

Education Rigorous Literature Review



Girls' education and gender equality

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Contents

Contents	ii
Abbreviations	iii
Executive summary.....	1
1. Introduction.....	7
2. Methods used for the search and distribution of the reviewed studies	8
2.1 Search strategy.....	8
2.2 Reviews.....	10
2.3 Distribution of studies by assessments of quality	10
2.4 Limitations on the methods used and studies selected for review	11
3. Theory of change, forms of intervention and the distribution of articles reviewed	14
3.1 Theory of change regarding evidence - narrative	14
3.2 A note on definitions	18
4. Evidence on the expansion and improvement of girls' education and gender equality..	28
4.1 Resource and infrastructural interventions	28
4.2 Interventions regarding institutional change.....	35
4.3 Interventions to change gender norms and enhance inclusion	42
4.4 Social change, girls' education and gender equality.....	48
5. Conclusion: key findings, gaps and notes for a future research agenda	53
5.1 Resource and infrastructural interventions	54
5.2 Interventions to effect institutional change	55
5.3 Interventions to change gender norms and increase female participation	56
5.4 Interventions that link social change, girls' education and gender equality	56
5.5 Combined interventions.....	56
5.6 Addressing context.....	57
5.7 Ensuring research quality: developing practitioner research and enhancing Southern research capacity	57
5.8 Prioritising for a future research agenda	58
References	59
Appendices	70
Appendix 1: Search strategy	70
Appendix 2: Selection of key countries.....	79
Appendix 3: Division of articles for review among team members.....	82
Appendix 4: Coding frame: EPPI-Reviewer coding framework	83
Appendix 5: Tables on distribution of studies reviewed by region, funder and link with global convening.....	94
Appendix 6: Initial ToC (April 2012).....	97
Appendix 7: Distribution of studies reviewed by nature of the problem identified, form of interventions and outcomes discussed	101

Abbreviations

CPD	Continuing professional development
DFID	Department for International Development (UK)
EFA	Education For All
ELA	Empowerment and Livelihood for Adolescents
INSET	In-service training
IRT	Item response theory
MDG	Millennium Development Goal
NGO	Non-governmental organisation
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
RCT	Randomised controlled trial
SACMEQ	The Southern and Eastern Africa Consortium for Monitoring Educational Quality
SES	Socio-economic status
SWAPs	System Wide Action Plans
TEGINT	Transforming Education for Girls in Nigeria and Tanzania
TIMSS	Trends in International Mathematics and Science Study
ToC	Theory of change

Executive summary

The central research question that this review sets out to investigate concerns the kind of interventions that research evidence suggests can lead to an expansion and improvement in girls' education. It also considered evidence on the relationship between an expansion and improvement in girls' education and a deepening of gender equality.

A Theory of Change (ToC) was developed for the review. This drew on the understanding that girls' education and gender equality are affected by processes within and beyond schools. It is therefore hypothesised that the development and implementation of interventions to improve girls' schooling and enhance gender equality are affected by aspects of context at local, national and global levels. These include the level or extent of a climate of support for girls' schooling, the existence of complementary legal and regulatory frameworks, and state capacity to implement policy and engage the widest range of stakeholders in inclusive dialogue.

The ToC distinguishes between three kinds of interventions, although it is acknowledged that sometimes a single intervention has overlapping concerns. These are:

- interventions which focus on resources and infrastructure
- interventions which focus on changing institutions
- interventions which focus on changing norms and including the most marginalised in education decision making.

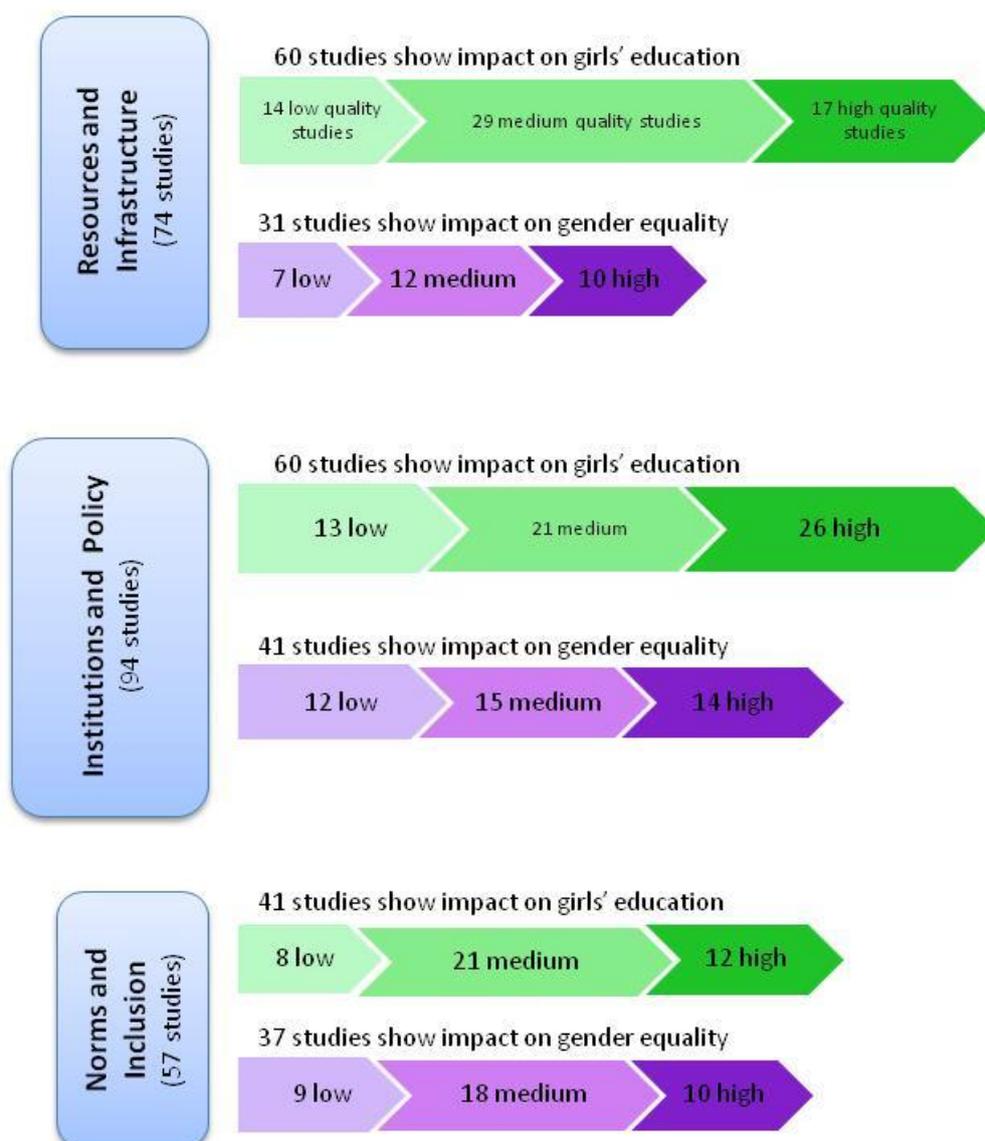
It is hypothesised that, while each kind of intervention can have a positive impact on improving girls' participation in school, on the quality of education they receive, and on the extent to which that education is empowering to them, impact will be greatest when a combination of different kinds of interventions comes together, and when adequate attention is paid to the context within which they occur. The ToC has thus been developed as a multi-level model to enable an examination of the relationships between context, different forms of interventions, outputs relating to girls' education and broader gender equality outcomes.

In order to examine evidence relating to the different nodes of the ToC, a total of 169 research studies published since 1991 were reviewed. The **key findings** from the analysis of these studies are set out below:

Distribution of the research

1. The review found that more research studies focus on interventions linked to resource and infrastructure and changing institutions, than to engagement with norms and problems of exclusion. More studies were identified on the expansion of girls' education, notably increasing enrolments, attendance, retention, grade achievement, learning outcomes and completion than on the links between girls' schooling and gender equality more broadly in society. This is shown in Figure 0.1.
2. More studies ranked as high quality by the review team use quantitative methods. While we found fewer qualitative studies ranked as high quality in this rigorous review, we think there is great potential in qualitative research, when carefully designed and implemented. There is a lack of longitudinal studies which assess the sustainability of interventions over time.

Figure 1.1: Focus of interventions



What the evidence shows

Resource and infrastructure interventions: The literature reviewed indicates that the effectiveness of resource interventions depends on careful targeting of educationally under-resourced families, and thoughtful design of programmes to focus on girls most at risk. Complementary in kind health interventions can enhance enrolment and lead to learning gains for both boys and girls. The effectiveness of infrastructural interventions is enhanced when they are linked with processes associated with learning and teaching. Interventions concerned with the distribution of resources and infrastructure were more likely to be associated with improvements in girls' attendance, enrolment and grade attainment than with girls' empowerment within school or broader gender equality outcomes.

Interventions concerned with institutional change and policy: The research reviewed with regard to changing institutions at the level of the school and the education system points to the importance of having thriving teachers who are adequately supported to enhance girls' schooling through education, training, reflection on attitudes and in-service continuing professional development. Sufficient resources for gender mainstreaming at different levels of the education system can

help embed a concern with gender in educational institutions. Effective interventions are associated with a ‘quality mix’, that is, a combination of a number of different approaches to enhancing quality; these include explicit concern with gender equality in teaching, learning and management; attention to curriculum, learning materials and pedagogical practices for schools and classrooms; and close attention to local context. A significant number of studies suggest that successful interventions associated with institutional change and policy within the education sector may also impact on gender equality outcomes more broadly.

Interventions to shift gender norms and enhance inclusion: Interventions concerned with shifting gender norms and enhancing inclusion, by for example, increasing participation in decision making by the marginalised, are under-researched and under-resourced. Further research is suggested on promising interventions in this area associated with girls’ clubs, faith communities, work with boys on gender equality, and strategies to include marginalised girls and women in decision making, reflection and action, notably with regard to gender-based violence.

Links between the expansion of girls’ education, gender equality and social change: The relationship between changes in girls’ education and developments in the enabling environment of legislation, regulation and opinion formation is under-researched. There is an accompanying lack of studies of the links between girls’ education and empowerment outcomes.

Table 1.1 summarises where the evidence we have reviewed clusters with regard to the impact of different interventions associated with resources and infrastructure, changing institutions and policy, and shifting gender norms and increasing inclusion. We look at the level of evidence in relation to improving girls’ participation and learning, and their empowerment, particularly how they have been able to draw on their schooling in relation to economic, political, social and cultural inclusion and transformation of gender inequalities. Dark blue squares, indicating strong evidence of impact, have been awarded where a significant number of studies ranked as high and medium quality point to a clear causal relationship between the type of intervention and the observed impact, or where a smaller number of very rigorous studies provide strong evidence of impact. The table also codes where there is evidence indicating promising impact (light blue squares), where the evidence thus far reviewed indicates limited impact (grey squares), and where the evidence is unclear, or more research is required (unshaded squares).

It is important to note that in some cases, a positive impact in some areas may impact negatively on other areas. For example, improvements in girls’ enrolment may come at the expense of the quality of the education they receive. This table should therefore be read in conjunction with the more detailed and nuanced analysis carried out in Chapter 4.

Recommendations for future research

The review suggests that there is a need for an integrated research programme in these connected areas combining quantitative, qualitative and mixed-methods studies, explicitly filling the research gaps identified in relation to the three kinds of interventions, their connections with each other and their relationship with gender equality, as outlined in detail in Chapter 5.

Table 1.1: Summary of evidence reviewed with regard to different interventions in relation to impact on participation, learning, and empowerment

Resources and Infrastructure	
Impact on Participation:	
Strong	Targeting cash interventions at populations most in need and at grade levels where drop-out is most likely have an impact on girls' participation particularly if these are seen to be objective and fair ^{2,3,4,5} . Conditional cash transfers are more effective in improving girls' enrolment than unconditional transfers, however unconditional transfers can have a positive impact on reducing teen pregnancy and early marriage ^{4,5} .
	The provision of information about employment returns to schooling has a positive effect on participation ^{6,7}
	Provision of additional schools in underserved areas has an impact on girls' enrolment, particularly where safety concerns associated with distance to school are significant. ^{8,9,10}
Promising	Promising evidence of the benefits of the following in-kind resource interventions on girls' enrolments: i) provision of iodine supplements to pregnant women where iodine deficiency disorders are prevalent ¹¹ ; ii) deworming ¹² ; iii) school feeding programmes (but there may be some negative effects on learning in crowded classrooms) ^{13,14,15}
	Integrated water, sanitation and hygiene interventions have a positive impact on absenteeism for girls ¹⁶
Limited	There is limited evidence that provision of menstrual supplies impacts <i>directly</i> on girls' attendance, ¹⁷ likewise limited evidence on the provision of separate toilets ¹⁸ , but they have effects on quality of life and dignity ¹⁹
More needed	More research is needed to assess impact of infrastructural interventions and classroom enhancements <i>in combination with</i> changing policy and institutional cultures in the direction of girls' and women's rights and gender equality.
Impact on Learning:	
Strong	Resource interventions provided in cash for families or children impact on success in the grades achieved. ²⁰
Promising	The provision of additional schools in underserved areas impacts on girls' learning outcomes. ²¹
More needed	Research into the impact of resources and infrastructure tends to focus on attendance at school. More evidence is needed to investigate the impact of these interventions on learning.
Impact on Empowerment:	
More needed	Research into the impact of resources and infrastructure tends to focus on participation in schools. More evidence is needed to investigate the impact of these interventions on empowerment.

Institutions and Policy	
Impact on Participation:	
Strong	Training teachers formally (through initial teacher training and INSET) in subject content, pedagogy, management and with regard to gender equality and gender-sensitive pedagogy, and informally to develop attitudes of inclusion and tolerance, plays a significant role in reducing girls' drop-out ^{22,23}
	Girl-friendly schools and ' quality mix ', or combined school-level reforms impact on girls' participation ²⁴
	At classroom level, group learning supports girls' participation and learning outcomes ^{25,26,27}
	Learning outside the classroom through formal and informal extracurricular activities (eg. Tutoring, after-school clubs) has a positive effect on girls' learning outcomes ^{28,29}
Promising	The involvement of women in school governance and community mobilization and in community leadership has an effect on girls' participation in schooling. ^{30,31}
	Gender mainstreaming as an approach to changing institutional cultures may have a positive impact however adequate resourcing (money, time, skill, support and critical reflection) must be allocated to support implementation. ^{32,33,34,35}
Limited	School choice and the availability of private schools appears to heighten gender inequalities as parents choose what they consider the better option for sons, leaving daughters in under resourced public schools ³⁶
More needed	School histories and contexts appear to be a key factor regarding whether single-sex versus co-educational schools ³⁷ and faith-based ³⁸ schools do or do not have positive effects on girl's education and learning.
	Promising evidence that the employment of women teachers has a positive impact on girls' education and learning ³⁹ but a wider range of contexts need investigation.

