GIRL friendly SCHOOLING

Edited by Judith Whyte, Rosemary Deem, Lesley Kant and Maureen Cruickshank

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First published in 1985 by Methuen & Co. Ltd

RoutledgeFalmer is an imprint of the Taylor & Francis Group

This edition published in the Taylor & Francis e-Library, 2003.

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Girl friendly schooling.

Sex discrimination in education—Great Britain
Educational equalization—Great Britain
Whyte, Judith
376'.941 LC2052

ISBN 0-203-40852-7 Master e-book ISBN

ISBN 0-203-71676-0 (Adobe eReader Format) ISBN 0-416-40040-X (Print Edition) ISBN 0-415-04944-X Pbk

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Notes on contributors

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Lesley Kant taught in London comprehensives before moving into teacher training. At the Schools Council she worked on examinations and assessment developments such as pupil profiles and examination reform, and co-ordinated the equal opportunities programme. She is currently working as a Senior Secondary Adviser with Norfolk LEA and is the co-author of *Jobs for the Girls*, a Schools Council publication on girls' career opportunities, and A Working Start (forthcoming, SCDC).

Val Millman Between 1981 and 1983, Val Millman was seconded from her teaching post to the Schools Council to set up an Equal Opportunities Information Centre and co-ordinate the Sex Role Differentiation project. Her present appointment is as a teacheradviser with Coventry LEA on a three-year equal opportunities project.

Patrick Orr is an HMI based in the Midlands. Amongst other responsibilities, he has for some years been interested in sexrelated under-achievement in education, and the ways in which schools can influence the aspirations and achievements of girls and boys.

John Pratt is Director of Institutional Studies at North East London Polytechnic, He has undertaken numerous research studies of educational policy and its consequences and writes extensively on education, equal opportunities and other policy issues.

Margaret Spear taught chemistry and biology for some years in a variety of schools. More recently she has pursued her concern over girls' reluctance to study science by researching into teachers' attitudes and expectations.

Hazel Taylor has been Adviser for Equal Opportunities in Brent since 1982. She works with teachers from nurseries to Further Education, and across the curriculum, on the issue of gender equality. This chapter is for Stephen her 16-year-old son who was killed in the week it was written.

Jenny Headlam Wells is a Senior Lecturer at Humberside College of Higher Education. She is a member of Humberside's Working Party on Equal Opportunities and Sex Discrimination and is currently supervising a research project on girls' option choices and exam performance.

Judith Whyte is a Senior Lecturer at Manchester Polytechnic, from where she co-directed the GIST (Girls Into Science and Technology) Project. She has written *Beyond the Wendy House* (Longmans, 1983) on sex stereotyping in primary schools, and Girls *Into Science and Technology* (Routledge & Kegan Paul, in press). Her current research and teaching interests include educational innovation and evaluation, and women in educational management.

Helene Witcher has worked with the Equal Opportunities Commission and a variety of groups in Scotland active in antisexist education. She completed an M.Ed. on anti-sexist strategies for infant teachers in 1984 and currently works in multicultural education in Central region.

Lyn Yates works in the School of Education, La Trobe University (Melbourne). Her research is concerned with general theories and movements of practice related to non-sexist education, and she is involved in various associations concerned with women and education in Australia.

Glossary

AMMA Apu	Assistant Masters and Mistresses Association Assessment of Performance Unit
AFU	Association for Science Education
1101	
BEC	Business Education Council (since October 1983
	merged with TEC as BTEC)
BRUSEC	Brunswick Secondary Education Committee
CDT	Craft, design and technology
CPVE	Certificate of Pre-Vocational Education
CRE	Commission for Racial Equality
CSE	Certificate of Secondary Education
DES	Department of Education and Science
EEC	European Economic Community
EOC	Equal Opportunities Commission
ESN	Educationally sub-normal
GIST	Girls Into Science and Technology (project)
HMI	Her Majesty's Inspector/Inspectorate
ILEA	Inner London Education Authority
INSET	In-service education and training
IPN	Institut für die Pädagogik der Naturwissenschaften
	(Institute for Science Education)
LAP	Lower Attainers Project
LEA	Local Education Authority
MEP	Microelectronics Education Programme
MSC	Manpower Services Commission

