

Comment on Lunetta and van den Berg

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The article by Lunetta and van den Berg addresses an interesting and important topic. It surveys an extensive range of relevant literature and pinpoints some very crucial difficulties encountered by low-income country (LC) graduate students during and/or after their studies in high-income countries (HC) such as the USA.¹ Furthermore, the article offers a number of suggestions for the better matching of graduate program characteristics to the needs of those students. Lunetta and van den Berg identify a set of goals that science education programs in the United States seek to develop in their graduate students. By describing general characteristics and needs of graduate students from LCs, they find a rationale for developing suggestions aimed at “reducing discrepancies” between LC students’ needs and HC program goals. The focus of the authors’ arguments is that as LC graduate students enter HC programs with an array of diverse cultural perspectives, experiences, competencies, and present and future expectations which differ from those of their HC colleagues for whom the goals were envisioned, there is a need for filling the gap, that is, for facilitating “remediation of deficient prerequisite and adjustment of program components.” The article reveals a sensitivity to cross-cultural issues and a good understanding of some of the specific problems and difficulties faced by LC students pursuing HC graduate studies. It serves as an alarm by providing awareness of the importance of asking questions and reflecting upon these matters, and offers suggestions on ways to modify programs to address such questions, difficulties, and issues. Although there is no “recipe” likely to solve all of the problems, these reminders and hints can shed light on them. This response elicits some concerns on my part, which I will consider next.

HC AND LC STUDENTS

Lunetta and van den Berg identify, in general terms, what they call low-income countries and high-income countries. But throughout the text there is some incon-

¹Lunetta and van den Berg designate as LC countries “most countries in Latin America, Africa, Asia (except for Japan, South Korea, Taiwan), and the Pacific,” and as HC countries, those in “Western Europe, North America, Australia, and East Asia.”

sistency in the meaning of such terms. Sometimes they refer to the United States only instead of HCs. Other times they equate (or imply the equivalence of) south-eastern Asian and African countries with LCs (such as when they talk about cultural perspectives, lack of assertiveness, or excessive deference and politeness). In still other instances they use the designations "international students" and "LC students" interchangeably (when speaking of "multiple expectations," and in the "Conclusions" section). Though they may seem irrelevant, such inconsistencies may restrict, to a certain extent, the arguments' validity. It may be that, in HC countries other than the U.S., the goals for science education graduate programs are not exactly the same as in the U.S. If that is the case, the reasoning about "discrepancies between program goals and student needs" may somehow be false. Or perhaps, for example, graduate students from South America do not generally fit into the image defined for LCs by the authors. Furthermore, using the term "international students" in place of "LC students" might be interpreted by the reader as revealing a preconception that all graduate students from outside the U.S. (international students) would have the same general experiences, interests, and needs as LC students which, of course, does not conform to reality. Although the authors gloss over some of these difficulties by using tentative verbs such as "may," or pronouns that account for exceptions such as "many" or "most of," a consistent use of terms is still vital.

CROSS-CULTURAL SENSITIVITY

My second concern with Lunetta and van den Berg's position relates to the emphasis they give to "enhancing cross-cultural sensitivity" and "development of mutually worthwhile graduate programs." Such an emphasis is relevant in a world that is more and more interdependent, and should, in fact, be considered in graduate programs in HCs. However, the authors do not specifically explore this aspect, nor do they elaborate on the two-sided nature of reciprocity; instead, they privilege cross-cultural sensitivity in terms of international students. The authors affirm that the presence of LC students offers opportunities "to enrich the experiences and perspectives of students from the host country," and suggest, in general terms, that students should discuss cultural differences concerning education. They then specify how this should be done, for international students, through an appropriate plan of study for their degree and through participation in university, community, and international organizations and programs. The same kind of experience and involvement would be, as I see it, equally worthwhile for the host country students, but nothing is said about this. Dialogue between students of different parts of the world is advised, but the authors only refer to faculty and international student exchanges (in their subsection "Science Teaching") in more detailed and concrete terms. Moreover, enlarging crosscultural awareness and understanding, and promoting effective skills and real involvement in world human development through the education of graduate students starts with having consistent goals. The authors specify how to make graduate programs in a HC such as the U.S. more responsive to the cultural needs of LC students. An obvious recommendation, though, is not proposed; namely, that a competent science edu-

cator should be well informed on international matters such as world order, global economics, international institutions, comparative education, and international science education.

DISCUSSION AND DIALOGUE

At several points in their article, the authors suggest that discussion and dialogue should be used to help develop certain professional competencies in LC graduate students. While addressing the topic "Science Teaching," Lunetta and van den Berg emphasize that faculty and international students should discuss the best ways to incorporate alternative teaching methodologies within the specific conditions of a student's home country. They advise that "discussions about cultural differences and their probable effects on education can be productive for students from low-income countries as well as for host country students." Subsequently, while dealing with preparing LC students to be effective in influencing national policy decisions, the authors stress that dialogue between students of different parts of the world can be mutually beneficial. There is no doubt of the usefulness of discussion and dialogue for learning, at all levels and within all contexts. However, in this specific case, if we want the discussion to be more efficient and result in LC and HC students helping each other to develop their professional competencies, perhaps more structured strategies, such as cooperative learning, ought to be recommended. This strategy, requiring all members of a group to work toward a common goal (promoting small group interaction, cooperative social skills, and interdependence between group members and individual accountability), seems to be an adequate tool to attain cross-cultural sensitivity and cooperation. Either a tutorial model such as the "Jigsaw II" (where "experts" within the small group are used), or a problem-solving model such as the "Group Investigation" (where students identify what and how to learn, gather information, analyze it and share in each other's work) would be appropriate (Hassard, 1992).

GRADUATE PROGRAM GOALS

General goals for graduate science education programs in the U.S. are outlined in the article with inclusiveness, clarity, and a good sense of relevance. One goal, referred to as "School Change, Teacher Education, and Science Education Policy," seems to me a potpourri of several important aspects in science education which should be analyzed separately. For instance, "Teacher Education," because of its specific nature, should formulate the need for acquisition of competence in developing or using innovative and effective models of science teacher preparation; "School Change and School Organization" should focus on school structure, organization and dynamics; and "Leadership, Science Education Policy and Practices" should deal with decisionmaking and practices of science education administration. More detailed consideration of such subgoals would be helpful not only in formal terms, but also for practical reasons—it would make it easier to identify areas that should be emphasized in LC graduate student education.

A FINAL NOTE

Asking questions and reflecting upon such matters as the needs, experiences, interests, and potentialities of graduate students from low-income countries undertaking their studies in high-income countries is challenging and relevant. Comparing those characteristics with the HC programs' goals and practices—and looking for ways to reduce discrepancies between them—is of the utmost importance, primarily for the LC students involved. However, successful and efficient planning for such adjustment should take into consideration certain subtle details; there are no simple images of LC or HC students, and there are no “mutually worthwhile graduate programs” if the emphasis on sensitivity toward another's culture is placed on LC students only. Goals and actions should emphasize a two-way awareness and understanding if a real involvement in world human development is to take place. Such actions ought to go beyond unstructured discussion and dialogue, and become more structured and organized.

REFERENCE

Hassard, J. (1992). *Minds on science: Middle and secondary school methods*. New York: Harper Collins.

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