Interventions to enhance girls' education and gender equality

Impact on Learning:	
Strong	Group learning ^{26,27,28} is associated with improved learning outcomes.
	Learning outside the classroom through formal and informal extracurricular activities (eg. tutoring, after-school clubs) has a positive effect on girls' learning outcomes ^{29,30} .
Promising	Formal and informal teacher training in gender equality and pedagogy improves girls' learning outcomes (cross reference ^{23,24}).
	The involvement of women in school governance and community mobilisation and in community leadership may have a positive impact on girls' learning outcomes ^{31,32} .
	Girl-friendly schools and 'quality mix', of combined school-level reforms may have a positive impact on girls' learning ²⁵ .
More needed	More research is needed to reinforce existing promising evidence that the employment of women teachers may have a positive impact on girls' learning ⁴⁰ .
	More research is needed into the impact of school choice ^{37,38,39} and inclusive strategies on girls' learning ²³ .
Impact on Empowerment:	
Strong	Group learning is associated with empowerment ^{26,27,28} .
	Learning outside the classroom through formal and informal extracurricular activities (e.g. after-school clubs, girls' clubs) has a positive effect on empowerment ⁴⁰ .
Promising	There is promising evidence to show that informal teacher training to develop attitudes of inclusion and tolerance has a positive impact ^{23,41} .
	The involvement of women in school governance and community mobilisation and in community leadership may have a positive impact on girls' confidence ^{31,32} .
	Evidence is promising regarding the impact of positive school culture and gender equality stance on girls' attainment ^{41,42} . Girl-friendly schools , and 'quality mix', or combined school-level reforms ⁴³ .
More needed	A number of studies show that networks of women's rights activists have contributed to policy development for gender equality in schooling at global, national and local levels, ^{43,44,45} . More research is needed to investigate whether these initiatives are sustained.
	More research is needed into the impact of school choice and inclusive strategies on girls' learning.

Norms and Inclusion	
Impact on Participation:	
Promising	Teaching about personal, social and health issues linked with sex education both at school and in complementary programmes may have a positive impact on participation ^{46,47,48}
	Women's literacy programmes can be a key area for transforming gender norms and identities, particularly when they offer women and girls the chance to develop gender awareness, as well as literacy knowledge and skills ⁴⁹ .
	Interventions that seek to enhance the capacity of poor or marginalized women and girls to participate in discussing school practices and reflecting on their experiences are not well documented, but the few studies there are indicate the potential for work in this area ^{50,51,58} .
	There is promising evidence to show that supporting young women to proceed to higher levels of education has a positive impact on participation ⁵² .
More needed	More research is needed to provide evidence of the impact on participation of tackling gender-based violence in schools, work with boys on gender equality, engaging with faith communities, and developing combined programmes involving community work.
Impact on Learning:	
Promising	There is promising evidence that complementary learning spaces to school (eg. NGO programmes, girls' clubs) are effective in giving opportunities to discuss gender equality ⁴⁸ .
	Teaching about personal, social and health issues linked with sex education both at school and in complementary programmes is effective in providing knowledge ⁴⁹ .
	Women's literacy programmes , particularly when they offer women and girls the chance to develop literacy knowledge, skills and spaces for reflective discussion ^{53,54} .
More needed	More research needed into religion , education and shifting gender norms note the importance of key individuals, the significance of supportive networks within faith communities, and the potential for religious institutions to be sites for critical reflection on gender norms.
	Also more needed on the effect of tackling gender-based violence in schools, working with boys on gender equality, work to include marginalised girls, developing combined programmes linking work in schools on gender equality to community work.
Impact on Empowerment:	
Strong	Using complementary learning spaces to school (eg. NGO programmes, girls' clubs) are effective in giving opportunities to discuss gender equality, develop confidence to strategise for the future and reduce risk-taking behaviour ^{41,48,54} .

Interventions to enhance girls' education and gender equality

Promising	Teaching about personal, social and health issues linked with sex education both at school and in complementary programmes is effective building confidence ⁴⁷ .
	Women's literacy programmes , particularly when they offer women and girls the chance to develop gender awareness.
	Interventions that seek to enhance the capacity of poor or marginalized women and girls to participate in discussing school practices and reflecting on their experiences are not well documented but the few studies there are indicate the potential for work in this area.
More needed	More research needed into religion , education and shifting gender norms note the importance of key individuals, the significance of supportive networks within faith communities, and the potential for religious institutions to be sites for critical reflection on gender norms.
	More evidence needed on whether work with boys has potential to build support for gender equality or understand aspects of their sexual identity.
	Also more needed on tackling gender-based violence in schools, developing community linking programmes.
	A number of studies show that networks of women's rights activists have contributed to policy development for gender equality in schooling at global, national and local levels, More research is needed to investigate whether these initiatives are sustained.

1. Introduction

This rigorous review of literature on interventions to enhance girls' education and gender equality was commissioned by DFID in December 2012. The review has been conducted by a team of experts on gender and education, with a range of complementary expertise. The review team set out to undertake a systematic search through existing databases and library collections to identify literature on this topic published since 1991. Material has been reviewed firstly through an analysis of the distribution of studies, methodologically, geographically, and in terms of an assessment of quality and the nature of funding. Secondly, the review has generated a conceptual map of the field, which has been used to consider where published studies cluster, what this indicates about the type of interventions which have been researched, and current gaps in knowledge. We have used a systematic approach to reviewing the literature to discuss what research there is on effective and feasible interventions, and make suggestions for how to expand the research agenda.

The research question guiding this review is:

On the basis of an evaluation of evidence, what leads to expansion and improvement in girls' education? Under what conditions does evidence suggest that this expansion and improvement is associated with gender equality within and beyond schools?

A theory of change (ToC) was developed for the study and is used to discuss key findings. The report is structured as follows:

Chapter 2 outlines the methods used to conduct the study.

Chapter 3 presents the ToC used in the study, shows how the work reviews clusters at particular nodes of the ToC and comments on some features of the methodological and regional distribution of studies.

Chapter 4 discusses our analysis of what the literature indicates, drawing on the major categories of the ToC. It also highlights key gaps in the knowledge base identified through our evaluation of the evidence.

Chapter 5 draws some conclusions, reflects on some of the strengths and weaknesses of the rigorous review conducted, considers some of the key gaps and outlines some themes for a future research agenda.

2. Methods used for the search and distribution of the reviewed studies

The review comprised involved creating a search strategy and developing an approach to assessing work for inclusion and to reviewing work associated with the ToC. The approach to conducting the review was developed at a team meeting in London in January 2013. The direction and conduct of the review, including drafting of the interim and final reports, were kept under discussion through a series of teleconferences and email exchanges. The methods used have attempted to make the maximum use of the range of expertise within the team.

2.1 Search strategy

Five large databases (ERIC dealing with education, ELDIS, dealing with international development, MEDLINE, dealing with health, Web of Knowledge, dealing with social sciences, and Bridge, dealing with gender) were searched for material published since 1991. The search terms (Appendix 1) were derived from the research question. In addition, searches were conducted for material dealing with a small number of focus countries (Morocco, Tunisia, Peru, Ethiopia, Ghana, Tanzania, Malawi and Bangladesh), where the expansion and improvement of girls' education was linked with aspects of gender equality. Appendix 2 provides information on how these countries were selected to be used as search terms.¹ This method allowed us to expand the search and identify articles which did not appear through other search strategies. However, a significant number of articles were identified for only two of the focus countries (Malawi and Bangladesh), and, given the overall geographic spread of research covered in the review, we consider that the inclusion of research terms relating to the focus countries did not affect the overall findings of the review.

Hand searches from 1991 of titles and abstracts of relevant articles were conducted in a range of journals; a full list can be found in Appendix 1.

The websites of eleven networks or multilateral agencies were searched, and the websites of six large NGOs were scanned to identify additional grey literature and evaluation reports (see Appendix 1). In a further attempt to identify grey literature, particularly that written by southern scholars, email correspondence was initiated by Professor Moletsane with two networks, one linked to the journal *Agenda*, focusing on gender issues in Africa, and the second linked to an African health and gender discussion group. Through these personal contacts, a small amount of additional material was identified for the review.

Members of the research team drew on their specialist knowledge of the field to identify work published in or in preparation for journals, books and edited collections, which may not have appeared in online databases. Searches of relevant books were made in the catalogues of three university libraries (Institute of Education, University of London, University of Cambridge and University of California, Berkeley).

All work for review was imported into the software programme EPPI-Reviewer.² This allowed team members to track works selected for review, undertake screening, apply criteria to include studies, keep note of all decisions taken and document the reviews.

¹ The use of these countries as search terms did not mean work dealing with other countries was excluded from the review.

² <http://eppi.ioe.ac.uk/cms/Default.aspx?alias=eppi.ioe.ac.uk/cms/er4>

2. Methods used for the search and distribution of the reviewed studies

The search of selected databases, journals, books and edited collections led to the identification of 1,350 works to be included for screening on the basis of title and keywords. A preliminary screening of the title and abstract excluded 703 works because they did not address the research question, and nine were excluded as they reported on research covered in more depth in other articles. Five articles were excluded because they reported research already covered elsewhere. An additional 392 articles were excluded, generally because they did not deal with research into a particular form of intervention.

A large component of technically good-quality research using large-scale assessments (e.g. data collected for SACMEQ, TIMSS, PIRLS or PISA) was excluded from full review because the work was mainly descriptive and explored relationships, between, for example, gender and learning achievement, achievement in different school locations and/or socio-economic status (SES) levels, and did not deal with interventions. However, some articles that used complex hierarchical models were included, as, although they were not evaluating an intervention, they were isolating independent variables as if they were interventions.

A large number of works that provided detailed background information on the reasons for gender inequalities in education and how this might be theorised or conceptualised were excluded at this stage because they did not deal with aspects of interventions.

After initial screening, 242 articles were identified to be reviewed through a reading of the full text and distributed to members of the review team. On closer reading of these works, 50 were excluded because they were not relevant to the research question or not based on rigorous research. An additional 23 were identified as being primarily useful for context on conceptualisation rather than dealing with interventions. Of this latter category, 11 articles were cited in the report in sections dealing with aspects of context but did not undergo a full review. The final report was based on a full review of 177 works.

The common attributes of the studies included in the literature review are that all deal with some form of direct or indirect intervention which address aspects of girls' education and/or poverty³ and have been published since 1991. Studies published in a range of formats have been included, comprising journal articles, books and book chapters, and reports of multilateral and bilateral agencies, NGOs and research institutes. Some, but not all, of the studies look at the relationship between interventions in girls' education and gender equality. The vast majority of the studies included in the review are based on primary empirical research, using a wide range of methods and conceptual frameworks. A small number of studies (23) have been reviewed for background information, generally on the history of the development of this field of investigation. Box 2.1 gives an indication of how decisions were taken on the inclusion and exclusion of particular kinds of studies using examples from the work of the team.

³ Some poverty interventions reviewed were aimed at girls and boys

Box 2.1: Examples of decisions on inclusion and exclusion

Exclude as it does not deal with interventions:

Unterhalter E (2005) Fragmented frameworks: researching women, gender, education and development. In Aikman S, Unterhalter E (eds) *Beyond access: developing gender equality in education*. Oxford: Oxfam Publishing, pages 15-35.

Include for citation only as it charts the development of the field of enquiry:

Lloyd CB (ed.) (2005) *Growing Up global; the changing transitions to adulthood in developing countries*. Washington, DC: National Academy Press.

Include as it deals with an intervention:

Murphy-Graham E (2008) Opening the black box: women's empowerment and innovative secondary education in Honduras. *Gender and Education* 20(1): 31-50.

2.2 Reviews

Team members undertook full reviews of works according to their areas of expertise (Appendix 3), but did not review work they had written themselves; this was allocated to another team member with complementary expertise. In some cases, where literature was highly technical, material was reviewed both by the team member to whom it was allocated and a team member with relevant technical expertise.

A coding frame was developed which reflected key aspects of the ToC regarding the form of intervention and its outcomes. All the works selected for full review were coded with regard to the nature of the study, levels of rigour in the collection and analysis of data, which aspects of the ToC the study dealt with, and what it indicated about some of the assumptions in the ToC as well as surprises and counterintuitive insights. The full coding frame for the review is included in Appendix 4.

Teleconference discussions with the team were used to give guidance and respond to queries regarding the use of the software and the coding frame. There was considerable discussion as to how to rate the rigour of articles, and it was agreed that all team members would refer to the guidance note provided by DFID (2013) and draw on experience in peer reviewing articles for journals or research council applications in making these assessments.

All coded reviews were checked by the Principal Investigator and team leader, Elaine Unterhalter and the Research Officer, Amy North. At the end of the review process, each member of the team wrote reflections on the reviews they had conducted. These documents and minutes from team discussions have fed into this synthesis report, which has been written by the team leader (EU), incorporating comments and reflections from members of the team.

2.3 Distribution of studies by assessments of quality

Members of the review team coded the quality of studies according to the weight of evidence and an assessment of the analysis in five areas identified by DFID (2013): conceptual framework; openness and transparency; appropriateness and rigour; validity; reliability and trustworthiness; and cogency. In making assessments of rigour and judging the quality of the study as high, medium or low in addition to these five criteria, detailed assessments were also made regarding the collection and analysis of data. These evaluations included: where the statistics used in the study came from and whether there was external verification of their quality; the length of time a research team was in the field and their capacities (linguistic, reflexive and organisational) to collect high quality data; and the nature of peer review of the study design and analysis. Cautions were noted

2. Methods used for the search and distribution of the reviewed studies

regarding: limits on the language skills of the research team and weaknesses in analysis, including weaknesses in the conceptual framing; limited consideration of literature or contextual factors; and selective presentation of findings. More detail on how documents were coded with regard to rigour and quality can be found in Appendix 4.

In the tables that follow, we note the distribution of studies according to the numbers that were coded as high, medium and low quality in relation to these criteria. As outlined in discussion of Table 1.1, above, a large number of high- and medium-quality studies associated with a particular form of intervention have led us to conclude that the evidence base in a particular area is strong.

Table 2.1 details the total number of articles included in the review in relation to the form of study and assessments of quality in relation to the judgement based on the weight of evidence.