NAS/UWT	National Association of Schoolmasters/Union of
	Women Teachers
NATFHE	National Association of Teachers in Further and Higher
	Education
NUT	National Union of Teachers
PE	Physical Education
RSA	Royal Society of Arts
SCDC	School Curriculum Development Committee
SCRE	Scottish Council for Research in Education
SDA	Sex Discrimination Act
SSCR	Secondary Science Curriculum Review (project)
SSRC	Social Science Research Council (now ESRC: Economic
	and Social Research Council)
TEAC	Transition Education Advisory Committee (Australia)
TEC	Technician Education Council (since October 1983
	merged with BEC as BTEC)
TES	Times Educational Supplement
TVEI	Technical and Vocational Education Initiative
YOP	Youth Opportunities Scheme
YTS	Youth Training Scheme
WNC	Women's National Commission

Preface

As little as two decades ago the subject of girls' education and the particular problems that girls face in achieving their potential was not on the agenda. It was not given much consideration. It was not perceived as a problem. Where people were aware of the differences between boys' and girls' experiences of school, they accepted these differences with little or no concern. Most people were unaware of the more subtle differences that existed then as now.

The re-emergence of feminism in the late 1960s and the subsequent struggle to obtain improved opportunities for women has changed this. From being not just a neglected issue but a nonexistent issue, it is now a subject of concern for many people with responsibility for providing education and for parents. However, in spite of the fact that many people are interested in how girls perform at school and what they do when they leave school, compared with boys, many myths exist about the subject. For this reason I greatly welcome this book, for among other things it helps to dispel some of these myths.

The most important myth that needs exposing is that girls underachieve at school. An analysis of a wide range of measures of achievement reveals this to be quite untrue. Girls, in fact, perform remarkably well. Given that less than a hundred years ago campaigners for reform had to fight to gain acceptance of the idea that girls had an equal right with boys to secondary education, the success of girls has in some ways been remarkable. But, as I shall show, it has not yet been complete.

In primary schools girls do better on average in most standardized tests of attainment. This is notably true in nearly all areas involving language skills, although it is less true of tests involving numerical or mathematical skills. In the days of selection at 11 it was necessary to standardize the eleven-plus examination results differently for boys and for girls in order to avoid a substantially higher proportion of girls than boys 'passing'. At the secondary stage girls also do better in school leaving examinations. In both GCE 'O' levels and CSE exams they obtain higher grades than their male peers. Moreover, the gap that used to exist at 'A' level, where fewer girls were entered and those who were took fewer subjects than boys, has now been virtually eliminated. It is only in the physical sciences and to some extent mathematics that there is still cause for concern about the performance of girls in relation to boys. The problem in physics and chemistry is not that girls do badly when they take these subjects but that they opt out of them altogether in such large numbers. Thus, if schools are unfriendly to girls, this does not seem to prevent them from doing well. However, we cannot conclude from this that all is well and that there are no problems.

First there is the science problem to which I have just referred. Girls are willing to study biology but when presented with a choice tend to be reluctant to study physics and chemistry. Several of the chapters in this book examine this issue and some of them describe ways in which girls can be encouraged to take science subjects. A number of local education authorities (LEAS) are now taking initiatives and it is to be hoped that more will follow suit. The Equal Opportunities Commission (EOC) has helped to draw attention to the problem by making 1984 Women into Science and Engineering year. The immediate success of its campaign was obvious, including extensive newspaper coverage, although it is too early to say what kind of lasting effects it may have had.

Important as the issue of the rejection of the physical sciences is, there is a second and in my view more important problem, which also may be more intractable. This is that girls' choices of careers do not reflect their educational success. Girls at all levels of ability tend to select from a narrower range of occupations than boys.

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Moreover, their post-school destinations do not match their qualifications. At the top end of the ability range this is illustrated by the fact that although girls have caught up with boys in the 'A' level stakes, only 40 per cent of undergraduates are women. While this represents a considerable improvement over the last twenty years, this disparity should not still exist. Among 16-year-old school leavers the evidence also indicates that girls are more likely to enter a restricted range of low status jobs where opportunities for further training are limited. It appears that girls' aspirations are limited in relation to their qualifications.

