Rules of Engagement for Achieving Educational Futures: A Reflection Jim Cummins Vision

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Reflecting on Jim Cummins' vision of educational futures from outside the ideological structure of the educational system, I am reminded that very few educational innovations have successfully gained widespread acceptance or have lasted any significant length of time (Healey & DeStefano, 1997). "In education, everything has been tried with very meager (sic) results" Tedesco (1998, p. 80) said, and what has been tried with diverse populations has been ineffective in bringing about substantive change in achievement patterns (Springfield, Datnow, & Ross, 1998). In sum, the "real core of schools"—i.e., the process of teaching and learning—has been intractably resistant to change, as Elmore (1990) and others point out. But, Cummins knows this and states it in his wonderfully crafted vision of a technology intervention design for elementary school-age learners of English.

Cummins' vision, however, captures only part, the "how-to" of the real change that must take place in education. In effect, the changes that must be made in order to adequately serve non-mainstream students who experience the core of schooling as inaccessible and meaningless amount to nothing less than a shift from an industrial model of education to a knowledge and information model. This new model marks a shift from preparing citizens and workers, particularly people of color, for an outdated, hierarchical, routinized, and predicable social world to preparing them for a world that is in constant

flux at every level of our social experience. Skills borne out of the "education of the future" that I propose here are far from the discrete, reified, and knowable skills promoted by conventional education. Instead, they are conditionally based upon the flows of change brought about by new advances in knowledge and information. A new vision of our world—one that is culturally diverse, multilingual, and democratic—must be engendered by a learning context that is grounded on integrative collaboration (John-Steiner, 1997), flexibility, creativity, technological versatility, and a global and critical perspective; a far cry from the rule-bound, monocultural, and individual-based character of today's education.

Cummins' design principles and basic criteria for assessing the potential effectiveness of technology-supported instruction for English learners comprise only the first of four rules of engagement—to borrow a military term in these times of war—that I believe are necessary to overcome the forces that inhibit the provision of a high quality education for second language learners. [i] I propose we think beyond the assessment of program effectiveness that Cummins lays out and examine the goals of the entire decision-making process. As educators, to push the military analogy further, we must decide when, where, how, and against whom/what do we mobilize the force of our educational expertise and resources. My reflection below presents a seemingly modest approach that builds on Cummins' vision. I dare to reflect on possibilities knowing well that my proposed rules of engagement may make Cummins vision even harder to implement. I am suggesting, here, a theory of action that catapults education into the future; ironically, a theory of education that hails back to the beginning of the 20th century when Lev Vygotsky proposed an interventionist approach to education (Moll, 1990).

The second rule of engagement suggests pedagogical interventions that explicitly delineate the kind of learner, worker, citizen, and world relevant to an age of globalization that education is aiming towards—i.e., flexible, creative, and autonomous learners and workers of a technologically connected world with a global reach. I am suggesting here an education that not only focuses on science and mathematics or skills related to advance services that fuel globalization: research and development, engineering, law, and finance. In essence, I am suggesting an education of the future that considers the skills that language minority youth possess as intellectual resources highly valued in today's globalized world—e.g., the versatility to navigate across a variety of distinct cultural contexts, fluency in more than one language, and a collaborative nature. The development of such a learner requires the learning ecology to foster performance beyond an individual's capacities—i.e., to operate within Vygotsky's zone of proximal development (Vygotsky, 1978).

The third rule of engagement calls for considering the broader context as an important mechanism for bringing about effective change in the individual as well as the society. That is, the social milieu that is important to child development (Wertsch, 1985; Wells, 2000; Rogoff, 1994) must be taken into consideration in planning a technological intervention. Education can no longer stand apart from its constituent communities, but rather must form part of a cross-system collaborative effort that links to the ecological contexts that learners traverse as a matter of daily life. Linking relevant cultural systems (i.e., the family, community, and educational systems) and multiple institutional contexts (i.e., the individual schools, research units, funding organizations, and various learning sites such as the classroom, after-school learning settings, and staff meetings) into an

elaborate cross-system collaborative provides a socializing system for the developing learner, citizen, and worker. It also supports the mission and development of each of the integral components, creating change across the system. Structurally, the relations of exchange formed by such a system create the pathways from which accumulated knowledge generated at each point of contact is circulated throughout the system (Vásquez, 2003). Thus, each part of this multilevel system contributes to the formation of new visions of learners and the institutions that serve them.

