessionals (e.g., Spanish-English bilingual teaching aides) work together [124,125,126]. In the case of paraprofessionals who share ELs' first language, not only are the aides able to provide linguistic support, Ernst-Slavit & Wenger [124] found that:

> Paraeducators play a pivotal role in the education of language minority students, in spite of the overwhelming demands on their time, fragmented schedules, poor teaching conditions, and very little pay or institutional support. School districts and teacher education programs need to recognize and affirm the experiences, insights, knowledge, and abilities of paraeducators. [124, p. 63]

Utilizing bilingual paraeducators, then, classroom teachers who do not share ELs first language have the opportunity to provide content through languages other than English, which can both boost academic achievement (through better learning and assessment possibilities) and validate ELs' cultural and linguistic identities.

VI. Policy Implications

> *If one's model of ideal educational practice is one of standardized practice, the way in which an efficient manufacturing plant might function, giving 2.5 million American teachers the opportunity to determine what is best for their own school or school district can appear chaotic or even nihilistic. Thus there is a real tension in the process of school reform. At one end there is the desire to create a uniform and "equitable" program for children and adolescents, regardless of who they are or where they live. This requires centralized education decision making. At the other end is the realization that unless teachers feel some commitment to change, they are unlikely to change. To feel such commitment it is important for teachers to participate in the change process.* —Elliot W. Eisner [127, p. 616]

The 2007 *Educational Opportunity Report: The Racial Opportunity Gap* [3] examines California's poor and unequal education achievement in light of the conditions in public schools. The report draws specific attention to how California lags behind most other states in providing fundamental learning conditions as well as in student outcomes. It notes that African American and Latino students are far more likely to attend schools that lack fundamental learning conditions than their white and Asian peers. It found that almost 260,000 Latino students (or 35%) attend overcrowded high schools, almost more than twice the proportion of white students attending these schools. It found that African American high school students were more likely than any other group of students to attend schools where large proportions of college preparatory courses are taught by teachers without proper qualifications. The UC ACCORD/UCLA report is an apt reminder of the scale of the challenges that changes in instructional strategy and other

efforts will need to overcome if California schools are to have equitable outcomes.

That report, plus all the instructional strategies reviewed here, point to a key and crucial governance question: What ways and means will give all California students access to high quality instruction? This report has endeavored to review what the research says. It has done so by distinguishing between universal or broadly applicable traits of high quality instruction and those that are more particular to specific content areas and/or particular kinds of learners. It has located the whole review within McDermott's [6] insight that high quality instruction only transpires when the relationship between teacher, learner, and task at hand is trustworthy—i.e., perceived by teacher and learner as credible and viable. Credibility and viability are more likely to be constructed through the deployment of some instructional strategies over others, but it is not just instructional strategies that enable them. They are also a product of teacher orientation toward learners and adeptness with content area and they are a result of enabling environmental conditions, such as those in which teachers can exercise their well-developed professional judgment in a safe environment with adequate support.

Ladson-Billings' [12] question haunts: If we know so well what good instructional strategies are that could counter historic "educational debts," why is it that we have not assured that such strategies are broadly implemented? Teachers' lack of knowledge (either vis-à-vis content area knowledge or instructional strategy) would be one explanation. Teachers not understanding the centrality of attending to cultivating a trusting relationship of patient, high expectation that makes both the learning task and the learning environment seem viable and credible would be another. Both of these explanations are possible and could be addressed through teacher education (pre-service or inservice), topics that are discussed below. However, it is also possible that teacher knowledge per se is not the main constraint. As Sizer [41] famously noted in his classic volume *Horace's Compromise*, it is plausible that skilled veteran teachers know what they should do, but feel a disconnect between what they *should* do and what they *can* do. If this is the challenge, or part of the challenge, then teachers cannot shape trusting environments not because they lack knowledge about how to, but because they lack the means. An embrace of instructional strategies that does not attend to this dilemma is unlikely to relieve an achievement gap.

