

Book Reviews

Harris, Mary:

Common Threads **Women, Mathematics and Work**

Staffordshire: Trentham Books, 1997. – xxi + 213 p.
ISBN 1-85856-015-2

Paulus Gerdes, Maputo (Mozambique)

Common Threads was the name of an exhibition that drew together a number of views of mathematics; it challenged gender stereotypes with its evidence that needlework is full of mathematics. Mary Harris developed the exhibition at the Institute of Education, University of London. The exhibition toured schools in the United Kingdom for two years. During 1991–1994 a modified version of the exhibition was presented in 23 countries in Africa (10), Asia (7), and Europe (2), and in Australia, New Zealand, Canada and Brazil. The book describes the background for the exhibition and analyses its impact.

1. Contents

The book contains an introduction and ten chapters. The first two chapters *The gendering of needlework* (p. 1–20) and *The gendering of mathematics* (p. 21–40) sketch how, in the history of Great Britain, needlework and mathematics came to be stereotypes in polar opposition: female-male. Working-class women were condemned to a needlework curriculum that ensured their lack of diverse intellectual activities, while this lack justified both their femaleness and their social class (p. 19). The notion of mathematics as the subject of middle and upper class men became very deeply embedded (p. 21). The author concludes this part of her book with the following statement: “The entirely unsubstantiated belief that girls and women do not do mathematics because they cannot, is the result of two thousand years of social conditioning, and remains strongly in public perception, not least in that of many women themselves” (p. 39).

Chapters 3 *Schooling and sewing* (p. 41–62) and 4 *Educating ladies* (p. 63–83) trace the effect of this history in the curriculum of working class and middle class girls respectively during the period when the national system of education was first set up in England and Wales. The curriculum of the working-class girls was defined by the

predominance of needlework and the absence of mathematics (p. 57), yet “much of the girls’ work had been mathematical all along” (p. 61): “The whole discourse of mathematics and its junior partner arithmetic, remained masculine. The working of needlework, however geometrically planned and constructed, or numerically measured and calculated, was feminine...” (p. 61). Domestic subjects, including needlework, continued to be “taught in middle-class girls’ schools where its status too remained low” (p. 79).

Chapter 5 *Girls, mathematics and work* (p. 85–106) tries to bring the story up to date. From the mid-1970’s, the influence of the industry lobby grew in government policy-making, and became a “powerful force in maintaining what the profession of mathematics education had already long regarded as archaic and socially divisive views of mathematics education” (p. 91). For example, it concerned itself with the identification of mainly arithmetic skill (p. 91). From p. 92 onwards, Harris (cf. Harris, 1990, 1991) describes her own activities related to a project called *Maths in Work*. She was critical of available texts for linking school and workplace mathematics, as

- 1) they tended to limit the pupils’ mathematical experience to arithmetic,
- 2) they gave practice examples for school-learned, arithmetic skills in quasi-realistic contexts, and
- 3) they depended too much on language (p. 93).

As an alternative, Harris wanted to “offer a collection of problems that would mediate between school and daily activity already present in the lives of most people, and that both teachers and students could use heuristically. My aim was to produce learning materials that would be practical, open-ended problems from workplaces and put them, with the minimum of instruction, into the hands of teachers to use and develop as they willed” (p. 94).

The first pack of problems *Wrap it up!* was inspired by Harris’ experience as a temporary warehouse worker with cartons. Cardboard represents symbolically “the ordinariness of daily working life, but as a material for entering high status mathematics as well as practising low status arithmetic, it crossed the cultural divide in mathematics education” (p. 97). With her next pack Harris crosses the “cultural divide of gender”: “For cardboard I substituted cloth, for through cloth I could demonstrate some of the mathematics that women were already doing in textiles work, that has always been invisible to the masculine subjects of mathematics” (p. 97). The de-

sign and making of cloth requires “embedded mathematical skills” and it was “their exposure and development that formed the contents of the next pack of teaching materials” (p.100), called *Cabbage*. It contained twenty two activities, eight of which had “identified ethnic origin” (Bangladesh, Botswana, Ghana, Nigeria, Turkey). The Cabbage items were less immediately accessible than Wrap it up! to teachers unfamiliar with needlework or with the cultures involved and required more preparation (p.102). The experience with Cabbage and its “use throughout the world” (p. 104) was the origin for the exhibition called *Common threads*.