Table 2.1: Types of study included by assessment made of quality

	high	medium	low	total
Primary and empirical	54	69	23	146
Secondary	8	12	5	25
Theoretical or conceptual	2	11	2	15
Total	64	92	30	186*

*Note that the total is above 177 as categories are not mutually exclusive

Most general conceptual papers were screened out at the stage of reviewing abstracts; only those dealing with interventions were included in the review. However, some papers on interventions were *also* substantial theoretical and conceptual works, which accounts for the distribution of classifications.

2.4 Limitations on the methods used and studies selected for review

This review is focused very explicitly on rather narrowly defined interventions to expand and improve girls' education. There is a considerable literature that uses survey data and regression analysis to estimate the determinants of school participation, such as mothers' level of education. While these studies do not reflect on the effectiveness of interventions, they can inform the design of policies and provide direction to accompanying research. Due to time constraints, this review has not been able to assess the relationship of the trends these studies report to the interventions we evaluate. The significance of this field of inquiry is clearly an important backdrop to the interventions we review.

The review is based on an assessment of the work published very largely in English, generally in high-impact academic journals in English, published books held by three university libraries, and the works published by large development co-operation organisations and multilateral agencies. Due to time constraints, searches were not conducted in other libraries, or in French and Spanish databases, and no search terms in these languages were used. Time pressures also meant that there was no double coding of the articles included for full review. The literature review is thus biased towards a review of works circulating in a particular segment of the academic community, picked up by certain databases, linked with particular journals and universities. It is not comprehensive, as much of the work of southern scholars is not disseminated through these channels. In recognition of this limitation, significant efforts were made by the research team to identify research by southern scholars through personal networks, some southern-based journals, and investigation of the impact studies commissioned by large NGOs, as detailed above.

The significance given to rigour in selecting material for detailed comment in assessing evidence also has limitations. It means that a number of studies, particularly those undertaken by southern researchers for NGOs, were not used in this way in this report because of the limited discussion of methods, despite much useful detail.

Table 2.2 gives the distribution of studies by methodology. It can be seen that there are fewer qualitative studies in the evidence we review. This is because they comprise a smaller component of the literature included in the review than quantitative studies, and because a smaller proportion were ranked as high quality. We consider the limited number of qualitative studies a major gap in the evidence base and return to this theme at several points in this report. While the potential of qualitative research for this field has not yet been fully realised, within the research methodology literature, there is acknowledgement of the particular scope of this approach (Seale and Silverman, 1997). The potential of qualitative naturalistic inquiries rests on the concept of *trustworthiness* that can be tested through reference to truth value, applicability, consistency and neutrality (Guba, 1981; Krefting, 1991), as well as triangulation, robustness and authenticity (Tobin and Begley, 2004). Ryan (2004) adds that the authors/researchers need to display professional levels of reflectivity and caution in their writing up of the research methodology, conduct and findings. A number of qualitative studies included in this review exhibit all these features (see, for example, Murphy-Graham, 2012) and have thus been rated as high quality in terms of rigour.

However, the rather limited representation of work drawing on qualitative and mixed-method approaches means that a full consideration of the socio-cultural complexity and depth of the processes associated with the expansion and improvement of girls' education and its links with developing gender equality remains rather poorly understood.⁴

Table 2.2: Methodologies* used in studies included in the review by quality ranking of studies.

	high	medium	low	total
Quantitative	39	26	8	73
Qualitative	5	27	7	39
Mixed methods	6	13	8	27
Observational	3	6	0	9
Experimental/ Impact evaluation	25	11	4	40

*Note that these categories are not mutually exclusive: for example an impact evaluation might use quantitative methods or a qualitative study might draw on observational data

⁴ Only a handful of mixed-methods studies were ranked as high quality, generally involving rigorous observations over a medium time period, or a combination of in-depth interviews and/or documentary analysis, observations and surveys (Bajaj, 2009; Hatcher et al., 2011; Mensch and Lloyd, 1998). Eleven mixed-methods studies were ranked as medium quality, often because the coder noted limited conceptual clarity or limits on validity or trustworthiness. It appears that sometimes the potential of mixed-methods studies is not realised because the rigour associated with *both* methods used is not applied equally in both.

2. Methods used for the search and distribution of the reviewed studies

A complementary issue is that a number of studies carried out with high levels of technical proficiency with regard to data collection and discussion, do not include detailed reflections on context as part of the analysis. In a number of studies where the overall weight of evidence was judged as high, reviewers also recorded cautions on the limited presentation of historical or contextual information and the extent to which the conclusions might need some modification. This suggests that the definition of rigour used to assess literature might need some amendment to give greater prominence to the importance of context in interpreting findings. This issue goes to the heart of work on the multidisciplinary field of gender and education. We touch on it at several points in the review and return to it in the conclusion.

Table 2.3 indicates the source of funding for the studies included in the review by assessments of quality. When work was located in a university, but funded by an external donor, the latter was noted as the funding source. Work was coded as funded by a university when no external donor was mentioned, but the author was employed by a university. It can be seen that the studies rated as high quality were primarily funded by donors (bilateral and multilateral) or research councils. Charitable foundations, while associated with a smaller number of projects, were also aligned with a high proportion of studies ranked as high quality. The work funded by NGOs tended more often to be ranked as low quality, although equal numbers of studies were ranked as high and medium quality.⁵ Work funded by the private sector, although smaller in overall numbers, was equally distributed between studies ranked as high and medium quality.

Table 2.3: Studies included in the review by type of funder and assessment of quality⁶

Code	high	medium	low	total
Bilateral donor	14	17	4	35
Multilateral agency	14	14	4	32
NGO (global/local)	8	8	8	24
Research council	15	12	1	28
Charitable foundation	10	4	1	15
Private sector (includes consultancy company)	4	4	0	8
University	7	17	2	26
Other	18	27	14	59

⁵ Some, but not all, NGO research is donor funded, sometimes by trusts or by the NGO's own fundraising. NGO research has been separated out from research funded by bilateral or multi-multilateral donors, even though NGOs sometimes receive funds from these sources, because of its distinctive remit.

⁶ The total for the final column is 225, because a number of studies were coded as funded by more than one type of agency. Work classified as funded only by universities refers to work where no additional source of funding is acknowledged, and frequently indicated projects undertaken by academics working on their own initiative.

3. Theory of change, forms of intervention and the distribution of articles reviewed

A theory of change (ToC) was developed for the interim report presented to DFID in April 2013 and amended on the basis of findings emerging in the course of the review. The initial version of the ToC and narrative is included in Appendix 6, which also lists issues that arose in the course of conducting the review, leading to a revised ToC for this report.

The revised ToC, used to evaluate the research evidence discussed in this report, is set out below. The ToC crystallised our hypothesis regarding how interventions regarding girls' education and gender equality might work together. The development of the ToC was organic to the process of doing the review. Initial draft ideas for this were refined through engagement with our reading of the literature.

In discussing the studies reviewed, we aimed to consider what was known about the impact of different forms of intervention and whether the evidence supported our hypothesis. Nodes from the ToC have been used to organise a description of where the studies included in the review are clustered, what kinds of relationships have been researched, what kinds of effects are noted and where the main gaps are. It should be stressed that the ToC diagram presented here (Figure 3.1) should not be read as an indication of what works. It presents an indication of what there is thus far in terms of evidence regarding what works.

3.1 Theory of change regarding evidence - narrative

1. This theory of change draws on the understanding that girls' education and gender equality are affected by processes within and beyond schools. The most significant of these processes are (i) the distribution of resources (for example: within households or schools, between regions or urban/rural districts, between sectors or between countries) and (ii) engagements with power, hierarchies and forms of exclusion. Fundamental to the theory of change is the understanding that gender norms and relations shape institutional processes, which have political, economic, social and cultural dynamics. These may limit or expand girls' and women's capacity to claim education rights and capabilities and challenge and change gender and other inequalities.
2. A number of key assumptions underlie the theory of change concerning aspects of the global, national and local **context** in which interventions take place. These include the level or extent of a climate of support for girls' schooling (politically, culturally, economically and socially) and the existence of complementary legal and regulatory frameworks. These processes may significantly influence the development and implementation of interventions for girls' education, and also their ability to contribute to improved gender equality with and beyond education. Moreover, the state's capacity to implement policy, translate commitments into viable programmes and engage the widest range of stakeholders in inclusive dialogue about these processes can be critical for the successful development and implementation of interventions for girls' education. The impact of particular interventions will also be affected by issues of diversity and the particular needs of different population groups of girls and women.
3. The theory of change distinguishes between three different kinds of intervention aimed at improving girls' education and enhancing gender equality. These are:
 - **Interventions which focus on resources and infrastructure**, that is physical and material inputs that target either supply, demand or both combined. These include the provision of financial support (e.g. stipends, scholarships, cash transfers,

3. Theory of change, forms of intervention and the distribution of articles reviewed

waiving fees, lower fees or child support grants; school feeding programmes); infrastructure development (e.g. roads; the building of new schools and the enhancement of existing schools; boundary walls; water, sanitation, electricity; the provision of boarding schools; improved transport).

- **Interventions focusing on policy development and changing institutional cultures at different levels** (international, national, provincial or local), either through the implementation of changes in policy and practice, or through changing the culture and social relations of institutions. These include legislation and gender mainstreaming in education administrations; focusing on gender and learning through gender-sensitive curricula, pedagogies, teacher training programmes and learning materials; increasing the presence of women teachers and managers in schools; involving women in community engagement with school governance; linking education with the labour market and other social development strategies; and developing links with health programmes and social protection (including on HIV).
 - **Interventions which address changing norms regarding gender and girls' and women's rights** and support increasing inclusion, notably in discussion, reflection, decision making and action for previously excluded groups and individuals. These include developing girls' clubs; work with boys; strategies for addressing gender-based violence (for example through training, school policies or work with boys); opening spaces for girls' voices; advocacy campaigns for girls' education and linking with women's rights activism; engaging faith communities; raising awareness that girls' education does not preclude other attachments (e.g. to family, religion or friendship); and challenging dominant gender traditions in the national/local/religious culture whilst recognising the importance of culture in people's lives; work with marginalised groups and communities; and literacy programmes.
4. The relationship between each kind of intervention is a dynamic one, reflected in the overlapping spheres in Figure 3.1. In some cases a particular intervention may display aspects of more than one of the above categories, for example, working simultaneously to change institutions and gender norms. In other cases a particular programme may bring together a combination of different sorts of intervention. While each kind of intervention can have a positive impact on improving girls' access to and participation in school, the quality of education they receive, and the extent to which it is empowering to them, this impact will be greatest when a combination of different kinds of intervention comes together, and when adequate attention is paid to the context within which they occur, particularly the social relations that may be constitutive of gender inequalities.

The body of evidence linking different sorts of intervention to improvements in girls' schooling in terms of access, quality and empowerment is uneven. This is indicated by the strength of the arrows in the ToC diagram. A thick arrow indicates that a large number of studies point to a causal link between the type of intervention and the different outputs associated with girls' schooling. A thinner line indicates that there are fewer rigorous studies pointing to a causal link between the intervention type and the output regarding girls' schooling. A thin dotted line indicates that there are very few rigorous studies supporting the causal link between intervention type and output. **This does not necessarily mean that the type of intervention in question does not impact on these aspects of girls' schooling, but highlights that there has been little research conducted which shows this.**

5. The evidence suggests that improved girls' education as a result of interventions can contribute to enhanced gender equality beyond school through: i) the emergence of a new generation of educated girls and women who are able to participate in political,

social, cultural, economic and technological spheres; ii) changed gender norms, attitudes and identities in both sexes; and iii) changed gender relations in a wide variety of institutions at all levels (including, for example the family, the labour market or the state). However, the causal link between outputs (improved girls' education) and gender equality outcomes is not automatic and the evidence to establish this is not extensive. The findings indicate it that is conditional, for example on:

- teaching women and men explicitly and directly about gender equality issues
- involving families, men and boys, and helping girls and women address equality concerns
- involving religious organisations and leaders
- involving policy makers and educational leaders
- ensuring that schools develop pedagogies that acknowledge and critically analyse how traditional, religious and familial cultures might support or undermine gender equality.

Overall, there is only a limited body of evidence linking improvements in girls' schooling through interventions to enhanced gender equality outcomes beyond education. This is illustrated by the thin and dotted lines in the ToC diagram.

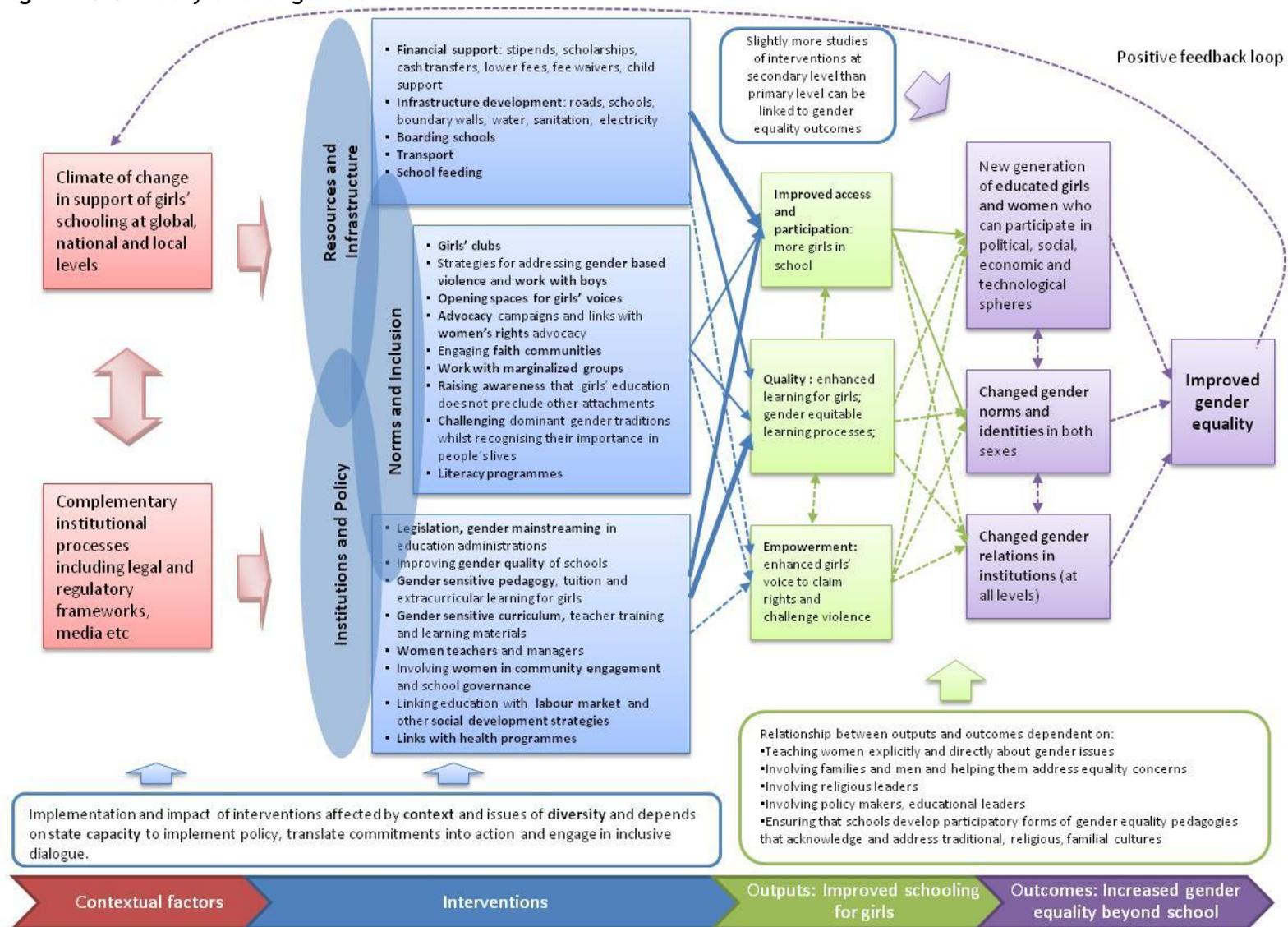
Although more studies associated with primary-level than secondary-level interventions show improvements in girls' education, there is a slightly larger body of research evidence suggesting improvements in gender equality beyond schooling associated with interventions focused on secondary education than with interventions only concerned with primary education.