The fourth and last rule of engagement is to reinforce a dynamically dialogic learning environment where learners use language to learn language, literacy, and, following Vygotsky's adherents, a new consciousness (Leontiev & Luria, 1968; Wells, 2000). We must move away from a focus on the individual and the idea that instructional tools, such as books and technology have the power to transform learning in and of themselves. Rather than produce the ideal conditions for a high-quality learning environment in today's classroom this convention reinforces silence, isolation, and narcissism (Vásquez, 2005). What I am proposing instead is a view of technology as a symbolic tool that fosters communication—in Cummins' terms, a tool for "collaborative inquiry"—rather than an independent tool with an instrumental function.

In Vygotskian interpretation, the computer as a language tool; "the medium for both collective sharing and for transmission [and, I would add, construction] of new forms of consciousness across generations and circumstances" (Bruner, 1984, p. 95). Currently, a new consciousness of how the world works has more currency outside of school where youths are using information technology in socially innovative ways—e.g., establishing communication networks, gaming, friendships, and romancing. Jonassen's

notion of "mindtools" (see Cummins, this volume) is useful to consider technology as part of the social body that constructs knowledge:

> technologies should not support learning by attempting to instruct the learners, but rather should be used as knowledge construction tools that students learn *with*, not *from*. In this way, learners function as designers, and the computers function as Mindtools for interpreting and organizing their personal knowledge.
> Mindtools are computer applications that, when used by learners to represent what they know, necessarily engage them in critical thinking about the content they are studying. (Jonassen quoted in Cummins, this volume p. X)

Together these four rules of engagement—that is, an assessment framework of program effectiveness, new visions of learner and world, a cross-system collaborative effort, and a dialogic learning environment—allow us to exercise our educational expertise and resources to fulfill not only the needs of the learner, but also the needs of the educational system to prepare learners and citizens for the new social conditions that surround us. Our pedagogical visions must be strategic, system-based, and future-oriented to meet the demands of a diverse, multilingual, globalized world.

This is a lofty goal, indeed, and Cummins is correct in stating that the changes he proposes, and by extension the ones I add above, are more easily accomplished outside the classroom where one can imagine optimal possibilities and tweak the system accordingly (Vásquez, 2003). The flexibility of these out-of-school, informal programs makes them ideal contexts for testing the viability of innovative technology-supported learning environments, for exploring nonstandard sources of knowledge, and for creating a new vision of education. After-school enrichment activities, for example, have been shown to have a long-term social and academic benefit for participants (Miller, 2003).

Cummins provides examples of successful technology interventions that bridge the digital, cognitive, and pedagogical divide, albeit outside of school. I would like to

offer another example, one whose ideals over its 17-year history have generated local success in serving language minority youth in San Diego County: a computer-based social action project that exemplifies Cummins' design principles and basic criteria for effective learning as well as incorporates the additional three rules of engagement I presented above (for details, see Vásquez, 2003).

"*La Clase Mágica,*" as this after-school program is called, is an innovation of "The Fifth Dimension" model developed by Michael Cole and colleagues at the Laboratory of Comparative Human Cognition, University of California, San Diego (UCSD) (Cole, 1996). Its bilingual, bicultural framework and its focus on the academic achievement of minority youth and their representation in higher education made it possible for The Fifth Dimension/*La Clase Mágica* combination to serve as a proactive strategy to support the academic achievement of underserved youth after the dismantling of affirmative action. Our collective efforts in San Diego County gave rise to UC Links, a highly successful network of 26 after-school programs that represents community-university partnerships dedicated to maintaining and increasing the flow of underserved youth into higher learning. For more than 10 years now, UC Links has sustained a strong presence as a provider of quality after-school learning in sites throughout California.