It is not the role of this report to appraise the existing structures of California schools, nor the nature and quality of pre-service teacher preparation, nor the quality and coherence of existing in-service strategies. It is, however, worth noting a few questions about each of these that any new achievement-gap-responding policies would need to consider. For example, does the existing structure of California schools—whether referring to a particular school or the whole system—make it equally likely that teachers and students of all backgrounds will be equally able and disposed to create the trusting relationships that make academic tasks credible, intelligible, and viable? If the answer is "no," then we should anticipate that, in instructional relationships that lack this characteristic, students and teachers will make less forward progress. In turn, if there are patterns in the kinds of students who are less likely to be in a trusting instructional relationship, then there will also be patterns with regard to who achieves more and who achieves less. It is worth remembering here that "trusting" is not a proxy for "friendly" and that "trusting" also references not just the relationship between teacher and learner, but also that relationship in reference to the

task at hand (i.e., the learning and/or performance task). A teacher who lacks mathematical content knowledge may well not be able to co-create a trusting relationship with a learner in relation to the task of teaching math, just as a teacher who lacks a respect for a student's cultural, racial, and/or linguistic background would also be less likely to be able to create the relationship necessary to teach math.

Do pre-service teacher education programs [117] position teachers to 1) know the nature of the vocabulary, text structure, and discourse demands of a discipline (e.g., to think and talk like a scientist or historian); and 2) encourage them to make these features explicit in accord with Osborne's [56, p. 298] injunction for teachers to "spell out the cultural [and linguistic] assumptions on which the classroom (and schooling) operate?" This may seem like a complicated question. But, per the instructional strategies reviewed here, if teachers are neither ready nor disposed to help students make sense of the learning task they are to engage in then it follows that the students' likely success at that task is jeopardized. Setting aside serendipitous exceptions, it is hard to imagine teachers who teach out of subject area being well-positioned to meet the task described in this question, which raises the policy issue of whether California is generating enough teachers with the requisite content backgrounds to fill all of its classrooms. From the standpoint of reviewing pre-service teacher education (including alternative certification pathways), another policy implication raised by this report is whether existing programs successfully cultivate the knowledge and dispositional qualities necessary for their graduates to succeed in classrooms with all kinds of learners. Here again, if the answer is "no,", if there are patterns regarding whom teachers are ready for and what areas they are ready to help with, then there will be patterns in which students get supported and in what and vice versa.

Of course, California classrooms have changed enough in the last 30 years in terms of who is enrolling and what levels of mastery these students are supposed to attain, that any expectation that pre-service education alone could resolve all limitations related to teachers' knowledge of credible instructional strategies would be misplaced. In-service professional development likely matters in terms of teachers' content mastery (including in fields like technology and biology that are fast changing) and their capacity to serve well students from populations that teachers have never served before (or with whom they have never worked with full success). From an implications for policy standpoint, then, this report raises questions about *what strategies California teachers need to know that they do not know* (or do not know well) and *which populations they have not learned to build trusting, credible, viable relationships with* (relationships viable enough for students to engage seriously, substantively, and successfully with challenging content). Moreover, if these questions are answered, there remains the substantive challenge of organizing adequate and appropriate professional development to act on those answers. Eisner's [127] biting critique offers a necessary caution here:

> In-service education typically means that teachers will attend meetings or conferences to hear experts…The assumption is that once teachers are exposed to such wisdom, they will implement the suggested practices in their own classrooms. The in-service seminar is one in which the advice-giver typically has never seen the teachers who comprise the audience. The advice-giver does not know the teachers' strengths or weaknesses…Thus, we try to improve teaching by asking teachers

> to leave their classrooms so that they can travel to distant locations in order to get general advice from people who have never seen them teach. One does not need to be a specialist in learning theory to know that for complex forms of human action, general advice is of limited utility. Feedback needs to be specific and focused on the actor in context. [127, p. 614]