6. Through a positive feedback loop, the improvement in gender equality that results from these changes may encourage the development of a climate of change that is supportive of girls' education and which promotes the implementation of new interventions. However the research evidence for this is limited. This is reflected in the thin dotted line in the diagram.
7. Diverse aspects of context have a bearing on how interventions are implemented and experienced by different groups of girls, and on the outputs and outcomes of interventions. This is signalled in the diagram by the large block arrows at the bottom, which highlight some foundational assumptions.

These findings are discussed fully in the following sections of the report.

3. Theory of change, forms of intervention and the distribution of articles reviewed

Figure 3.1: Theory of change model



3.2 A note on definitions

The ToC and the discussion that follows draw on particular understandings of gender equality and empowerment that go somewhat beyond those generally used in policy discussion. In this report we make use of the distinctions set out by Arnot (2010), Unterhalter and North (2011) and Unterhalter (2012c), which distinguish between a limited and a substantive meaning of gender equality and a technocratic and transformative approach to empowerment. Gender equality in education can be understood as parity, that is, equal numbers of boys and girls. What this very limited notion of equality misses out is the structural relations of power and inequality in a range of political, economic, social and cultural spheres, and the many connected sites in relation to education and other spheres in which equality needs to be realised. A substantive approach to gender equality draws out the interconnections of relationships associated with power and meaning in different sites, both between men and women, and girls and boys, and how both material and discursive relations form and reform this within and beyond education. It explores how schools and processes of learning operate both to reproduce and to transform inequalities. Unterhalter (2012c) considers that the linking together of different strategies for equality is a form of empowerment, but, like many commentators (Batliwala, 2007; Eyben et al., 2008; Monkman, 2011), notes how the term has also been co-opted and can lose its resonance with social change.

In this report the term 'empowerment' is used to signal processes of social transformation, which include personal, social, political and economic changes in relation to access to resources, agency and outcomes that tend in the direction of substantive gender equality (DeJaeghere et al., 2013; Monkman, 2011; Murphy-Graham, 2012). It includes changes at the level of families, communities, institutions and social movements.

The literature reviewed for this study deals with diverse populations of girls and a range of different settings in which education has been delivered. Table 3.4 shows the number of studies reviewed that deal with different phases of education. Table 3.5 shows the numbers that deal with different locations (rural or urban), and the extent to which aspects of marginality, such as ethnicity, race or socio-economic status have been taken into account. Table 3.6 indicates the number of studies reviewed that touch on the countries identified by the UNESCO Global Monitoring Report (UNESCO, 2012, 61-62) as having large numbers of children out of school and histories of conflict.

Table 3.4: Studies reviewed by level of education

Level of education	Count
primary	51
secondary	52
both primary and secondary	49
post-secondary	5
other	5
not specified	19

3. Theory of change, forms of intervention and the distribution of articles reviewed

Table 3.5: Studies reviewed by location and focus on marginality

Location and focus on marginality	Count
Rural	58
Urban	15
Both rural and urban	34
Not specified	69
Focus on girls from marginalised communities	22

Table 3.6: Studies reviewed dealing with selected conflict affected countries with very high numbers of children out of school

Countries	Count
Afghanistan	1
Democratic Republic Congo	0
Iraq	0
Nigeria	8
Pakistan	14
Somalia	1
Sudan	0
Yemen	0

It can be seen that there are roughly equal numbers of studies reviewed dealing with primary and secondary education, but that for a large number of studies, the specific level is not given. Considerably more studies reviewed relate to rural rather than urban contexts, which may itself constitute an important research gap, given the increasing size of the global urban population. Only a minority of studies reviewed had a specific focus on marginalised communities associated with poverty, ethnicity or other forms of exclusion, again suggesting research gaps in this field. The handful of conflict-affected countries with large numbers of children out of school listed in Table 3.6 indicate how the experiences of girls in these countries are under documented. While there are a reasonable number of studies included in the review on Pakistan and Nigeria, the other conflict-affected countries known to have large numbers of children out of school have hardly any research documenting conditions. This too constitutes a significant research gap.

As set out above, the ToC distinguishes between three kinds of intervention: i) those focused on resources and infrastructure, that is physical and material inputs that lead to increased demand or improved supply of education or some combination; ii) those focused on changing institutions, either through the implementation of changes in policy and practice, or through changing the culture and social relations of institutions; iii) those focused on changing the norms of individuals and approaches to participation in decision making and reflection, particularly by excluded groups. Table 3.7 shows the distribution of studies included in the review by type of intervention and regional focus.

Table 3.7: Regional breakdown of studies reviewed by type of interventions

	Africa	Asia	Latin America and the Caribbean	North America	Europe	Australasia	Global	Total
Resources/ Infrastructure	39	27	8	0	1	1	0	76
Policy/ institutional cultures	48	30	5	6	6	3	6	104
Norms and inclusion	26	12	5	5	4	2	3	60
Total	113	69	18	11	11	6	9	240*

*Note: total larger than number of studies reviewed because a number of studies deal with more than one region

It can be seen that fewer studies addressed interventions with regard to norms and participation across the regions. The regional distribution regarding the kind of intervention undertaken is fairly even. This pattern of the kind of intervention researched might be linked to the ways in which the analysis of the nature of the problem of girls' education has been understood, initially with regard to access, increasingly with a focus on quality, with only a later concern that social norms within and beyond the school might have a bearing on the nature of the education and its outcomes.

Table 3.8 records assessments made of the quality of the study by the type of intervention described. This indicates that a much higher proportion of articles assessed as high quality dealt with interventions concerned with infrastructure or changing institutions, than those that dealt with shifts in norms and participation.

Table 3.8: Studies featuring different types of intervention by assessment of quality

Code	high	medium	low	total
Resources/Infrastructure	23	35	16	74
Policy/institutional cultures	34	44	17	95
Norms and participation	17	28	12	57

Note: total larger than number of studies reviewed because a number of studies deal with more than type of intervention

We are somewhat cautious of the claims that can be made on the basis only of those studies ranked as high quality with regard to what they do and do not say about infrastructural interventions and changes in institutions, because disciplinary differences regarding the way context and causation are understood may be particularly salient. In many studies of these types of interventions, the focus is on measurable outcomes, causal relationships and generally linear processes. Some studies randomise in order to make sure that the intervention and control groups will be similarly composed in terms of religion, class and ethnicity, allowing causal conclusions to be drawn within their frameworks. The location of the intervention and the design of the intervention are typically informed by previous research, but research articles may not present detailed contextual discussion or use historical or social context to explain some of the results obtained. Many features of local conditions, particularly historical context, social interactions, culture, religion, local beliefs, and social class, ethnic and gender relations may not be critically reviewed in

these works. In all of these, configurations of power, relations of dominance and struggles for change are significant and complicate the ways causation occurs. These aspects of inequality and hierarchy are embedded in gender relations, but many studies leave them hidden or unaddressed.

In contrast, studies which explore local or other contextual features are often qualitative, in-depth and smaller in scale than large statistical data sets and are often more indicative, rather than conclusive in establishing causality. Many were not ranked as high quality, because of these features. For qualitative studies, the rigour, validity and reliability of the data is highly dependent on the quality of reporting of the sampling strategy and the extent to which claims are made on the basis of very small contextualised case studies of particular communities, schools, classrooms, families/households, women, girls, pupils and parents. The best examples are those where the author has carefully and completely reported on the process of data collection and its vagaries, the nature of the questioning and observation, the questioning of assumptions and ideally the challenge to any hypothesis about how schooling affects individuals and how individuals interpret their schooling benefits. Many of these studies suggest a need for further research and action, encouraging policy makers to think more carefully and critically about how, when and where to place interventions. The potential of qualitative research for this field is considerable. Sometimes, however, the categories for rigour meant that we were not able to rank illuminating studies as high quality. More in-depth qualitative and mixed-method work in this field is needed. We return to this point in greater depth in presenting comments on findings relating to different types of interventions and the ways in which context is and is not considered.

Further detailed breakdown according to the type of interventions documented is set out in the following tables. These show that there is a roughly equal distribution between the number of studies concerned with access and those concerned with quality, understood here as a combination of learning outcomes and empowerment. While there is a reasonable spread of studies on interventions relating to different features of the problem of access and participation - enrolment, retention, transition, school provision - there are gaps with regard to the specific concerns of adolescent girls, with relatively few studies of interventions relating to pregnancy and early marriage and transition from primary school. The majority of studies of aspects of quality are about learning outcomes, and relatively few are about school processes. Thus there is a heavy concentration of studies which comment on exam performance by girls, but more limited research on interventions that addressed the underlying factors relating to quality (either as an input or outcome) that might account for this.

Table 3.9 shows that the distribution was fairly similar between high-quality studies that addressed problems of access and those that addressed aspects of quality. A similar balance of distribution was evident in relation to studies ranked as medium and low quality.

Table 3.9: Distribution of studies reviewed by the nature of the problem identified and quality rank of study

Code	high	medium	low
Problems of access	33	48	17
Aspects of quality	27	46	20

Note: total larger than number of studies reviewed because a number of studies deal with more than one aspect

Looking in more detail at the distribution of studies concerned with problems of access, Table 3.10 shows that the two largest groups were concerned with low enrolment and retention or high dropout. Much work on these issues is concerned with problems confronting the *school system*. A smaller cluster of studies look at features of particularly excluded groups or locales, such as poverty and costs, the lack of local schools or infrastructure such as water and toilets, negative attitudes to educating girls and exclusion of girls from marginalised groups. The particular problems of access by adolescent girls are somewhat under-researched, with only 20 studies on pregnancy and early marriage, and 15 studies on transition from primary school. Two studies deal with problems of transport with regard to access, and this too may be a feature of the under-researching of the problems adolescent girls encounter as, in many countries, junior and senior secondary schools are not available in every village, as primary schools have increasingly come to be, and transport is an issue for older, not younger girls.

Table 3.10: Studies reviewed identifying problem of access by type of problem

Problems of access	Count
Low enrolment	43
Low retention/high drop-out	45
Difficulties with transition	15
Pregnancy/early marriage	20
Exclusion of girls from marginalised communities	22
Lack of local schools or infrastructure	20
Transport issues	2
Poverty/costs associated with education	30
Negative attitudes towards educating girls	24
Other	11
None of the codes above	83

Note: total larger than number of studies reviewed because a number of studies deal with more than one problem

With regard to problems of quality (Table 3.11), the largest number of studies dealt with poor attainment by girls. There was much less attention in these studies to the ways in which schools might not meet girls needs, with only a small number of studies on gender stereotyping by teachers or in textbooks, and few studies on gender-based violence. The ways in which girls might be disadvantaged within the school system were only documented in a handful of studies, which looked at language, subject choices and participation in decision-making.

Table 3.11: Studies reviewed identifying problems associated with lack of quality inputs and inequitable outcomes

Aspects of quality and the school environment	Count
Poor attainment by girls	38
Gender-based violence in schools	9
Gendered subject choices	5
Gendered stereotyping in text books	11
Gender stereotyping in teacher practices	15
Low participation of girls/women in school governance/decision making	8
Difficulties with language	6
Other/none of the above	126

Note: total larger than number of studies reviewed because a number of studies deal with more than one problem

It can be seen that with the exception of the relatively small number of studies on gender-based violence in schools, gender stereotyping in teachers' practices and the exclusion of girls or women from decision making, very few of the studies address barriers associated with gender norms and attitudes in relation to issues of quality and learning.

Looking in more detail at the kinds of intervention that have been researched in the studies reviewed under the category of resources and infrastructure (Table 3.12), a large number deal with infrastructural development, that is building schools, including boarding schools, roads, sanitation, water, electricity or construction of a boundary wall. A second large group look at financial support, including stipends, cash transfers, fee waivers or assistance with uniforms or sanitary products. There are a good number of high-quality studies in both of these groups. The next largest category concerns school feeding or other nutritional programmes.

Table 3.12: Studies of infrastructural/resource interventions by form of intervention and quality ranking

Code	high	medium	low	total
Financial support (includes school feeding)	14	15	7	36
Infrastructural development	6	18	9	33
Other	7	6	5	18

Studies of interventions concerned with changed institutional cultures (Table 3.13) cluster heavily around concerns with gender and teaching, the appointment of women teachers and managers, and gender and learning. Changing legislation and the implementation of policy is the focus of 29 studies, and 19 studies look at interventions to enhance women's participation in communities and/or school governance. However, only 12 look at gender mainstreaming. There are only a limited number of studies linking school quality and health programmes, reproductive rights and the labour market. While nearly half the studies on gender and learning, reproductive rights and labour market access were considered high quality (possibly reflecting quantitative research designs, as discussed above), only a small proportion of the studies on the other kinds of interventions associated with teachers, administration or community engagement were ranked in this category.