As one of the founding programs in the UC Links community, *La Clase Mágica* continues to flourish as a consortium of six after-school sites situated in community institutions and linked to UCSD and Palomar Community College through two undergraduate courses and an extensive research agenda. Annually, it serves approximately 300 children ranging in age from 3 to 16, 60-80 UCSD undergraduates, and 10-15 Palomar Community College students. The project is composed of a research

and implementation team involving a university staff and a staff of 7-10 community women who coordinate the activities at the community sites. The implementation part of the project is supported by a nonprofit organization called The Center for Academic and Social Advancement (CASA) that grew out of the community activities at the initial site, which is a small Catholic mission located in the Mexican-origin sector of Solana Beach, California. Today, CASA supports the daily operations of the computer clubs located in two schools, two community centers, an American Indian Reservation, and the small Catholic mission where it shares space with a Head Start program. A cross-system collaborative effort of 21 institutional units—e.g., funding agencies, educational institutions, and community agencies—supports the financial, intellectual, and material resources that *La Clase Mágica* requires for its sustainability.

Undergraduate students enrolled in the UCSD practicum course on child development and a Multicultural Studies course at Palomar College are trained to engage their younger partners in robust, theoretically informed interactions that support active engagement in their learning and development. The amigas/os, as the undergraduate students are called, help the children progress through a series of computer-based educational games and collaborative activities specifically selected to emphasize language, literacy, and problem-solving skills. For example, children in *La Clase Mágica* engage in dialogically rich learning activities guided by their amigas/os using such educational software as *Storybook Weaver* (http://www.swexpress.com/home.nsf) and *Math Blaster* (http://www.associatedcontent.com). Field-developed materials, adult-child interactions, and an electronic support system create a bilingual, bicultural ecological system that fosters active learning, bilingualism, and expert-novice collaboration.

Computer-based resources are key to both attracting the children's active participation and giving children access to quality learning materials and resources that they would otherwise not have at home or at school. Child participants, under the guidance of their undergraduate pals or the community staff, use the Internet to complete homework assignments, to communicate regularly with a magical entity via electronic written communication, and to play computer-based educational games, all the while practicing numerous academic skills such as reading, writing, and problem-solving (Vásquez & Dúran, 2000).

Yet, although the technology is considered crucial to attracting and maintaining the child's active participation, the collaboration between the undergraduate pals and the child participants is the major factor behind their motivation, engagement, and visions of self. As Nancy Chavarín, 25, one of 20 former child participants interviewed for an extensive sustainability study, reported, the project had a major impact on her life:

> Being in *La Clase Mágica* helped me with reading and writing. Up to then, I had a hard time because in my classes everything was in English and I didn't understand anything. Slowly, though, I learned thanks to *La Clase Mágica* because I could also use Spanish there. *La Clase Mágica* influenced me greatly with my present interest in technology, that I now work repairing computers. I have five PCs, two laptops, and two PDAs, and everything I do is related to the world of technology. Learning to use a computer and the Internet helped me decide what I wanted to do in life. In relation to *El Maga* [the electronic entity], *La Clase Mágica* opened my eyes to a different world. I didn't know I could talk to beings in another

> world, which helped my imagination fly into fantasy and develop a curiosity for learning (Martinez & Vásquez, 2005).

The design of the intervention is neither localized nor unidirectional, but rather is founded on a community of learners' ideals (Rogoff, 1994). Everyone has a special role in the workings of the project, and everyone learns and develops. The effect that *La Clase Mágica* has had on the undergraduates and the community adults clearly demonstrates this assertion. Many participants, young and old have pursued higher education as a result of their participation in *La Clase Mágica*. For example, a community college undergraduate student who participated in the collaboration between UCSD and the community college in 2001 has joined the research staff as an undergraduate assistant, illustrating the efficacy of the education pipeline set up by the system of collaboration created by *La Clase Mágica*. According to the preliminary results of a year-long sustainability study conducted during the 2005-2006 academic year, all but one of the undergraduates who participated as research assistants had pursued advanced degrees. Three-quarters of them reported that *La Clase Mágica* had played an influential role in the choice of research tools—i.e., ethnographic and qualitative methods—they used in their graduate work. Graduate students who participated in the project as research assistants also reported that *La Clase Mágica* had a strong influence on the research topics they pursued. The community adults, too, report benefits from their involvement in the computer-based activity. Marisol Acosta, an emergent speaker of English who has served as site coordinator for several years, had this to say about the impact *La Clase Mágica* has had on her:

> Before I did not even know how to turn on a computer. *La Clase Mágica* encouraged me to take a course on computation, and nowadays I use computers almost everyday. I also look for almost any information that I need on the Internet. Thanks to the Internet, I am also aware about a lot more things that are going on (Martinez & Vásquez, 2006)

As can be seen from the preliminary findings of the sustainability study, Cummins' pedagogical framework is a fait accompli at *La Clase Mágica*. *La Clase Mágica* incorporates the two design principles of "scientifically credible" learning environments—effective environments and the promotion of literacy—and all four conditions for effective learning borrowed from Bransford and colleagues: (a) learning with deep understanding, (b) building on pre-existing knowledge, (c) promoting active learning, and d) support within a community of learners. Cummins' design principles of effective environments, in fact, resonate perfectly with Vygotsky's (Vygotsky 1978; Cole, 1996) notion of cultural and cognitive development on which the project is based (see Vasquez, 2003). We create the culture of *La Clase Mágica* by socially structuring ". . . the kinds of tasks that the growing child faces and the kinds of tools, both mental and physical, that the young child is provided to master those tasks. . ." (Vygotsky, quoted in Luria, 1979). In short, what this means is that the particular cultural framework of *La Clase Mágica* and the embedded cross-age interactional practice, intellectual tools, and electronic activities that we emphasize aim at a specific kind of learning and development, one that prepares participants for an information based world. Our technology based curriculum, our bilingual format, and our collaborative engagement aligns perfectly with an education of the future. This notion of culture allows us to think

about how we can create new socially structured ways to think and act within a technologically based world.

La Clase Mágica is an effective learning environment whose underlying goals and objectives assume a particular kind of learner for a particular kind of life he or she will live. In other words, it envisages a world that reaches beyond the local community with the aid of information and communication technology and an individual who is able to find herself or himself through the complexities of a diverse global society. Theoretically, this perspective allows us to think about how we can strategically tweak the system of artifacts that make up the after-school program to encourage the development of active, bilingual learners who are fully prepared to enter into a technologically based, globally extended society. Furthermore, we are able to design innovative environments where cognitive development and identity investment are crucial parts of learning and where learners can reap new visions of self. For example, Juan Gomez cited *La Clase Mágica*'s influence on him to study computer science at college:

> *La Clase Mágica* helped me to learn everything about computers. I used to teach adults in my community about the use of computers, which I think was very helpful for them and also for me. That encouraged me to apply for a computer science program at the university. I finally changed my mind and I ended up studying business but, the fact that I started in computer science has definitely much to do with my experience in *La Clase Mágica* (Martinez & Vásquez, 2006).

The pursuit of higher education is one of the goals that we work into in the adult-child interactions and the curricular materials we design. Our findings show that the 20 former participants who had completed a series of 70 activities and who had advanced to the level of wizard assistant when they were children had either attended college or were planning to attend. Of those who were college age, all had received a minimum of a two-year college education, and those former participants who are still in high school reported that they plan to attend college.

The project's aim to improve the social conditions of language minority youth and their families also filtered down to the child participants and is visible in life choices they make as young adults. Alex Carter, for example, who joined the project at age 7 and who is now 19, highlights the values he picked up at *La Clase Mágica* to help out his community: "I think that the influence of *La Clase Mágica* is very important for constructing a social conscience about the Latino community and its social needs" (Martinez & Vásquez, 2006).

Bransford's (cited in Cummins, this volume) criteria for effective learning are also aligned with the sociocultural framework of *La Clase Mágica.* This is particularly seen from perspective of Vygotsky's (1978) notion of the zone of proximal development which adults in *La Clase Mágica* are trained to create for child learners. According to Vygotsky (1978) zone of proximal development is the:

> . . . distance between the actual level of development as determined by independent problem solving and the level of potential development as

> determined through problem solving under adult guidance or in collaboration with more capable peers (p.86).