Chapter 6 *Common threads* (p.107–125) analyses first several types of publications that deal in one way or another with textiles and mathematics. Then she describes the preparation of the exhibition and the exhibition itself. The exhibits consisted entirely of textiles but captioned in the language of mathematics (p. 114). The sections are Symmetry, Number, Creativity, Information handling and Problem solving.

In Chapter 7 *Cloth in the classroom* (p.127–147) the author describes experiences of teachers who did practical activities with textiles in the classroom to “reveal or generate mathematical activity” (p. 133). Teachers commented on the “productive aspects of co-operative group work, the self-generation of further problems, the elective use of mathematical conceptualisation and language, the meaningful contexts, and the freeing of the teacher to devote more time to dealing with individual or group problems in depth” (p.135). All teachers experimenting with textiles found it necessary to be explicit about mathematical activity in this context. In other words, they were recognising the need to justify textiles activity as mathematical (p. 138).

Chapter 8 *The global village* (p.149–167) describes some aspects of the history of mathematics education in other countries, in particular in Africa, stressing similarities through curriculum export. For instance, she states that “In general in the colonial countries, the education of girls suffered similar hierarchical constraints to those in England” (p. 158).

In Chapter 9 *A worldwide web* (p. 169–189), Harris describes how “Common Threads” went abroad. The exhibition became under the umbrella of the British Council and was redesigned by professional designers: “The new Common Threads was launched in London in July 1990, looking spectacularly beautiful and well maintaining its multicultural content, but with its mathematical content reduced and my relationship to it unclear” (p. 170). Harris took part in a variety of programmes in thirteen of the 23 countries where the exhibition toured. With enthusiasm she describes her impressions from her visits.

The final chapter 10 *Women, mathematics and work* (p.191–210) revisits gender, work and mathematics, and the role of culture in mathematics education.

Each chapter ends with its respective bibliography. There is unfortunately no general bibliography at the end of the book. The book concludes with an index (p.211–213), that seems rather incomplete: the names of authors whose works are discussed or referred to in the text are

generally not included in the index. Only references to works published in English are included.

2. Appreciation

No doubt *Common Threads* raises issues and presents challenging views about gender, work, mathematics, and mathematics education, which are very important not only in analysing the past and the present, but also for creating the future. For instance, what will/can be the relationships between mathematics curriculum development and mathematics education; between mathematics-in-work and the mathematical education of the workers; between mathematics-in-female-cultural-activities, mathematics-in-male-cultural-activities and the mathematical education of girls and boys.

Unfortunately, it is not clear throughout *Common Threads* who constitutes the intended readership of the book. Does the author want to address those people who believe the stereotypes she criticizes? Or those who do not believe them? For instance, does she want to challenge the “cultural restorationists”? Or does the author want to address principally mathematics educators in Great Britain, given that the first chapters presuppose background knowledge of the history of Great Britain? Does she want to address mostly teachers who visited the exhibition, as the information on the exhibition (both the initial and the British Council versions) is relatively meager? For somebody, like the reviewer, who did not see the exhibition, it is difficult to form a concrete image of the exhibition and the activities around it. Stott’s and Lea’s booklet *Common Threads in Botswana* gives a much more detailed and lively picture.

In describing the emergence of Cabbage it is not clearly explained why a “multicultural” perspective is chosen. After the author’s critic of education as export, the exportation of *Common Threads* demands more justification than the mere interest manifested by the British Council and the positive reactions to it by educators from various parts of the world.

These few comments and questions are simultaneously suggestions on how a new edition of this very readable book may become still more stimulating for still more readers.

3. References

- Harris, M. (Ed.): Textiles in mathematics teaching. – London: Maths in Work Project, 1990
 Harris, M. (Ed.): Schools, mathematics and work. – Basingstoke: Falmer Press, 1991
 Stott, L.; Lea, H.: Common threads in Botswana. – Gaborone: British Council, 1993

Author

Gerdes, Paulus, Prof., Universidade Pedagógica, C.P. 915, Maputo, Mozambique.
 E-mail: pgerdes@virconn.com