Table 3.13: Studies of interventions related to policy/institutional cultures by assessment of quality of study

Code	high	medium	low	total
Legislation/policy	8	19	2	29
Gender mainstreaming in education administrations	2	8	2	12
Focus on gender and learning	15	9	6	30
Focus on gender and teaching	13	20	13	46
Increasing women teachers and managers	8	8	6	22
Involving women in community engagement and school governance	7	6	6	19
Linking education with labour market; active promotion of social change	4	2	1	7
Developing links with health programmes	6	5	2	13
Linking education with social or sustainable development	5	4	2	11
Focus on reproductive rights	5	3	2	10
Other	3	5	2	10

Note: total larger than number of studies reviewed because a number of studies deal with more than one policy/culture

Studies of norms and participation (Table 3.14) are most frequently concerned with listening to what girls say (21 studies). There are 12 studies of advocacy campaigns for girls' education and 10 studies which examine the links with women's rights campaigns or other gender interventions. Twelve studies look at the impact of girls' clubs. Only nine studies look at interventions to address gender-based violence. A range of other strategies mentioned address the ways in which families engage with the education of daughters, quotas to give women access to leadership, work with boys on gender equality, alternative safe initiation rites, and reflections on critical literacy to deconstruct gender discourses.

Table 3.14: Studies of interventions regarding norms and inclusion by type of intervention and assessment of quality of the study

	high	medium	low	total
Girls' clubs	8	3	1	12
Strategies to address gender-based violence	4	4	1	9
Opening spaces for girls' voices in decision making	4	11	6	21
Advocacy campaigns for girls' education	2	3	7	12
Linking with women's rights advocacy	2	4	4	10
Raising awareness that education doesn't preclude other attachments	2	3	0	5
Other	3	9	1	13

3. Theory of change, forms of intervention and the distribution of articles reviewed

In contrast with the high proportion of studies ranked as high quality regarding physical resources and infrastructure, relatively few of the studies concerned with norms and inclusion were ranked as high quality. Thus, only four of the studies on listening to girls' voices in relation to decision making were assessed as high quality and only two of the studies of advocacy campaigns for girls' education. There are some significant gaps in knowledge here.

The evidence on outcomes of particular interventions can also be categorised in more detail. Table 3.15 shows the number of studies relating to different sorts of interventions that had an impact on different aspects of girls' education. Of the 74 studies on interventions associated with infrastructure or distribution of resources, 20 reported outcomes of enhanced learning for girls (generally associated with some form of learning outcome), while only five documented gender-equitable learning processes, four girls' voice and claims to rights and two girls' capacity to challenge violence. Thus, the current policy concern with *learning outcomes*, for example in the work by the Learning Metrics Task Force review convened by the UNESCO Institute for Statistics and the Brookings Center for Universal Education (Learning Metrics Task Force, 2013) appears to be reflected in the research evidence. Much less research attention, this review suggests, is currently given to examining learning relationships or addressing rights and violence. A similar pattern can be seen in relation to interventions concerned with policy and institutional cultures. Of 94 studies in this area, 37 report on enhanced learning outcomes for girls, with only 15 reporting on gender-equitable learning processes, 14 reporting on girls' ability to claim rights, and 6 reporting on girls' capacity to challenge violence. Interestingly, of the 57 studies on interventions associated with changing gender norms and enhancing inclusion, almost half (23) report on enhanced learning for girls, with 12 commenting on gender-equitable learning processes and 16 on girls' voice to claim rights. Girls' capacity to challenge violence is documented in eight.

Table 3.15: Evidence of impact on girls' education of different types of intervention

	Enhanced learning for girls	Gender-equitable learning processes	Enhanced girls' voice to claim rights	Enhanced girls' voice to challenge violence	Other
Resources/ infrastructure	20	5	4	2	8
Policy/institutional cultures	37	15	14	6	12
Norms and inclusion	23	12	16	8	7

Table 3.16 shows the number of studies relating to different sorts on interventions that had an impact on changing gender norms for girls, boys, men and women. It appears that changes for girls have been better documented than changes for boys and men, either because change in boys and men is particularly hard, or has not been given a profile (either by the intervention or the research). In addition, as the search terms used were girls + gender, works dealing with boys/men + gender may well have been overlooked. Interventions which were concerned with infrastructure and resources are associated with evidence of changed norms and identities in girls (15 studies) and in women (10 studies), but there are only two studies on changes in norms and identities in boys, one in men, and two in gender relations. The one study of the effect of a funding scheme, the girls' stipend programme in Bangladesh, found that boys were somewhat ambiguous about the intervention. Yet they thought that it might have value in giving them access to more

educated wives (Raynor, 2005). While this does not represent in and of itself a concern with more gender equality, it does indicate some support for women's education.

Interventions associated with changes in policy and institutional cultures also provide evidence of changed norms and identities in girls (21 studies) and women (16 studies), with somewhat more evidence of changed norms in boys (nine studies), in men (six studies) and in relationships (seven studies). Some detail of changes amongst boys relate to small shifts in perception amongst pupils, possibly linked with those developed by teachers through interventions associated with examining gender mores in the context of the HIV epidemic (Morrell et al., 2009). Interventions which set out to undertake changes in norms and participation also provide evidence of more change in the actions of girls (25 studies) and women (18 studies), slightly more evidence on changes in boys (8 studies) and relationships (10 studies), but limited work on changes in men (6 studies).

Table 3.16: Evidence of impact on changing gender norms of different types on intervention

Code	In girls	In women	In boys	In men	In relationships
Resources/infrastructure	15	10	2	1	2
Policy/institutional cultures	21	16	9	6	7
Norms and participation	25	18	8	6	10

The tables on the distribution of studies show that there is a significant gap with regard to looking at outcomes of interventions concerned with infrastructure, particularly with regard to changing women's participation in political, economic and social arrangements and shifting gender norms and identities. While a larger proportion of studies consider these outcomes with regard to interventions on changing institutional cultures, the lack of high-quality studies of these effects is notable. The smaller number of studies on interventions concerned with changing gender norms and identities has yielded some evidence on women's participation and changing social mores; however the limited number of high-quality studies is of concern.

A key assumption in the ToC was that the impact on the expansion and improvement of girls' education would be greatest when a combination of different kinds of intervention came together and adequate attention was paid to the context within which they occurred (see Table 3.17). The analysis of studies included for full review indicated that 51 reported that two or more interventions were used in combination, but 37 did not. The remainder had no code assigned on this issue, either because the study did not specify, or because the reviewer did not see it as a key feature of the analysis.

Table 3.17: Whether or not two or more interventions were used in combination

Two or more interventions used in combination?	Count
Yes	51
No	37

In 85 studies which report an impact on access, 30 link this with combined interventions, while 23 do not; the remainder do not specify (Table 3.18). Of 71 reporting an impact on quality and learning, 30 link this with combined interventions, while 14 do not (the remainder do not specify). This suggests, possibly, that two or more interventions combined might be more salient with regard to quality than access, but we do not feel the

3. Theory of change, forms of intervention and the distribution of articles reviewed

evidence for this is robust, and indeed, as discussed in Chapter 5, a number of studies present findings on the significance of the combination of interventions in relation to access. With regard to outcomes on women's participation and changing gender norms (Table 3.19), slightly more studies link this with combined interventions than say there is no link. We consider this theme in Chapter 4 and in our conclusions.

Table 3.18: Relationship between combined interventions and impact on girls' schooling

Two or more interventions?	Access	Quality
Yes	30	30
No	23	14

Table 3.19: Relationship between combined interventions and impact on gender equality outcomes

Two or more interventions	Educated women who can participate in different spheres	Changed gender norms and identities	Other
Yes	16	22	1
No	13	16	2

With regard to the level of education targeted by interventions and the impact this has on improvements in girls' education and on wider gender equality outcomes, Table 3.20 shows that while more studies of interventions at primary level can be associated with improvements in girls' education, a slightly higher number of studies at secondary level are associated with gender equality outcomes beyond education.

Table 3.20: Level of education targeted and impact on girls' education and gender equality

	Evidence of impact on girls' education	Evidence of impact on gender equality outcomes
Primary	43	17
Secondary	28	23
Both primary and secondary	31	20
Post-secondary	3	3
Other	2	2
Not specified	9	13

Appendix 7 provides information on the distribution of studies reviewed regarding: a) those that discuss whether contextual factors might have contributed to the results attributed to the intervention(s), and b) those that look at the existence of a positive feedback loop to sustain a climate of change that is supportive of girls' education.

Appendix 5 provides information on how moments of global convening, for example. Education for All (EFA) and the Millennium Development Goals (MDGs) appear to be important for some of the work in this field, and gives some further information on aspects of funding for research.

4. Evidence on the expansion and improvement of girls' education and gender equality

The central research question that this review has set out to investigate concerns the kind of interventions that research evidence suggests can lead to an expansion and improvement in girls' education. The ToC distinguishes between three kinds of interventions. More studies included for review and ranked as high quality deal either with interventions associated with infrastructure and distribution of resources or interventions associated with changes in institutions. A smaller number, ranked as high quality, deal with interventions to change norms and include the most marginalised in decision making and reflection. Thus, it appears from this review that we know in greater depth about resource inputs, attending to aspects of supply, and certain features of institutional change, than we know about relationships to shift norms and address processes of inclusion in relation to deliberation and decision making. The greater preponderance of quantitative rather than qualitative studies included in this review leads to more knowledge about causal relations, generally associated with access and participation. The more complex interactions associated with quality, gender equality and eliminating social divisions are much less well investigated and causal explanations, which Maxwell (2013) argues are a feature of qualitative research, are much less well established.

Below we discuss each of the nodes of the ToC, highlighting what the evidence from the review shows, and where the totality of evidence confirms or diverges from the conclusions of particular studies.

4.1 Resource and infrastructural interventions

In this category, we review evidence on all the types of interventions that provide resources directly to families or children in cash or in kind to support school enrolment (demand-side interventions), retention and learning, as well as interventions involving the physical infrastructure of schools (supply-side interventions). The infrastructural category of interventions includes the provision of schools as well as the expansion and enhancement of existing schools. Some of these interventions are designed to benefit the education of all children, but sometimes have effects that differ for boys and girls. Other interventions are designed primarily to address specific needs for girls.

Box 4.1: Types of resource and infrastructural interventions

Resource Interventions	Infrastructure interventions
<ul style="list-style-type: none"> • Economic growth and poverty reduction • Cash for families and/or children (conditional and unconditional cash transfers, scholarships) • Universal benefits (abolition of school fees, uniforms) • Recruitment service or information on returns to schooling • In-kind resources - school feeding • Menstrual supplies/sanitary pads 	<ul style="list-style-type: none"> • Provision of new schools (primary and secondary) for underserved areas • Integrated interventions around sanitation • Toilets • Expansions/improvements in physical facilities • Classroom enhancements

4. Evidence on the expansion and improvement of girls' education and gender equality

The majority of the studies cited in the discussion below directly involve impact studies of resource interventions or have implications for the interpretation of their potential effects; a few involve studies of the impact of infrastructural interventions. The studies included in this section are typically randomised control trials (RCTs) but also include some natural experiments and quasi-experimental designs, as well as skilfully executed quantitative studies using rich cross-sectional or longitudinal data and state of the art modelling. Unfortunately, we have little evidence on cost-effectiveness because very few studies have weighed effectiveness against costs.

The overall importance of economic development and rising family incomes is convincingly linked to the expansion of schooling and the narrowing of gender gaps in enrolment and attainment (Duflo, 2012). With economic development and the rise in family income, there has been a steady improvement in educational enrolment and attainment around the world as well as a narrowing of gender gaps, as families increasingly see the advantages of education for girls and are at the same time more able to afford the direct and opportunity costs of sending their girls to school (Lloyd, 2005).

Resource interventions

Resource interventions provided in cash for families or children have been extensively used over the past 15-20 years. Virtually every country in Latin America has a conditional cash transfer programme, there are large-scale programmes in Bangladesh, Indonesia and Turkey and pilot programmes in Cambodia, Malawi, Morocco and South Africa, among others (Fiszbein et al., 2009). Few studies can yet show longer-term impacts, given that significant time needs to elapse before these can be studied but those few studies that are available (most notably for the Mexican Progreso/Oportunidades programme) are encouraging in that they show, with high-quality evidence, significant impacts on the accumulation of grades attained (Behrman et al., 2011).

Most resource interventions show enrolment and attainment improvements, particularly for girls and a few also explore learning outcomes. The merit scholarship pilot in Western Kenya is one example that looked at learning outcomes (Kremer et al., 2009). This was a relatively unusual resource intervention in that merit scholarships were awarded to the higher-scoring 15 per cent of Grade 6 girls attending Grades 7 and 8 (last two grades of primary in Kenya) in the programme school. The results were encouraging in that not only did the eligible girls show significant improvements in learning outcomes, but teacher attendance improved and there were other positive learning outcomes for the boys and girls who did not receive the scholarships. The conditional cash transfers for adolescent girls in Malawi also showed improvements in reading comprehension (Baird et al., 2011).

The effectiveness of these interventions has varied enormously for a range of reasons. With respect to design and implementation, a key conclusion from many of these studies is the importance of targeting interventions to the populations most in need and for students at the grade levels where dropouts are most likely to occur. Otherwise, resource interventions can be ineffective in achieving desirable educational outcomes and, at the same time, unnecessarily expensive. This is because, when resource interventions are poorly targeted, resources are spent on students who would have gone to school even in the absence of the intervention, with little beneficial effect on desired outcomes. For example, Baulch (2011) assessed the impact of the primary educational stipend in rural Bangladesh from 2000-2006 and concluded that the impacts on enrolment were remarkably small and that poor targeting of the stipend was an important factor explaining these findings. The largest and best-known national female scholarship scheme, which began in Bangladesh in 1991, provides universal coverage for girls attending secondary school. It has also been plagued by questions of targeting (Khandker et al., 2003), given that all girls are eligible for secondary school scholarships regardless of family income.

Another important dimension of targeting relates to whether transparent and objective criteria for eligibility are well understood locally and perceived to be fair. The Mexican programme of Progres/Oportunidades was a community-based programme in which communities were selected for inclusion based on their poverty status using publically available administrative and census data. Within each community, eligible households were selected on the basis of household survey data collected on household income, consumption and assets (Schultz, 2004). When resources are provided to the school rather than to the family, school administrators are left on their own to develop eligibility criteria. When the process is not transparent and objective, the results can be disastrous, as they were in the case of the Ambassador Girls' Scholarship scheme in Sierra Leone and Djibouti, where tensions between those receiving and not receiving scholarships erupted and harassment of scholarship recipients occurred (Chapman and Mushlin, 2009).

