

# Freire, D'Ambrosio, Oppression, Empowerment and Mathematics: Background Notes to an Interview

WILLIAM C. HIGGINSON

The American physicist, Richard Feynman, was famously forthright. His very popular *Surely You're Joking, Mr. Feynman!* (1986) includes an extended account of a ten-month visit in the early nineteen-fifties to the Brazilian Centre for Physical Research and the University of Rio de Janeiro. At the end of his stay he gave a public lecture in which he claimed that "no science is being taught in Brazil" (p. 195). What he had observed was a system where "students had memorized everything, but they didn't know what anything meant" (p. 192); a system without experiment, questions, discussion or connection to the natural world. What was prized was deference to authority, and the regurgitation of terminology on all-important examinations.

The U.S. State Department which had sponsored his visit was apparently not amused by Feynman's observations, but his views would not in the least have surprised Paulo Freire who would, some years later, begin his crusade to use a different type of education as a means of emancipation for the poor in that same country. In fact, many of the characteristics which Feynman found to be barriers to the authentic learning of science were also fundamental to Freire's struggle.

In one of his early, seminal works, *Pedagogy of the Oppressed*, Freire (1970) outlined what he calls the 'banking' conception of education and contrasted it with 'problem-posing' education

Narration (with the teacher as narrator) leads the students to memorize, mechanically, the narrated content. Worse yet, it turns them in to 'containers,' into 'receptacles' to be 'filled' by the teacher. The more completely he fills the receptacles, the better a teacher he is. The more meekly the receptacles permit themselves to be filled, the better students they are.

Education thus becomes an act of depositing, in which the students are the depositories and the teacher is the depositor. Instead of communicating, the teacher issues communiqués and makes deposits which the students patiently receive, memorize and repeat. This is the 'banking' concept of education ... (p. 58)

Freire saw the socio-political implications of this conception of education as quite profound:

Implicit in the banking concept is the assumption of a

dichotomy between man and the world [...] man is spectator, not re-creator. In this view, man is not a conscious being (*corpo consciente*); he is rather the possessor of a consciousness: an empty 'mind' passively open to the reception of deposits of reality from the world outside. [...] in this view] the educator's role is to regulate the way the world 'enters into' the students. His task is to organize a process which already occurs spontaneously, to 'fill' the students by making deposits of information which he considers to constitute true knowledge. And since men 'receive' the world as passive entities, education should make them more passive still, and adapt them to the world. The educated man is the adapted man, because he is better 'fit' for the world. Translated into practice, this concept is well suited to the purposes of the oppressors, whose tranquility rests on how well men fit the world the oppressors have created, and how little they question it (pp. 62-63)

In contrast to the banking approach to education, Freire proposed a 'problem-posing' method which he saw as involving "a constant unveiling of reality" (p. 68). Whereas the former approach "attempts to maintain the *submersion* of consciousness; the latter strives for the *emergence* of consciousness and *critical intervention* in reality" (p. 68)

Students, as they are increasingly posed with problems relating to themselves in the world and with the world will feel increasingly challenged and obliged to respond to that challenge. Because they apprehend the challenge as interrelated to other problems within a total context, not as a theoretical question, the resulting comprehension tends to be increasingly critical and thus constantly less alienated. [...] Education as the practice of freedom - as opposed to education as the practice of domination - denies that man is abstract, isolated, independent, and unattached to the world. (pp. 68-69)

Freire's medium for his 'problem-posing' approach with the disenfranchised was almost exclusively linguistic. His consideration of mathematical concepts was infrequent and carried out at a relatively low level in comparison to the subtlety and power of his insights from the perspective of language. In *Education for Critical Consciousness* (1974), for example, we find:

Let me consider finally the statement which asserts that dialogue is not possible if the information to be transmitted is of a scientific or technical kind. [...] Dialogue in any situation [...] demands the problematic confrontation of that very knowledge in its unquestionable relationship with the concrete reality in which it is engendered, and on which it acts, in order to better understand, explain, and transform that reality. [...] In a table to be learned by heart,  $4 \times 4$  is one thing;  $4 \times 4$  translated into concrete experience is another: e.g., making four bricks four times. Instead of mechanically memorizing  $4 \times 4$ , the pupil ought to discover its relation to something in human life (pp. 123-4)

It is, therefore, quite poignant to hear this great educator, very close to the end of his life reflect on the mathematical road not taken (Perhaps it was the beard, but the obituaries in mid-1997 generated an almost Spielbergian sense of time-warp, as one realised that this human being, whose spirit and sensitivities seemed more attuned to the ages of Rousseau or Froebel, had lived vitally and productively to the margins of the twenty-first century)

And yet, there is, perhaps, little for which to grieve. It seems likely that most of what Freire might have achieved if he had had a more heightened sense of the nature and power of mathematics, and considerably more than that, has already been accomplished through the work Freire's interviewer here, Ubiratan D'Ambrosio. In his introduction to the interview, Prof. D'Ambrosio notes that his first significant personal contact with Paulo Freire was in the "early eighties". Yet many of us who participated in the Third ICME at Karlsruhe in 1976 (Athán and Kunle, 1977) will remember as one of the highlights the sessions in section B3, *Overall Goals and Objectives for Mathematics Teaching*, chaired by D'Ambrosio with energy and passion while delivering a very Freireian message:

We see the educational process as the conjugation of global socio-economic aspects aiming at the betterment of the quality of life. (p. 224)

At a time when the core of the major theory of one of the most profound of contemporary political philosophers (Habermas) is that of 'communicative action' centred on

'ideal speech situations' leading to resolutions based on 'the unforced force of the better argument', it is perhaps time to reassess the role that mathematics might play in the creation of a more civilised and liveable world. Among the small number of thinkers who offer insights into how this transition might take place is Ubiratan D'Ambrosio, standing, in a sense, on the shoulders of Paulo Freire [1]

Sources for readers for some of D'Ambrosio's ideas include past issues of this journal, most recently his 1997 article, as well as the collection edited by Arthur Powell and Marilyn Frankenstein (1997), *Ethnomathematics: Challenging Eurocentrism in Mathematics Education*. [2] Looking to the future, and ending on a further note of continuity and continuity I note with a strong sense of fittingness that the organisers of the *Mathematics Education and Society* conference, to be held at the University of Nottingham, England from September 7th - 10th, 1998, have invited Prof. D'Ambrosio to deliver their first Paulo Freire Memorial Lecture.

## Notes

- [1] Another might be Chris Hannaford, author of the interesting views set forward at the *Institute of Democracy from Mathematics* web site (1997)  
 [2] A review of this collection is likely to appear in Volume 18 of this journal

## References

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