While parents' attitudes and stereotyping in the wider society undoubtedly play an important role, girls' experience of the educational system seems to reinforce these stereotypes rather than challenge them. If we are to avoid under-achievement in terms of career choice it is vitally important for schools to intervene to raise girls' apparently depressed aspirations. A number of chapters in this book consider teachers' attitudes towards the issue of sex equality. The findings of empirical research on this question reveal that teachers are often equivocal in their views. While they tend to back equal opportunities in education, they may be less committed to equal opportunities in relation to future careers. Moreover, women teachers' behaviour in respect of their own careers seems likely to reinforce their pupils' attitudes towards their future. Fewer women teachers apply for promotion than their male counterparts. This leads to a major imbalance in the proportion of women teachers who become heads and who occupy other senior positions in schools. Thus the role models for girls are not as positive as they might be.

Women teachers in positions of responsibility may help. However, the most important task is to widen girls' horizons about what opportunities are available to them in relation to the qualifications they already have and those which they have the potential to achieve. This requires both general improvements in careers counselling and specific initiatives to encourage girls to consider occupations which have traditionally been dominated by men. New approaches need trying out. Such innovations need monitoring. Those that are successful need disseminating to teachers through in-service training programmes.

It is through in-service training that we are most likely to make

the teaching profession aware of where we need to intervene to create equal opportunities for girls. This book provides material for use on in-service courses. It also provides valuable information and ideas for the continuing research needed to increase our understanding of the subtle processes at work in the educational system which may contribute to inequality between the sexes. I hope that both the EOC and research funding organizations will continue to support studies of this kind.

List of unpublished conference papers

The Girl Friendly Schooling conference was held at Didsbury School of Education, Manchester Polytechnic in September 1984. Over 100 people took part, and a total of fifty-one papers were presented to the conference. Much as we would have liked to, for reasons of space it has been impossible to include every contribution in this volume, and so the additional thirty-seven papers are listed below. Copies are held at the Information Office, Equal Opportunities Commission, Overseas House, Quay Street, Manchester.

Is schooling unfriendly to girls? Analysis and critique of contemporary schooling.

Janet Hough Deprivation of necessary skills

Norma Lumb How far does a pupil's experience of schooling in the early years in secondary school differ according to sex?

Oliver Leaman 'Sit quietly and watch the boys play': for how much longer?

Margaret Crossman Girl talk/teacher pupil interaction

Janet White The writing on the wall: beginning or end of a girl's career?

Margaret Bird Curriculum innovation: attitudes towards sex role differentiation

Sheila J.Scraton Losing ground: the implications for girls of mixed physical education

Dr Pam Robinson and Prof. Alan Smithers Patterns of A' level choice in the sixth form

Constance Elliott Catholic girls: caught in a double bind of sex and faith or liberated by the religious orders?

John Bloomfield Option scheme management for equal opportunity

Dr Sheila Stoney Girls entering science and technology: an FE perspective

Dr Bernadette Sharp Computer technology and its impact on women's employment: some issues

Peggy Newton Female engineers: how different are they?

Lynne Chisholm and Janet Holland Sinking and swimming: the experience of developing affirmative action collaborative research in schools

Lesley Holly Distorted images: how women are reflected in schooling

Sheila Cunnison Macho culture in the school and women teachers' response

Glenda Jones The professional development of women teachers in secondary schools in a London borough: an adviser's strategy

Interventions to make schooling more girl friendly

Diane Bentley 'A more relaxed atmosphere and more exciting things to do': girls' views of the future of science education

Robin Ward Girls in technology: interventions and action research *Dick Simpson* and *Anne Girdham* Perceptions of young children about science and a report of a teacher education programme

Catherine Myers Careers opportunities for girls: report of a project at Linlathen High School, Dundee 1983

Dr D.G.Fisher Conference/exhibition to attract women into science and engineering

Davina Tweddle Girl friendly schooling: local case studies and initiatives in Newham

Jenny Tizard Positive action in technician training

Janet Dawe Intervention strategies to encourage interest and enthusiasm for the sciences amongst girls

Gill Rhydderch Half the class: strategies for single sex teaching groups in mixed schools

Dr John Taylor and *B.B.Waldon* (untitled) Report of policy and interventions in the Manchester LEA

Daryl Agnew Anti-sexist initiatives within Sheffield LEA

Gaby Weiner Feminist education and equal opportunities: unity or discord?

Janie Whyld Anti-sexist teaching strategies with boys

Patsy Mackintosh Oxford Equal Opportunities in Education: a network for change

Barry Everley Strategies for changing beginning teachers' attitudes

Implications

Dr Miriam David Teaching the work of motherhood formally and informally

Catharine Valabregue (France) Countering sexist assumptions: the French experience

Janet Smith (IFAPLAN, Germany) International perspectives: affirmative action and policy responses in Germany, France, Denmark

Dr Geoff Chivers Comparative international study of strategies to encourage girls into science and technology

Isabel Romao (Portugal) Equal opportunities policies in Portugal

Part One

What makes schooling unfriendly to girls?