In some cases financial interventions have been national or provincial in scale and sustained over time (e.g. Progres/Oportunidades in Mexico, secondary girls' scholarships for girls in Bangladesh); in others the interventions have been designed as short-term pilots in order to experiment with alternative designs and modes of delivery for demonstration purposes before considering larger scale-up. Recent intervention research has focused on fine tuning the design of cash transfers to improve programme effectiveness. Recent interventions providing conditional cash transfers for school attendance in Cambodia (Filmer and Schady, 2011) and for girls only in Malawi (Baird et al., 2011) found that relatively small amounts of cash could be effective in poor settings. In terms of enrolment improvements, there appear to be diminishing returns to larger grants. A question that arises from the recent study of the longer term impacts of the Punjab Female School Stipend Programme (FSSP) in Pakistan is whether those same results could have been achieved at lower costs with better targeting and more modest stipends (Independent Evaluation Group, 2011). The programme was targeted at the 15 districts with the lowest literacy rates and led to dramatic gains in retention and junior secondary school completion for girls.

Several recent RCTs have compared the effects of cash transfers for girls when they are conditional on school attendance and when they are not. In both Malawi, where only unmarried adolescent girls and their families were eligible for cash transfers tied to school attendance (Baird et al., 2011), and in Burkina Faso, where the families of both boys and girls aged 7-15 were eligible (Akresh et al., 2013), conditional cash transfers were significantly more effective than unconditional cash transfers in improving the enrolment of girls. In poor communities where parents are forced to make choices, the provision of conditional cash resources will increase the chances of girls attending school.

School access and quality can be important factors in the effectiveness of resource interventions. For example, in Pakistan, there is evidence that the girls' stipend scheme, which is restricted to use to government schools, has led to increased enrolment of boys in private schools, which are increasingly available (Independent Evaluation Group, 2011). Given evidence that learning outcomes in low-fee private schools in Pakistan are slightly better than government schools (Andrabi et al., 2013), this suggests that one gender inequity (enrolment) may be substituted for another (learning). Azam and Kingdon (2013) have found that one of the ways that gender inequities in education persist in India is that households spend less on the education of their girls than their boys by sending their boys to private schools and their girls to fee-free government schools.

The availability of other types of school access and choice are also potentially important to the effectiveness of resource interventions provided in cash. One longitudinal study in Pakistan, for example, found evidence that girls' retention in primary school, over a period of six years, was strongly and positively affected by the availability of post-primary schooling at the beginning of the observation period (Lloyd et al., 2009). This might imply that the Punjab school stipend for girls could be more effective in settings where post-

4. Evidence on the expansion and improvement of girls' education and gender equality

primary options exist. Given evidence of much higher returns to secondary schooling in Pakistan and India for girls (Aslam et al., 2010), constraints on the availability of secondary schools, particularly in Pakistan where schools are single sex, is also a problem (Andrabi et al., 2013). In Bangladesh, where secondary scholarships were introduced nationally in 1991, the dramatic growth in secondary enrolments would not have been possible without the complementary formalisation and feminisation of Islamic schools implemented by the government a decade before (Asadullah and Chaudhury, 2009). More detailed discussion of the implications of school choice is included in Section 4.2. In Bangladesh, there is also evidence to suggest that legislative change regarding age of consent for marriage has had an impact on girls' enrolment. This is discussed in Section 4.4.

Another important dimension of context is the presence of other community-based interventions that might enhance or limit the effectiveness of resource interventions for education. A study from Bangladesh shows that the presence of a micro-credit programme for women can potentially have negative effects on children's enrolment, particularly girls, when mothers need their girls to help out in the home while they are working (Islam and Choe, 2013). Similarly, in rural Malawi, a study investigating the impact of participation in agricultural credit programmes on school attendance and other productive activities, particularly for girls (Shimamura and Lastarria-Cornhiel, 2010) found decreased school attendance for girls, as well as a substantial percentage of 'idle children'.

There are various government resource interventions that provide targeted **resources in kind** to children and adolescents that can provide beneficial effects for school enrolment and learning. One area where in-kind donations have been linked to schooling is through the provision of health-related inputs such as iodine or deworming pills.

Health interventions can begin in utero in settings where iodine deficiency disorders (IDD), which affect early brain development in utero, are prevalent. In Tanzania, a setting where IDD is prevalent, Field et al. (2009) assess between 1986 and 1997 the impact of intensive distribution of iodine supplements during the first trimester of pregnancy on children's grade progression 10-14 years later. Their results suggest a large effect of utero iodine on cognition and grade attainment, with the most dramatic effects for girls. This is consistent with laboratory evidence indicating greater cognitive sensitivity of female foetuses to maternal thyroid deprivation. Deworming is another health intervention, easily implemented in primary schools. Miguel and Kremer (2004) studied the impact of a deworming intervention in rural Kenya using an RCT and found that deworming had had dramatic effects on school attendance, and by extension learning, for children attending schools receiving the deworming treatment. Gender effects were not reported.

School feeding programmes are a popular health and nutritional intervention for poorly nourished schoolchildren. Interesting findings from Bangladesh on its Food for Education (FFE) programme (implemented from 1993-2002), which provided free food to poor families whose children attended primary school, found that the programme resulted in a dramatic increase in primary school enrolment, particularly for girls (Ahmed and Arends-Kuenning, 2006). The result was more crowded and heterogeneous classrooms as poorer students who were more academically challenged and had lower achievement scores joined children who were not eligible for the free food because their families were not sufficiently poor. The result was a decline in test scores among non-beneficiary students. Badruddin et al. (2008) and Pappas et al. (2008) reviewed a nutrition programme in Pakistan, where local women were funded by the government to plan, cook and serve a nutritious meal to primary school age girls. Enrolment increased by 40 per cent and stunting and wasting decreased, but the authors cautioned that these were temporary gains that diminished over time.

While there is little evidence of any gender differences in absenteeism in sub-Saharan Africa or other developing countries (Lloyd and Young 2009), a popular in-kind resource

intervention in the policy community for adolescent girls has been the provision of sanitary supplies to help girls manage their menstrual period so that they can maintain consistent attendance in school. There are many reasons why boys and girls may be absent from school, including health, lack of transport, work or domestic duties. Post-pubescent girls face an additional challenge in attending school during their periods that boys do not have to confront. The only rigorous study looking at the impact of menstrual supplies on attendance showed no significant impact on school attendance rates (Oster and Thornton, 2011). In Nepal, girls were randomly assigned to receive a menstrual cup - an inserted reusable device that collects menstrual blood and requires less water for cleaning than cloth rags during menstruation. While girls reported that they liked the device, attendance rates were no different for the treatment and comparison groups after the completion of the intervention. A more recent intervention in Ghana has explored the impact of the provision of sanitary pads along with puberty education on school attendance (Dolan et al., 2013). The study was a non-randomised trial with a very small sample and cannot be rated as rigorous. While the authors found some impact on school attendance, it was as much due to an unexplained decline in attendance in the control group than a rise in attendance among the intervention groups. Furthermore, they did not attempt to separate out the effects on attendance of the puberty education as opposed to the effects of the provision of sanitary pads.

Information resources are another type of in-kind resource provision that can benefit girls, who are particularly disadvantaged relative to boys in transitioning effectively from school to work despite high estimated returns to secondary schooling for girls (Aslam et al., 2010; Schultz, 2002). A recent review of evidence on expanding access and improving learning in post-primary education (Banerjee et al., 2013), identifies the provision of information about the financial returns from education as a potentially cost-effective intervention for boosting secondary school attendance and completion. Evidence from the Dominican Republic suggests that students and parents are misinformed about the financial returns from secondary schooling, perceiving them as being much lower than they are in reality (Jensen, 2010a). A randomised trial providing three years of recruiting services to help young women in randomly selected villages in India to get jobs in the business process outsourcing industry substantially increased school enrolment for girls in the intervention areas. The intervention did not provide jobs, just information about jobs. This information about greater than expected returns provided parents and their daughters with greater incentives to invest in education (Jensen, 2010b).

The universality of benefits

It is also interesting to look at the question of whether and in what context universal approaches that benefit all schoolchildren, such as school fee abolition, conditional cash transfers, the provision of school uniforms or school feeding, can be differentially beneficial for girls. A notable case is Uganda, where school fees were waived in 1997. This was followed by a dramatic increase in primary school enrolment, particularly for girls, but at the cost of a dramatic decline in school quality. As a result of the fee waiver, the gender gap in primary enrolment was eliminated. In Ghana and Mozambique as well, the gender parity index improved after school fees were abolished. However, in Ethiopia, Kenya and Malawi, where the policy changes took place quickly and with little preparation, the initial enrolment increase favoured boys (World Bank and UNICEF, 2009). The longer-term implications for girls of school fee abolition are more complicated, given the notable decline in school quality that has occurred since fee abolition in many settings where resources are scarce. We do not know whether or not girls are more vulnerable to dropout than boys when quality is poor.

In the case of conditional cash transfers, a recent review of impact studies in a range of countries found that enrolment effects were essentially the same for boys and girls (Behrman et al., 2011). A randomised trial providing free school uniforms on a lottery

4. Evidence on the expansion and improvement of girls' education and gender equality

basis in Kenya resulted in a dramatic decline in school absence by 44 per cent but no significant gender difference in effects (Evans et al., 2009).

Evidence from school feeding programmes is also mixed with respect to overall effects on enrolment and attendance as well as gender differences in effects. Several recent studies in Laos and Burkina Faso suggest the importance of context and implementation. Bittenheim et al. (2011) evaluated school feeding programmes for both boys and girls in three northern districts of the Lao People's Democratic Republic (Lao PDR). The feeding strategies assessed included on-site feeding, take-home rations, and a combination. District-level implementation of the intervention sites and selective take-up presented considerable evaluation challenges. Using propensity-score weighting and difference-in-difference estimates, they found minimal evidence that the school feeding schemes increased enrolment. On the other hand, in a recent prospective randomised trial of a school feeding programme in northern rural Burkina Faso, Kazianga et al. (2009) found that girls' enrolment had increased by 5-6 per cent after one academic year, but boys' enrolment had not.

Infrastructural interventions

Fewer high-quality rigorous studies identified in this review assessed infrastructural interventions. Two rigorous impact studies looked at the specific effects on enrolment of the provision of additional schools in underserved areas. In rural north western Afghanistan, Burde and Linden (2010) assessed the impact on enrolment of the introduction of village-based schools, providing a comparable education to traditional schools, in villages previously without a school. The introduction of the intervention was phased in so that villages in the control group received schools one year later. While the intervention resulted in enrolment and test score gains for all students, girls benefited disproportionately, with the result that the gender gap in enrolment was completely eliminated within a year and the test score disparity between boys and girls was narrowed by one-third. Given safety concerns and traditional seclusion practices in Afghanistan, distance to school is particularly important to girls.

A second study looked at the effects of the provision of 'girl friendly schools' in Burkina Faso (Kazianga et al., 2012). These well-resourced schools (BRIGHT schools) were provided in poor underserved rural areas and had certain enhanced amenities not typical of rural village schools. These included infrastructure such as separate latrines for boys and girls and canteens, and resource interventions, including take-home rations and the provision of textbooks, in addition to interventions associated with changing institutions, discussed further in Section 4.2. The programme increased enrolment of all children aged 5-12 by 20 percentage points and test scores by 0.45 standard deviations. Girls benefited disproportionately. Indeed, the authors were able to disentangle the effects of improved school access from the effects of improved infrastructure and found that the unique characteristics of these schools could fully account for their differentially positive effects for girls. This study clearly highlights the potential of combined interventions in enhancing girls' schooling. Unfortunately, however, the authors were not able to differentiate the importance of each of the school enhancements with respect to their role in explaining enrolment and test score improvements, so we do not know which enhancements were most important in explaining these effects.

The only rigorous study exploring the effects of type and cleanliness of toilets and water access in schools is based in rural Malawi, drawing on the first wave of a longitudinal study of currently enrolled adolescents aged 14-16 (Grant et al., 2013). The data involves interviews with the adolescents and the teachers as well as directly collected observational data on school facilities. While one-third of female students reported missing at least one day of school during their previous menstrual period, the data suggest that menstruation accounts for only a small proportion of female absenteeism and does

not create a gender gap in absenteeism. Furthermore, the authors found no evidence to suggest that absenteeism in this setting was in any way sensitive to any variations across schools in the school environment despite the fact that there was significant variation across schools in the type of toilet and the cleanliness of the toilets. For example, while 47 per cent of students attended schools with clean toilets, 53 per cent attended schools with 'quite dirty' or 'filthy' toilets. While the BRIGHT schools in Burkina Faso have separate toilets for boys and girls, there is no way of knowing how important that feature of the intervention is in explaining their results. A systematic review looking at the impact of the provision of separate toilets for girls at school on their primary and secondary school enrolment, attendance and completion (Birdthistle et al., 2011) confirmed this lack of clear evidence regarding toilets and girls' education. No studies which assessed the impact of separate girls' toilets in schools on their enrolment or attendance met the review's inclusion criteria.

A study by Freeman et al. (2012) assessed the impact of a water treatment, hygiene and sanitation programme (WASH) on pupil absence in primary schools in Nyanza province, Kenya, using a three-arm randomised controlled trial, with schools in the first arm of the intervention receiving the water treatment and hygiene promotion, schools in the second arm receiving additional resources in terms of sufficient additional latrines to come up to the Government of Kenya standards (25:1 girls per latrine; 30:1 boys per latrine) with the intervention thus having to provide, for any one school, a maximum of seven latrines and the third arm being the control schools.⁷ Unfortunately, post-election violence compromised the implementation of the intervention in some of the study areas. Thus, conclusions could only be drawn about effects in the two strata not touched by the violence. The results suggest that both arms of the intervention resulted in a significant decline in absenteeism for girls but not for boys. However, the additional provision of latrines in the second arm did not appear to provide any additional benefit in terms of attendance for girls.

Interventions combining increased resources and improved infrastructure

One other rigorous study is worth mentioning that uses very rich data from six countries to evaluate the long-term impacts of child sponsorship programmes run by Compassion International on years of schooling, primary, secondary and tertiary school completion and the probability and quality of employment (Wydick et al., 2013). This intervention combines resources for schooling with an intensive after-school programme emphasising spiritual (Christian evangelical), physical and socio-emotional development. The authors find substantial enrolment effects and conjecture that some of these effects stem from the role of the after-school programme in increasing children's aspirations. They also conclude that child sponsorship is a great 'equaliser' in that effects for girls are greatest where baseline schooling is higher for boys and effects for boys are greatest where baseline schooling is higher for girls (particularly true in Latin America).

