Introduction

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Perhaps the most telling point to mention in discussing an educational challenge to Eurocentrism is that

> Geographically, Europe does not exist, since it is only a peninsula on the vast Eurasian continent . . . Europe has always been a political and cultural definition. . . . Before the 19th century, geographers generally referred to it as "Christendom." When colonialism began to spread Western culture and religion to all corners of the globe, some British and German geographers began to delineate the eastern boundaries of a European continent. What they were actually doing was trying to draw the eastern limits of "western civilization" and the white race (Grossman, 1994, p. 39).

This is an important illustration of how false "facts" become part of our taken-for-granted knowledge of the world. That assumed "knowledge" extends beyond the mere creation of this fictitious geographic entity to proclaiming Europe's centrality in the creation of knowledge and the development of "civilization." In the Eurocentric account, Europe (and "Europeanized" areas like the U.S.A.) has always been and currently is the superior Center from which knowledge, creativity, technology, culture, and so forth flow forth to the inferior Periphery, the so-called underdeveloped countries.

Of course, there are significant intellectual challenges to Eurocentrism. Amin (1989) argues against this account by showing the central contributions of the Arab-Islamic cultures to world knowledge, and by showing how the Eurocentric version of "humanist universalism . . . negates any such universalism. For Eurocentrism has

brought with it the destruction of peoples and civilizations who have resisted its spread" (p. 114). Diop (1991) demonstrates that the Greek foundations of European knowledge are themselves founded upon Black Egyptian civilization. Bernal (1987) illustrates how Eurocentrism developed in eighteenth-century Europe as the rationale for various forms of European slavery and imperialism. Blaut (1993) further shows that the successful conquest of the Americas and the spread of European colonialism, actions which were responsible for the selective development of Europe and underdevelopment of Asia, Africa, and Latin America, "is not to be explained in terms of any internal characteristics of Europe, but instead reflects the mundane realities of location" (p.2).

In spite of this scholarship, the Eurocentric myth persists and influences school curricula, even in a supposedly neutral discipline like mathematics. This book challenges the particular ways in which Eurocentrism permeates mathematics education: that the "academic" mathematics taught in schools worldwide was created solely by European males and diffused to the Periphery; that mathematical knowledge exists outside of and unaffected by culture; and that only a narrow part of human activity is mathematical and, moreover, worthy of serious contemplation as "legitimate" mathematics. This challenge has brought together knowledge from mathematics, mathematics education, history, anthropology, cognitive psychology, feminist studies, and studies of the Americas, Asia, Africa, White America, Native America, and African America to create a new discipline: ethnomathematics. This book also attempts to organize the various intellectual currents in ethnomathematics, from an anti-Eurocentric, liberatory perspective. We are critically selective, not just interested, for example, in the mathematics of Angolan sand drawings, but also in the politics of imperialism that arrested the development of this cultural tradition, and in the politics of cultural imperialism that discounts the mathematical activity involved in creating Angolan sand drawings.

This book is organized into sections that focus on specific challenges to Eurocentrism in mathematics education. Each section begins with an extensive introduction, followed by contributions we judge to be path-breaking to the development of that area of ethnomathematics. The first section, "Ethnomathematical knowledge," defines the field and points to other challenges to Eurocentrism. The second section, "Uncovering distorted and hidden history of mathematical knowledge," challenges the historiographic project of Eurocentrism. The third section, "Considering interactions between culture and mathematical knowledge," inquires into who does mathematics and how various practices influence mathematical activity. The fourth sec-

tion, "Reconsidering what counts as mathematical knowledge," examines non-academic sources of mathematical knowledge. The fifth section, "Ethnomathematical praxis in the curriculum," discusses possibilities for incorporating broader notions of mathematics into traditional and nontraditional educational settings. Finally, section six, "Ethnomathematical research," analyzes research activity in the field and provides an example of a methodological approach that enables political challenges to the politics of silence and poverty.

A theme that emerges throughout these various directions of ethnomathematical thought concerns the need to reconsider the discrete categories common in academic thought. Asante (1987) argues that an underlying theoretical tenet of an Afrocentric perspective is that "oppositional dichotomies in real, every day experience do not exist" (p.14). For Freire (1970, 1982) this means breaking down the dichotomy between subjectivity and objectivity, between action and reflection, between teaching and learning, and between knowledge and its applications. For Fasheh (1989) and Adams (1983) this means that thought which is labeled "logic" and thought which is labeled "intuition" continuously and dialectically interact with each other. For D'Ambrosio (1987) this means that the notion that "there is only one underlying logic governing all thought" is too static. For Diop (1991) this means that the interactions between "logic" and "experience" change our definition of "logic" over time (p.363). For Lave (1988) this means understanding how "activity-in-setting" is seamlessly stretched across persons acting." For Diop (1991) this means that the distinctions between "Western," "Eastern," and "African" knowledge distort the human process of creating knowledge which result from interactions among humans and with the world. Throughout this book, we emphasize that underlying all these false dichotomies is the split between practical, everyday knowledge and abstract, theoretical knowledge. Understanding these dialectical interconnections, we believe, leads us to connect mathematics to all other disciplines, and to view mathematical knowledge as one aspect of humans trying to understand and act in the world. We see ethnomathematics as a powerful and insightful vehicle for conceptualizing these connections.

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