Editors' introduction

Gender inequality in schooling is now a respectable issue; it is debated in the media and taken seriously by national policy makers, some local education authorities, and a growing number of schools. For those who have been working for ten years or more in the area, this is heartening. But wider interest in the issue of sex differentiation at school puts the onus on us to go beyond a critique of schooling, to offer practical and realistic recommendations which can be taken up at national, local authority and school level. This is the task which we set ourselves in organizing the conference on Girl Friendly Schooling, of which this volume is one outcome. Many more papers than could be published in one volume were prepared for the conference; those we have selected we consider to be of particular relevance and interest to practitioners and policy makers as well as readers and researchers with a wider interest in non-sexist education.

As the chapter by Patrick Orr indicates, much of the debate about gender inequality at school has centred on the demarcation of secondary school subject choices by sex, especially the shortfall of girls in science and technology. This gap between the sexes in secondary school subjects in the later years, and in the jobs they are qualified to enter, is not closing fast, despite policies designed to bring about change.

Some people might have hoped that computers and information technology, with their contemporary image, would appeal equally to girls and boys. This has not proved to be the case. Girls form less than 30 per cent of those who take 'O' level computer studies and less than a fifth of 'A' level passes in computer science.

The reasons appear to be home as well as school based. A survey carried out by Acorn Computers found that of all households owning microcomputers, boys were thirteen times more likely than girls to be using them. Thus far more boys are likely to be familiar with the procedures for using and designing simple programmes. This finding is not surprising when it is considered that certain manufacturers have deliberately aimed their advertising in the home computer market at boys and men.

In schools, computers are usually physically and organizationally located in maths and science departments, already male dominated. Where they are in short supply, i.e., in most schools, boys hog computers as they do other scarce resources, refusing to give girls a turn so that they soon give up and go away.

There is evidence that women are moving into employment associated with computers and information technology, but they appear to be taking the least skilled, less well paid jobs. The implication is that as schoolboys develop a familiarity with the principles of computing, men will increasingly dominate the development of high technology while women work in operational roles where quality of work and job satisfaction are minimal.

Part I of this volume highlights important determinants of the gender spectrum of school subjects. The beliefs of adults about girls' and boys' future lives are especially significant, since they often contain stereotyped views about the sexes. This is despite changes which have already occurred over the last forty years in the lives of men and women in British society.

The study by Margaret Spear strongly suggests that teachers of physical science and craft, design and technology are actively discouraging girls from studying their subjects. This discouragement seems to be based on beliefs that girls are inherently less competent in these areas, and assumptions that female careers are of less importance than male employment because women's primary adult role will be that of wife and mother.

These two beliefs need to be undermined. As Tessa Black stone's preface and the first chapter of this book indicate, girls are not under-achieving at school, and the idea that they are less able scientists or technologists is based more on their past absence from these areas than on any real estimate of their potential.

John Pratt's large survey of teacher attitudes indicates that teachers of science and technology have the most stereotyped views. Professional commitment to equal opportunities is apparently superficial and subject to the countervailing pressure of powerfully conventional assumptions held by largely male teachers of traditionally masculine subjects. The exceptions among male teachers are those who have been trained in social studies: perhaps a pointer for the educational needs of today's schoolboys.

When we consider that the new TVEI (Technical and Vocational Education Initiative; for a glossary of terms used in this book, see page x) programmes are often technologically oriented, relate to a gender segregated labour market, and are frequently staffed by men with a technical background, we should not be surprised that the commitment to avoidance of sex stereotyping in TVEI projects has proved difficult to meet. The division of the school world by sex is so powerful and pervasive that good intentions, broad policies or superficial reorganization are inadequate tools for change. Val Millman's report on the new vocationalism and some recent efforts to reduce the effects of sex stereotyping show that specific wellplanned awareness-raising exercises, careful monitoring and review, and a willingness to experiment radically with the formal and hidden curriculum, are necessary if the new vocationalism is not simply to reinforce and exacerbate existing gender inequalities.