Conclusion

The research reviewed indicates that there is strong evidence from Latin America, Africa and South Asia that targeted resource provision to parents and/or students, in the form of stipends and cash transfers, improves girls' access, retention and progression in school. Indeed, evidence is emerging that small amounts of cash are sufficient in poor settings for a significant improvement in girls' school participation. However, there is increasing evidence of trade-offs between enrolment increases and learning improvements, warning

⁷ Because schools in all three arms of the study received deworming treatment, any significant effects were presumed to be in addition to deworming

4. Evidence on the expansion and improvement of girls' education and gender equality

that the provision of resources outside the school setting alone cannot bring sustained improvements in girls' educational outcomes. The school feeding programme in Bangladesh would be a case in point, where increases in enrolment due to the Food for Education programme led to a decline in test scores for those enrolled prior to the intervention. Less extensive evidence exists that improved access and enhanced infrastructure can also lead to dramatic improvements in enrolment for girls in poor rural underserved areas. However, it is not yet possible to tease out which elements of infrastructural improvement are most important for girls - see for example the WASH intervention described above. There is no evidence that the provision of toilets on their own, without attendant work on learning, norms and information, improve enrolment, progression or achievement, either at primary or secondary school.

4.2 Interventions regarding institutional change

The second type of intervention identified in the ToC concerned interventions to change institutions, either at the level of the school, the education system, that is national arrangements for the provision of education, or with regard to policy-making and implementation of specific policies. The key areas that researchers have considered in terms of whether they have worked wholly, or in part, and under what conditions they might work more effectively to improve girls' education or promote gender equality are listed in Box 4.2.

Box 4.2: Type of institutional change interventions

National/regional educational system reforms	Local school and classroom reforms
<ul style="list-style-type: none"> • Quality teacher training with a gender equality focus • Implementation of policies on girls' education and gender equality • Gender mainstreaming • Introducing school choice (private, single-sex or religious school) • Inclusive strategies 	<ul style="list-style-type: none"> • Girl-friendly schools; quality mix (combined school-level reforms) • Group learning/collaborative learning styles • After-school activities which link to work in schools • Regular INSET for teachers, challenging gender attitudes • Female teachers • Fostering gender-equitable school norms • Women in leadership positions in school governance committees/at community level

Research designs

Many of the research studies reviewed looked at girls' learning achievements, where learning outcome results were examined as dependent variables. Studies tended to take the form of an experiment with a focus on the treatment of male and female students at classroom and/or teacher level, teachers' gender, teachers' competency and pedagogical/instructional organisation. A second type of study comprised surveys done in the same sites at different periods, reflecting a feature of school organisational change. The third type of study comprised in-depth qualitative or ethnographic work on the effects of a particular intervention. As noted earlier in the report, there are fewer substantial studies of this type.

Quality teacher training

The findings from these quantitative studies and a number of qualitative research projects suggest that the training of teachers formally with regard to subject knowledge, pedagogy and gender equality, and informally to develop attitudes of inclusion and tolerance, play a significant role in reducing girls' drop out (Lloyd et al., 2011) and improving girls' learning outcomes (Abraha et al., 1991; Antecol et al., 2012; Balfour, 2003; Chudgar and Vyjayanthi, 2008; Forde (2008); Morrell et al., 2009; Unterhalter and Heslop, 2012; Unterhalter et al., 2013). The evidence indicates that teachers are crucial to the expansion and improvement of girls' education and the development of gender-equitable dispositions.

There is reasonably strong evidence that interventions that engage with teacher education, training, attitudes and levels of support can yield positive results in terms of improving girls' access, participation in school and learning outcomes. A 1991 study in Ethiopia, which used regression analysis to examine data concerning girls' persistence in primary school and their exam performance in relation to school conditions and the characteristics of their local communities showed that, although simple indicators of school quality - class size and number of shifts - were not correlated consistently with girls' attainment, girls persisted in school at higher rates when attending schools with more experienced teachers, even in rural areas. It therefore identified length of teacher training as a significant factor associated with girls' persistence in school (Seged et al., 1991). Chudgar and Vyjayanthi (2008) looked at male and female children's learning achievement in five Indian states, taking account of whether teachers were male or female and controlling for other background variables, particularly relating to teacher training. They found female teachers to be more encouraging than male teachers of the learning of all children, but in terms of learning achievement, the differences were small and generally pointed to the importance of recent training as being more significant than teachers' gender identity for children's learning achievement. Lloyd et al. (2003), in a study in Egypt, identified teacher in-service education and training (INSET) as a significant variable affecting the likelihood that girls (but not boys) would drop out prior to high school completion, although, other factors like the quality of school facilities were also significant. Studies associated with the TEGINT (Transforming Education for Girls in Nigeria and Tanzania) programme show that the level of teachers' qualifications and engagement with training in participatory learning and running girls' clubs are associated with enhanced empowerment of girls, as evinced by the latter's confidence to articulate the problems they encounter in school, and the identification of possible solutions and approaches to tackling gender-based violence (Unterhalter and Heslop, 2012; Unterhalter et al., 2013).

While there are fewer studies of interventions that tried to shift or change teachers' attitudes to gender and their related practices, it is clear from such studies that teachers' views of girls, boys and gender relations play a key part in girls' participation and learning achievement. Lloyd et al. (2011), on the basis of data collected in households and schools in Kenya, found that in schools where teachers, whether male or female, expressed less supportive attitudes towards girls, dropout rates for girls were higher than in schools where more egalitarian attitudes were expressed. Boys' dropout rates did not vary across schools according to teachers' gender attitudes. Teachers' attitudes were captured both through students' reports on the extent to which they received supportive advice from teachers, as well as through teachers' attitudes to girls' capacity to do 'hard' subjects like mathematics.

Three studies, using qualitative research designs, provide insight into the complexity of the processes entailed in promoting ideas about gender equality amongst teachers and learners. Forde's study (2008) of a range of different types of classroom interventions to tackle gender equality and raise achievement of boys and girls in Scottish primary schools,

4. Evidence on the expansion and improvement of girls' education and gender equality

including home-school reading programmes, engaging fathers in their children's education, and single-sex teaching, highlights the importance of engaging with stereotyped ideas about gender. Rather than focusing on differences between boys and girls, the study identified a need for teachers to reflect on and work with children on how gender norms influence children's identities as learners and classroom interactions. A study by Balfour (2003) in a South African secondary school examined how to strengthen children's critical engagement with texts on gender violence and gender inequality. Through careful selection of reading materials and design of worksheets that encouraged critical questioning, he found that children were able to reflect on the links between gender-based violence, inequitable gender norms and cultural contexts. The study shows how complex critical and reflective processes might be supported, in this case in response to gender-based violence. When Morrell et al. (2009) examined a whole raft of different kinds of evidence relating to responses over five years to an intervention about gender and HIV in two primary and two secondary schools in South Africa, they drew tentative, cautionary conclusions about the success of the intervention. They found that teacher and learner attitudes were difficult to shift, but that it was important to take account of school management, teacher training and biographies, and networks beyond the school (for example of those associated with churches, sport or local politics). Considerable resources are needed for this sort of approach, way beyond those that were allocated.

The relationship between improvements in the quality of education generally, girls' education and gender equality has been reviewed (Aikman and Rao, 2010; Aikman and Unterhalter, 2013). These overviews found that there were very few evaluative studies of interventions in this area, although a great deal of material has been written about how to improve learning achievements and what this suggests about the quality of schooling. Several studies of learning achievement used an inferential approach and looked at contributions of key variables towards learning achievement. Databases based on large-scale international and/or regional assessment studies (PISA, TIMSS, PIRLS, and SACMEQ) offer, for example: (i) reliable, valid, and comparable learning measures ensured by the use of item response theory (IRT) to allow comparison between countries and between times; and (ii) probability proportional to size (PPS) sampling, which allows the calculation of the probability of sample selection and therefore the generalisation of the results to the target population. These have used different types of regression analysis, including more sophisticated hierarchical linear modelling (HLM) involving hierarchically nested levels of data. However, despite the rigour of the methods and the quality of the data, there is not a single finding relating to a 'silver bullet' (see Jeffery and Jeffery, 1998) which would improve girls' education or gender equality by improving school quality, either from the studies of learning achievement using these methods or by work on quality by economists. The finding by Hungi and Thuku (2010) in Kenya (Grade 6) is that school-level factors, such as pupil-teacher ratio and the management of pupil behaviour, contributed substantially to pupil achievement in reading and mathematics. They conclude that these are key factors in shaping girls' and boys' achievement rather than aspects of pupil background such as age, sex, or socio-economic status (SES).

Girl-friendly schools

Quality education can work for both boys and girls under certain conditions. A number of studies (Mensch and Lloyd, 1998; Morrell et al., 2009; Unterhalter and Heslop, 2012; Unterhalter et al., 2013) show that there is a major difference between the type and culture of schools that help girls achieve high or low educational performance or articulate demands for gender equality. The study by Mensch and Lloyd (1998) surveyed various aspects of gender treatment in 36 primary schools in three districts in Kenya

(Kilifi, Nakuru and Nyeri) according to whether the school had below or above average exam scores.⁸ Unfortunately, they found that girls in both groups of school suffered from negative attitudes and discriminatory behaviour. However, high-performing schools employed more female teachers, and those teachers were more even-handed in their attitudes than their female counterparts in low-performing schools. Going beyond issues of access to ensure that teachers and schools were challenged in their assumptions and attitudes would involve strong inspection of schools, an awareness of what was needed to succeed in rural and urban contexts, training teachers in family life education and sex education and strengthening disciplinary practices to remove school violence.

As we saw in Section 4.1, a study in Burkina Faso (Kazianga et al. (2012) also focused on the effects of building 'girl-friendly' schools and a combination of infrastructural interventions and interventions associated with institutional change in a 'quality mix' comprising (a) separate latrines for boys and girls, and supply side provision - canteens, take-home rations and textbooks and (b) attempts to change institutional cultures in support of quality through an advocacy and mobilisation campaign, literacy training and capacity building among local partners. This sort of programme, combining a range of different sorts of interventions, had a differentially positive effect on the enrolment of girls, and these 'better-quality' schools accounted for the entire difference in the treatment effect by gender, although, as discussed in the previous section, the authors did not tease out the relative role of different features of these improved schools.

Employment of women teachers

A number of studies look at whether the employment of women teachers is associated with improved educational experiences and enhanced learning outcomes for girls or for all children. Fuller et al. (1994), using data derived from the *Botswana Teacher, Classroom, and Achievement Study* found larger learning gains in junior secondary schools for girls particularly in English. Both boys and girls also gained in terms of learning when they had more time in school and more exposure to female teachers. However, when the students had more exposure to male teachers, girls did better than boys. These differences in learning gain in favour of girls in all subjects were larger in Form 1 than in Form 2. Girls performed less well when open-ended questions were asked by teachers. Glick (2008) reviewed the literature on women teachers, identifying studies in Bangladesh and in Africa which showed that having female teachers in local schools increased girls' enrolment probabilities and reduces dropout (Khandker 1996; Mingat and Suchaut, 2000). A five-country African study by Michaelowa (2001) found that 5th Grade girls' knowledge gains were larger when they were taught by a woman, while boys' knowledge gains were larger when the teacher was a man. However, Glick raised the possibility that hiring women teachers was not exogenous to girls' learning outcomes, and looked at findings from studies in Baluchistan and India, where the results suggested favourable outcomes for girls associated with employing women teachers, but the researchers were not able to disentangle this from other possible variables. Nevertheless, this and other studies showing a correlation between women teachers and girls' learning outcomes, suggest that this is a potentially beneficial strategy. However, the difference women teachers make needs to be examined in relation to forms of training and support provided, the age of the teachers and the learners, and different aspects of the school experience, not just attendance or learning outcomes.

The study by Antecol et al. (2012) of American girls in primary school (Grades 1-5) who were assigned randomly to a male and female teacher with and without a strong mathematics background argued that female mathematics anxiety could be reduced and

⁸ This is the national Kenyan Certificate of Primary Education exam given at the end of Standard 8.

4. Evidence on the expansion and improvement of girls' education and gender equality

learning achievement improved if: (i) female teachers received more extensive training in mathematics; or (ii) female teachers denied stereotypical beliefs about gender differences in ability in mathematics. Chin's study of *Operation Blackboard* in India (2005) showed that the presence of female teachers improved girls' attendance at primary schools. Aslam and Kingdon (2008) looked at the employment of women teachers and learning gains for poor children, but did not distinguish between learning achievements by gender. The employment of women teachers may be an aspect of the improvement of girls' education and gender equality that resulted from the expansion of schooling, but, on the basis of the evidence reviewed, the links do not appear to be causal.

Introducing school choice: private, single-sex and religious schools

The evidence is mixed as to whether introducing a choice of type of school enhances or limits girls' learning. A number of studies of private school choices in India indicate that parents choose private schools which they perceive as of better quality for boys, rather than girls, confirming gender inequalities (Woodhead et al., 2013). This is supported by the study by Azam and Kingdon (2013) that found that one of the ways that gender inequities in education persist in India is that households spend less on the education of their girls than their boys by sending their boys to private schools and their girls to fee-free government schools. Srivastava's research (2006), also using data from India, showed that poorer parents make an active choice of low-cost private schools in order to ensure that their daughters receive an education. These schools might raise the chances of their daughter marrying well, and thus help the family prosperity, and educating their daughters might reflect modern values. However, the poor quality of some such schools may also disadvantage their daughters and reduce their learning prospects. Srivastava argues that parental shifts in their 'mental models' in the context of social change might therefore lead to more education for their daughters, but in the long term, the learning and later employment outcomes might not fulfil their aspirations to break out of poverty.

The findings are ambiguous regarding single-sex and co-educational schools. Studies by Kim and Law (2012) and Baker et al. (1995) examined the effect of **single-sex schools versus co-educational schools**. Single-sex schools positively affected girls' achievement in mathematics in Hong Kong and Thailand, while co-educational schools positively affected girls' achievement in South Africa. This could also be due to features of the school catchment: in Thailand, most elite schools are single-sex, while in Japan, female single-sex schools are for less-motivated girls from high SES families. Some single-sex schools in South Africa cater for girls from higher socio-economic background, while others do not. Kirabo (2011) found that attainment at single-sex schools in the Caribbean may be linked with aspects of school choice - that is, girls did better in public examinations at single-sex schools if these had been their first choice for secondary school.

