

3. Manifestations of gender inequities

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- What are the consequences in the theory and discourse of mathematics of the fact that it was constructed in predominantly patriarchal societies?
- Does the nature/structure/language of mathematics have a bias that promotes gender imbalances?
- What is the nature of the different areas of mathematics that appears to encourage (or not, as the case may be) students to persevere?
- What features of mathematics as a discipline (e.g. the contribution it can make to developing creativity and enjoyment, and its value in developing reasoning powers) can be emphasized to make it more relevant to both genders?

3. MANIFESTATIONS OF GENDER INEQUITIES

JOBS AND CAREERS

Historically woman have been seriously underrepresented in mathematics and related fields. This does not appear to be due to lower levels of achievement. Gender-related differences in mathematics achievement, when they are found, are very small and thus do not account for these large participation discrepancies. Even though more women have chosen to pursue careers in mathematics and science in the last decade, there is still a concern over their low representation in mathematics, engineering, and the natural sciences.

Educators need to pursue an understanding of the factors that account for the discrepancies in involvement in higher level mathematics courses and to develop strategies that will help both genders stay in mathematics courses and thus keep open the full spectrum of career and job options. Research still needs to be done around the following questions:

- Do social perceptions (media, publicity, etc.) discourage girls from choosing careers that require mathematical skills?
- How can (female) students be helped to see that mathematics can also contribute to the solution of problems which they will meet out of school and to job opportunities?
- Should the privileged position of mathematics as a screening device for professions be challenged?
- Why hasn't the preparation in mathematics translated into greater numbers of female science and engineering majors?
- How can the visible proportion of women in mathematics and related fields be increased so that these options and occupations become part of female students' accepted range of choices?

- How can women's opportunities for careers in scientific and technical professions be expanded? Conversely, should women go into mathematics-related fields given the nature of the present system?

GIRLS AND TECHNOLOGY

The technological environment can, and does, affect student attitudes and their conceptions of what comprises desirable knowledge and understanding. In 1990, Ursula Franklin noted that the practices used in technology define its content and "when certain technologies and tools are predominantly used by men, then maleness becomes part of the definitions of those technologies". As a result, many female students do not appear to hold a worldview which includes technology as relevant to their lives or as appropriate for them.

Few educators would disagree that schools must be more responsive to the science/technology thrust of our contemporary world and to the related educational needs of all students. However, international investigations have noted consistent gender inequalities in the technological education. Important questions for educators to discuss include:

- How does the considerable and growing impact of technology on schools and its changing role affect the education of females?
- How can we foresee and influence how technology changes their education?
- Can we influence the designers and producers of technology, and hence how girls are educated, by setting technological goals (e.g. development of technical hardware for educational purposes)?
- How are the areas of computer studies and mathematics to be made more relevant/accessible to girls?
- How can the computer be used as a learning and teaching aid? What are the effects of certain implementations on the cognitive development of the learner?
- What are the epistemological changes due to the use of computers?

4. FOCI FOR CHANGE

CURRICULUM

To achieve gender equality in mathematics education, educators need to look at the development, content, and presentation of the mathematics curriculum within its general educational context.