Adults, many of whom are undergraduate students, prompt children's progress by using their home language and culture, giving them possible clues to solve problems, holding their progress in memory, and urging them to try harder. Through theoretically informed interactional practices, they create zones of proximal development that support active learning with deep understanding, and build on the ideal of a community of learners. The zone of proximal development incorporates the fourth rule of engagement: it creates a dynamically dialogic learning environment.

The zone of proximal development provides the framework to conceptualize the point of intervention in which the values cited above and the sense of self as active learners can be scaffold by the adults who work with the children. As more capable peers, the undergraduates engage their child collaborators in dynamically charged interactions, opening up the opportunity for them to invest their identity as capable and able doers and thinkers while they develop cognitively and socially. Claudia Leal, 17, who participated in the project when she was 9, attributes her strong sense of self to her participation in *La Clase Mágica*: "The best of the program is the confidence it gives you to express yourself in public and in front of the others" (Martinez & Vásquez, 2006).

Our evaluation studies in 2005 and 2006 confirm our assertions that *La Clase Mágica* has a tremendous potential to bridge the pedagogical, cognitive, and digital divide that exists between language minority youth and more well-off mainstream youth.

Every age group we studied over these last two years showed higher performance on both field-developed assessment measures and standardized tests than non-participants. Although our numbers are small and our evaluation classifies under Cummins' case study designation, elementary school-aged participants outperformed the control group on reading readiness skills in the first year of intervention and five years later on the state administered test, which was given up to three years after they had left the program. The participants, considered "at risk" by their kindergarten teachers, not only showed superiority on language and math scores on the California STAR test, but they were also rated higher by their fifth grade teachers in leadership, bilingual language arts, problem-solving, and computer literacy skills (Vásquez, 2006). Pre-school children in a La Clase Mágica-Head Start combination activity also demonstrated incredible gains in 7 out of the 12 developmental domains of the Desired Results Profile after having started statistically lower than their slightly higher-income peers in a migrant education program (Pastor-Relaño & Vásquez, in preparation).

Although these findings do not tell us whether our rules of engagement could or would work in the classroom, they do show us that an effective learning environment outside of school can affect the academic achievement of participants. In other words, the skills learned in the after-school program transfer to the classroom. We have learned that the bilingual-bicultural activities that we arrange for the child participants give them ample opportunities to maintain their native language, in this case Spanish, and to acquire a second language, English with the same or higher level of proficiency as their control group (Vásquez, 1993; 2003).

There is still much we have to learn about transporting educational activities like *La Clase Mágica* to the classroom. Its flexible nature, its dynamism, and its multi-dimensionality runs counter to conventional educational practice that demands stability, control, and linearity. We have learned that *La Clase Mágica* is no match for the dominance of the school culture (Vásquez, 2005). Just being on school grounds changes the dynamics and the content goals of the project. For example, when it operated in the classroom during the teacher's preparation period, the norms of the school culture, weighed heavily on the children's spontaneity and verbal expression. The same was true in another school where *La Clase Mágica* was held in a separate classroom. In both these cases, its rich dialogic environment, its goals and objectives, and its innovative use of the technology, that I argue is necessary to foster new ways of doing and thinking, were negatively affected. The school culture influenced the social and intellectual tenor of the activities of *La Clase Mágica* rather than the other way (Vásquez, 2005). Although the participants fared well in the state standardized tests as compared to non-participants, we believe that they would have performed even greater if *La Clase Mágica* would have been able to operate in its optimal form. However, both cases reconfirmed the value of collaboration between in-school and out-of-school teaching and learning and also the reticence of the culture of learning in American schools (Gallego & Cole, 2001). They also demonstrated that it is in the space between in-school and out-of-school teaching and learning that we have the best opportunity to have an impact on the achievement of English learners.

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[i] Wikipedia (2006) definition of rules of engagement:
In military or police operations, the **rules of engagement** (**ROE**) determine when, where and how force shall be used. Such rules are both general and specific, and there have been large variations between cultures throughout history. The rules may be made public, as in a martial law or curfew situation, but are typically only fully known to the force that intends to use them.
I would like to acknowledge Lee Charles Pooler for his insightful comments on the significance of the military notion of "rules of engagement".