One Patrick Orr

Sex bias in schools: national perspectives

Sex differentiation in schools: the current situation

In recent years there has been a clear commitment in government policy statements to the need to promote equal opportunities in schools and to encourage girls, in particular, in those areas of the curriculum where there is evidence of sex-related separation or under-achievement. The extent of this separation and underachievement is now well documented and a proliferation of research activities has done much to explain its nature and genesis. There is, however, less clarity about what can or should be done to improve the situation.

Since the early 1970s equal opportunities for both boys and girls in schools have been implemented largely through equal access policies, associated with the Sex Discrimination Act of 1975. In terms of the letter of the law, there are probably relatively few cases where the Act is not observed, and teachers, by and large, are convinced that they are promoting equal opportunities in schools. However, statistics concerning subject take-up and examination entries in secondary schools do not suggest any rapid movement by boys or girls into most of the subject areas which for them are often regarded as 'non-traditional'. The most obvious changes have been in the physical sciences: between 1976 and 1983, for example, the numbers of girls taking CSE and 'O' level in chemistry and physics doubled and the numbers taking 'A' level also rose rapidly. This improvement took place from a relatively low base, however: in physics, although not in chemistry, the increase in terms of absolute numbers was greater for boys than for girls. In physics at CSE and 'O' level the number of girls rose from 28,500 to 69,400 and of boys from 139,080 to 204,180. In chemistry at CSE and 'O' level, the increase for girls was from 40,060 to 86,830 and for boys 86,000 to 124,510. At 'A' level in physics, the number of girls rose from 5400 to 8870 and of boys from 24,300 to 31,850. In chemistry at 'A' level, the increase for girls was from 7400 to 13, 140 and for boys from 18,000 to 23, 160 (DES 1976, 1983).

There are some encouraging signs for girls in this situation: the growth in numbers of girls taking chemistry has been quite marked, and there are some signs of acceleration in both physics and chemistry. Nevertheless, the contrast between the numbers of boys and girls remains acute, particularly in physics.

When, on the other hand, the numbers taking and passing public examinations in all subjects are taken into account, girls do better than boys. They now outnumber boys in examinations in all categories except the group taking and passing three or more 'A' levels: here boys remain slightly ahead of girls, but the gap is narrowing. The movement by girls towards equality has so far been mainly associated with the pursuit of examination success, rather than with wider subject choices and the benefits in educational, training and employment prospects that such choices can bring.

National initiatives

The continuing traditional nature of curricular choice highlights the difference between the provision and the take-up of equal opportunities. Many would argue that real progress in reducing sex differentiation in schools can only be made through directly interventionist strategies on a national scale including bold curricular reform. The fact that the education system in England is locally administered remains, whatever its other strengths, a major constraint in these matters. Nevertheless, various recent government initiatives do have important implications for our thinking about the education of girls and for the reduction of sex bias in the curriculum.

In 1981, a Department of Education and Science (DES) publication, The School Curriculum, outlined government policy for the curriculum and made several statements concerning equal opportunities. The document pointed out: 'The equal treatment of men and women embodied in our law needs to be supported in the curriculum', and 'It is essential to ensure that equal opportunities are genuinely available to both boys and girls.' It also emphasized the need for girls and boys to avoid closing career avenues by making inappropriate option choices, and the desirability of following a balanced science curriculum up to the age of 16. The importance, during the primary years, of a secure grounding in science and technology was underlined. Since the publication of this document, government Circulars 6/81, 8/83 and 3/84 have invited schools and governing bodies to review their aims and objectives for the curriculum, and have asked local education authorities to make returns to the DES concerning their curricular policies in the light of the suggestions made in The School Curriculum. There have been references in other DES publications to the need to eliminate sex differentiation in science and technology. For example, the consultative document Science Education in Schools (DES 1982) suggested:

Throughout the period of compulsory secondary education every school, with the support of its LEA, should adopt the policy of giving all pupils a broad science programme which... gives genuinely equal curricular opportunities in science to boys and girls.

At the North of England Education Conference in Sheffield in January 1984, the Secretary of State announced that there should be a nationally agreed framework for the 5–16 curriculum and nationally agreed objectives for its various components; and that all pupils should have a curriculum that is broad, balanced, relevant and suitably differentiated to take account of different aptitudes and abilities. This policy statement may lead to a more positive approach in attempts to reduce sex differentiation in schools.

Since the North of England speech the DES has published a short statement on *The organization and content of the 5–16 curriculum* (DES 1984b). Although this document makes no specific reference