SCIENCE LITERACY FOR ALL: INFLUENCES OF CULTURE, LANGUAGE, AND KNOWLEDGE ABOUT NATURE AND NATURALLY OCCURRING EVENTS

Special Issue of L1 –Educational Studies in Language and Literature

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INTRODUCTION TO THE SPECIAL ISSUE AND ACKNOWLEDGEMENTS

This special issue is both a set of standalone articles related to language and literacy research and practices focused on science literacy in different sociocultural and sociopolitical situations and a collective, multiple case study of a sensitive issue dealing with the influences of culture, language, and knowledge about nature and naturally occurring events on science literacy. 'Science literacy for all' is far more controversial and problematic than outlined in many science education reforms (Aikenhead, 2006). The first article provides a common background on science and science literacy from the dominant perspective of English-speaking countries and the European traditions of science. This perspective provides a reference frame from which other perspectives can compare their central assertions about worldview, epistemology, ontology, culture, language, and prior experience and knowledge about nature and naturally occurring events. The six invited perspectives of Francophone students in English Canada, rural Mexican students, Southern African indigenous people, Taiwanese majority and minority groups, Aboriginal people of Western Canada, and

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Maori people of New Zealand, and represent just a few situations where dominant science discourse communities and science language (L3) differ from the students' home language (L1) and the language of instruction (L2) used to teach and learn about science. Not only do the languages differ, but also the cultural beliefs subsumed by language and the worldview; and the knowledge about nature and naturally occurring events differs from those of science based on a European tradition and scientific worldview. Furthermore, the sociopolitical agenda differs across these settings. These perspectives serve as the data and information sources for a cross-case analysis that is the heart of the final synthesis that considers the nature of knowledge, the cultural and language priorities – enculturation/assimilation, cultural sovereignty/isolation, parallel cultures with two-way border crossing or lost between cultures – and pedagogical principles for addressing culture, language, and prior knowledge diversity in the classroom and other learning environments. The authors of the final article attempted, where possible, to produce generalized assertions across the perspectives and, where not possible, to provide a point-counterpoint articulation of the critical differences and central, unresolved issues. Aikenhead (2006: 113) stated, "Both indigenous and Western sciences employ rational ways of knowing [epistemologies], but their culture-laden rationalities differ to varying degrees in several ways" regarding social goals, intellectual goals, association with human action, notion of time, and general perspectives. Readers need to keep in mind these ideas and other ontological assumptions about place-based and generalized knowledge claims, explanations, and fundamental elements of knowledge systems. Their final considerations of pedagogy vary with the limitations of the many faces of constructivism and classroom practices related to interactive-constructivist, social constructivist, and radical constructivist approaches.

This special issue on such a socially, culturally, and politically sensitive issue could not have occurred without the trust of the author teams for the guest editors to honour their perspectives and to treat their ideas with respect. This does not mean that the author teams did not expect disagreement and differences of opinion and basic assumptions; but it did mean that the major concentration had to be on the nature and philosophy of knowledge systems, achieving a mutually agreeable interpretation of science literacy, re-energizing the informed debate and research of disciplinary literacies (especially science literacy) in multicultural classrooms, and making a difference for the future students of all cultures and ethnicities. Author teams were asked to focus on these issues, while sharing their sociopolitical concerns for social justice and equity, which are critical dimensions in many ongoing deliberations. The guest editors wish to thank these authors for their trust and for participating in an effort to clarify the central issue of science literacy, culture, language, and different prior knowledge stores.

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