Fortunately, Eisner's [127] description of typical professional development is not the only version. More optimistically, as the in-service professional development task is thought through, there's a certain elegance already explicated here that can be remembered and pursued: McDermott's [6] insight that effective guided learning requires the creation of a trusting relationship between educator, learner, and the task at hand can also be applied to professional development. Indeed, this is often the premise behind working with literacy coaches, external model providers, school coaches, and the like. Given the shared professional expertise distributed across a faculty, professional learning communities, critical friends groups, and other mechanisms of joint inquiry can also be credible means for teacher learning. The policy imperative may then be to enable and support these mechanisms for learning. There is a body of research regarding instructional strategies that point to how to improve learning outcomes for some or all students; the policy task is to figure out the professional development strategy that will convince faculty of both the imperative of pursuing new learning and the viability of that learning for improving practice. But it is the learners themselves (in this case teachers) who will have to concur that new ways are indeed viable.

Yet another feature already considered can also be noted here as pertaining to professional development. The promotion of self-regulation that Seidel and Shavelson [5] note and the habits of mind that Dewey [128] alludes to both remind us that adults often have acquired the tools of life-long learning and that, given tools and means (including time), they often have the capacity to self-guide much of their professional improvement. Emphases on lesson studies, action research, and self study all can be tools for developing the professional acumen needed to improve instruction and outcomes with a broad range of students.

Still, a final question lingers. Much of the critique of the achievement gap is couched in terms of social justice. Osborne [56] is particularly blunt when he asserts ethnologically that, "Racism is prevalent in schools and needs to be addressed" [56, p. 304]. Yet the guidance regarding what instructional strategies work best seems frequently to be based on a treatment outcome logic where the instruction strategy is the treatment and grades or, more typically, standardized tests are the measure of success (or lack thereof). In other words, the assertion of injustice, an assertion agreed to by this report's authors, is measured with standardized academic achievement outcomes. Clearly these outcomes matter, but they ignore any query about how credible or compelling the tested information is to the tested learner; Abedi [114,129] writes, for example, about the inappropriateness of testing ELs in English or their native language (if the native language was not the language of instruction).

But from a different validity standpoint—the match between what is tested and what knowledge acquisition should matter—the use of standardized tests seems incomplete. If the problem to be solved is one of injustice, then can students be involved in countering that injustice and can measurements be created that document and

appraise that countering (differentiating the inchoate and angry from the compelling and action generating, for example)? None of the instructional strategies reported here directly reviewed the capacity of that strategy to help learners better advocate for justice, to gain a disposition for and skill at democratic participation. There may be one more policy domain for this report then. Cohen [130] recently argued that, "the goals of education need to be reframed to prioritize not only academic learning, but also social, emotional, and ethical competencies." It seems worth asking what instructional strategies might overcome any current gaps in teaching for participation in democracy and well-being.

Perhaps Duncan-Andrade [131], in his description of engaging urban high school youth in a UCLA summer seminar, offers an exemplar not just of a possible project, but one that embeds its own assessment strategy. That project had students learn how to use video cameras to document the voices, needs, complaints, and aspirations of their neighborhoods while concurrently engaging in critical review of media depictions of their neighborhoods, their race and class identities, and their family structures. As with any other academic task, these student-produced videos can be appraised, and their technique and value considered. One can ask whether teacher and student interaction in relation to the task at hand was found trustworthy. To that question, one can then consider student responses, like that of Miguel (one of the participants):

> If a picture is worth a thousand words, then one minute of footage with 1,800 frames is worth eighteen hundred thousand words. The use of the camera was invaluable. It allowed us to capture images that could only be expressed through live footage. These images not only helped supplement our data with concrete evidence, but allowed us to bring forth a world most people are blind to (quoted in Duncan-Andrade [131, p. 29]).

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Notes

[a] Topics included: leadership, planning and learning goals, management, organization, instructional improvement, interaction, equity, special programs, assessment, parent and community involvement.

[b] Note this list was originally presented in Meltzer [132]. These findings are part of a larger framework that also includes discipline specific components and guidance for management of a school that routinely supports implementation of these practices.

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