The evidence for the effects of different types of schooling, including religious schools, on gender achievement is inconclusive and contextualised. For example, the expansion of madrasa schooling in Bangladesh may be one of the most dramatic expansions of female secondary schools, yet we know nothing about how the quality of schooling in madrasas compares with other types of public and private schools in terms of learning outcomes, gender differences in schooling experiences and gender equity in the longer term (Lloyd and Young 2009). We do know, however, that girls who attend secondary madrasas have a more conservative social outlook than girls attending secular secondary schools: favouring their sons rather than their daughters for higher education, preferring larger families and considering it best for mothers not to work while they are raising children (Asadullah and Chaudhury 2006). This study found that girls had lower mathematics test scores than boys in both types of schools. Importantly both boys' and girls' achievements in mathematics in religious schools were worse than those in secular schools at secondary level. Even after controlling for other determinants on learning, religious schools were found to have a negative effect on learning. Other than this study, and Seel's work on System Wide Action

Plans (SWAPs) (2007), there is no work that shows that the funding modality for schooling has any bearing on forms of girls' participation and outcomes.

Our review of these studies indicates the need for future research to analyse the gendered impacts of the emerging trend for diversified school provision.

Targeted experiments to raise girls' performance

At the school and classroom level, successful gender interventions are associated with classroom strategies that employ group learning. Hossain and Tarmizi (2012) examined the effects of group learning on the mathematics performance of both boys and girls in Grade 9 in Bangladesh. They compared this with the performance of those in conventional learning settings and showed that the girls benefited more than the boys in the experimental group. A number of qualitative studies have documented girls' positive response to collaborative learning styles (e.g. Bernard et al., 2003; Holden, 1993).

A different type of experiment applied a 'treatment' at the test level. In Sweden, Wester and Henricsson (2000) compared the test results of 6th-8th grade students who answered mathematics and science questions using multiple-choice options with a group of students who answered the same questions using an open-ended format (ie, they had to produce their own solutions). The study explored whether the change in answer format impacted on gender differences in student performance.

While this experiment was innovative, there was no gender differential effect on the type of items. However, in Sweden, where girls do better in reading comprehension, there is speculation that girls' performance could be positively affected if the open-ended questions in mathematics required more reading and writing rather than short answers.

It appears that attention to learning outside the classroom is particularly relevant to girls' learning achievements. However, the definition of achievement in the classroom in many of these studies entails a narrow view linked to test scores in literacy and numeracy. The study by Wydick et al. (2013), discussed in Section 4.1, using data from six countries participating in the civil society/ church-based initiative of the *Compassion International Child Sponsorship Program* suggests that the educational enhancements, such as in spiritual instruction, tutoring, health care and other group activities provided by the after-school programme were an important addition to the financial support given by the scheme in showing such positive long-term effects of the children - both boys and girls. Chambers and Schreiber (2004) studied the effects of extra-curricular activities on girls' learning achievement in Grades 8 and 10 in four subjects in the USA. They found that in-school academic organised activities (such as clubs), out-of-school academic non-organised activities (such as homework) and out-of-school non-academic non-organised activities (such as chatting with friends) seemed to have a positive effect on learning achievement in all subjects amongst girls from different ethnic backgrounds - although television had a significantly negative effect. Unterhalter and Heslop (2012) assessed the outcomes of a set of combined interventions associated with the establishment of girls' clubs, and training teachers in participatory methods, coupled with building community participation to support enhanced school governance and the promotion of gender equality, and showed that the more in-depth the intervention, particularly with regard to girls' clubs, the more articulate girls were about claiming their rights. This study, and a number of others looking at the impact of girls' clubs, are discussed further in Section 4.3. All these studies suggest that out-of-school formal and informal activities could be important for learning improvement in girls when clearly linked with formal provision in school.

School organisation, governance and mainstreaming

The ways in which interventions with regard to **school organisation** and **governance** have a bearing on quality and equality is not well documented, but a few studies show how it might be associated with increasing girls' educational chances but also unfortunately

4. Evidence on the expansion and improvement of girls' education and gender equality

increasing their social and gender inequality. Laugharn's research in Mali (2007), for example, showed how local governance organisation and school committees, while supportive of some groups, notably those that held local political and social power, contributed to the exclusion of others, in this case nomadic pastoralists, who were excluded from local decision making. This is confirmed in work by Ramachandran (2004), which looked at the impact of India's District Primary Education Programme on the schooling of girls and children from marginalised groups. Micro-level community studies conducted as part of their overall analysis revealed how in some cases community management systems were simply upholding the interests of dominant groups. However, in Tamil Nadu, where participation by women's self-help groups and local dalit groups was linked to political activism, it played an important role in supporting improvements for girls. The involvement of women in school governance and community mobilisation has been documented in a few studies, linked with girls' attainment. Unterhalter and Heslop (2012), assessing material from the TEGINT baseline and endline studies, showed that a greater presence of women on school management committees and greater activity by school governance structures in relation to gender equality and social inclusion was associated with a larger proportion of girls confident to report incidents of gender-based violence. Beaman et al. (2012) established that women in leadership positions at village level in India have a positive impact on girls' schooling and learning outcomes as assessed by a reading test.

There is currently not much analysis available of interventions which seek to change the gender norms of a whole school. However, Bajaj (2009) in a study of a low-cost private school in Zambia looked at the distribution of tasks in school, such as cleaning. Through the analysis of observations, interviews, student diaries and surveys conducted in this school and in government schools, she showed that male and female pupils who attended schools which adopted a more gender equitable ethos - for example, requiring both boys and girls to participate in school cleaning activities - expressed views that were more inclusive.

Interventions to introduce specific **gender education policies** within the framework of legislation on EFA or wider attention to women's rights in land, equal pay or attention to redressing gender-based violence, early marriage or child labour, have begun to be documented (Arnot, 2007; Field and Ambrus, 2008; Unterhalter, 2013, Unterhalter, 2012b; Woldehanna et al., 2005). Partial success is associated with **gender mainstreaming** as an approach to changing institutional cultures. Miske et al. (2010) looked at applying gender mainstreaming at the field level in the context of work of the NGO CARE in Mali and Cambodia, Karlsson (2010) in a provincial education department in South Africa, Dieltiens et al. (2009) in the South African central government department and Unterhalter and North (2011) in a multilateral organisation and an NGO. Seel (2007) reports on System Wide Action Plans (SWAPs) as a form of gender mainstreaming, describing attempts at addressing social exclusion, including gender-based exclusion, across the education sector. All find that translating policy on gender and education into practice that enacts gender equality requires considerable resources in terms of money, time, skill, support and opportunities for critical reflection and communication, way beyond that planned for or provided. Attempts by the powerful to block or frustrate implementation is somewhat understudied, although this has been documented with regard to gender and education initiatives for Laos (Silfver, 2010) and Gambia (Manion, 2012).

There is thus a gap with regard to understanding the governance mix that is associated with supporting strategies for girls' education and linking these with policies and practices for gender equality. We look at this issue further in Section 4.4. But there is clearly also a gap with regard to understanding different governance strategies and how they may or may not affect learning outcomes at the classroom level.

Conclusion

Complex challenges are entailed in improving girls' access to school, ensuring full participation in a wide curriculum, improving learning and attainment. There are no studies which provide in-depth examination of this process and what can be learned from it at the level of the school and the education system. With regard to what works, it is hard to disentangle endogenous effects. However, the strongest evidence of what works is associated with improved training of teachers, both to higher levels of subject area expertise and professionalisation, and with specific attention to the needs of girls and gender equality, and fostering collaborative learning styles. There is also stronger evidence of the effects of extra-curricular activities in improving girls' knowledge, confidence and capacity to challenge gender norms. The employment of women as teachers appears promising, but it is difficult to isolate the effects of this conclusively, and a number of studies show that teachers' knowledge, attitudes and level of support are crucial rather than gender. Gender mainstreaming or appointment of women to local positions of leadership in and out of schools appears promising, but there are too few studies of long-term effects to draw definitive conclusions. There is also promising evidence that a co-ordinated, combination of a 'quality mix' which combines resource interventions, teacher training and support and extra-curricular work with girls can produce good results. It is unknown how the form of school organisation (state, private), form of education system organisation (centralised, decentralised), and approach to teacher training (in colleges, in schools, in higher education institutes, with or without regular INSET or CPD) relate to access, participation or outcomes for girls. The evidence suggests that the different outcomes for girls in single-sex and co-educational schools are intertwined with local histories of school provision, and so we caution against over-generalising from these studies. Considerations of the potential of single-sex schools need to take into account the specific dynamics of local contexts.

4.3 Interventions to change gender norms and enhance inclusion

The third form of intervention outlined in the ToC concerns changes in gender norms and processes that improved participation in decision making and reflection by girls and young women, with emphasis on the most marginalised. Often these interventions are concerned with change in attitudes and practices at personal and/or interpersonal levels. Compared to the interventions discussed in previous sections, a much smaller body of high-quality material dealt with this form of intervention. The key areas that researchers have considered in terms of interventions to change gender norms, address exclusion and enhance participation by women and girls are listed in Box 4.3.

Box 4.3: Interventions to change gender norms and enhance inclusion

<p>Changing gender norms and female participation through education programmes</p> <ul style="list-style-type: none"> • Learning space and girls' clubs • Sex education • Literacy programmes • Tackling gender-based violence in schools • Work with boys on gender equality • Engaging with faith communities 	<p>Including women from marginalised groups in reflection, decision making and action</p> <ul style="list-style-type: none"> • Work to include marginalised girls • Supporting young women to proceed to higher levels of education • Developing combined programmes which link gender equality in schools with adult literacy, health, economic empowerment and/or women's rights programmes
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4. Evidence on the expansion and improvement of girls' education and gender equality

Norms associated with gender inequality pervade the public and the private sphere and may contribute to the blocking of reform for enhanced girls' schooling and gender equality by powerful male elites (see for example Unterhalter et al., 2012b). They are often associated with sites of deep emotional importance, such as the family, or religious or national affiliation. Their complexity and some of the implications for educational change are only beginning to be understood (DeJaeghere et al. 2013). For example, there is a literature on sex education, much of it developed in response to the HIV epidemic, which looks at questions of sexuality and some aspects of gender relations, but often without comment on the wider social context in which various sex education programmes are to be adopted (Bandiera et al., 2012; Cowan et al., 2008; Fitzgerald et al., 1999).

Gender-based violence

This work linked to the HIV epidemic has also been instrumental in beginning to shed light on gender-based violence, particularly in sub-Saharan Africa, but studies on gender-based violence in schools have tended to be small-scale qualitative studies, concerned with tracing the relationship between gender norms, identities and violence in order to inform intervention, but not yet providing a strong evidence base about interventions (Leach and Mitchell 2006; Moore et al., 2008; Parkes and Chege 2010).

Very few interventions that work on gender-based violence in school have been rigorously evaluated, and a review of these concludes that evaluations to date have been poor (Leach et al., 2012). One exception is the work by Parkes and colleagues (Parkes and Heslop, 2013; Parkes et al., 2013) researching the implementation of the *Stop Violence against Girls* project co-ordinated by ActionAid in Ghana, Mozambique and Kenya. They found that an intervention that combined girls' clubs with forms of community dialogue and in-service training for teachers, school management committees and others, led to changes in attitudes to gender and violence, and knowledge about how and where to report incidents of violence. However, changes in attitudes and knowledge did not always lead to increased levels of girls reporting the violence they had experienced. Where girls' clubs enabled open discussion on intimacy and sex and relationships, increased reporting of violence was observed. However, such discussions were easier in peri-urban communities with better access to services and networks beyond the community, than in remote rural communities. The authors cautioned against a one size fits all intervention to attempt to change the gendered and sexual norms that underpin gender-based violence (Parkes et al., 2013).

Gendered processes of marginalisation and exclusion in education decision making, reflection and action have begun to be noted relatively recently (Greany, 2008; Manion, 2012; Unterhalter et al., 2013), but a large body of work that addresses this has not yet emerged.

The work reviewed for this section takes three forms. A number of the studies of the effects of sex education take the form of RCTs. Surveys with relatively large samples are also used in assessing what is learned in programmes which aim to change norms. Thirdly, a number of in-depth qualitative and ethnographic studies investigate in detail some of the fine grain of changes that do and do not appear in interventions to challenge norms and increase women's and girls' participation.

Engaging with faith communities

Religious affiliation and practice is a key site for developing and changing gender norms, not least because work in education takes centre stage in virtually all faith communities. Relatively few studies deal with religion, education and shifting gender norms, and a number indicate how difficult this process is. However, they note the importance of key individuals, the significance of supportive networks within faith communities, and the potential for religious institutions to be sites for critical reflection on gender norms

(Walton, 2013; Zents, 2005). Doctor's statistical study of religious affiliation and women's schooling in Malawi (2005) suggests that there are important differences between the educational opportunities given to girls by the various denominations. This study indicates that girls' access to school is improved in urban areas, where they are more likely to take control of their lives, including the age of marriage, which is itself related to religion. This suggests that education itself is an intervention into cultural gender norms. However, although the study reveals clear differences in the relationship of religion to education, why some denominations are associated with the schooling of girls and others not is not analysed. Clearly more research is needed on engaging with faith communities in expanding and improving girls' education and reflecting on gender equality.

Sex education

Sex education is a key terrain for engaging with gender norms. In the context of the HIV and AIDS epidemic, a large amount of work has been conducted on this, much of which has taken account of personal, social and health issues, but not all of it focused on shifting gender norms. Often programmes focused on giving information on safe sex and did not deal with other sites of gender inequalities and strategies for equality. There is reasonably strong evidence that teaching about personal, social and health issues linked with sex education is effective in providing knowledge and building confidence. These studies report on work both at school and in complementary programmes (Bandiera et al., 2012; Cowan et al., 2008; Fitzgerald et al., 1999).

A number of studies show how particular combinations which provide appropriate knowledge and attend to reflective learning succeed in reducing gendered risk behaviour. Mbizvo et al. (1997) analysed the impact of an intervention focused on reproductive health biology and contraception education which aimed to increase reproductive health and sexuality knowledge among teenage pupils (male and female) in schools in Zimbabwe. The results indicated that those who attended the programme better understood how to prevent pregnancy than the control group, but that there were still limits in their knowledge concerning menstruation. Fitzgerald et al. (1999) tested Western approaches to discussing sexual risk and relationships with boys and girls in Namibia, and found that, post-intervention, there was more acceptance among both girls and boys that young people could be intimate without having sex; both sexes understood about using condoms and were prepared to use them. Pre-intervention, there had been more marked differences between the groups on these issues. It can be seen that both these studies, while rigorous in design, were quite narrow in the range of areas concerning gender norms that they sought to shift.

Learning spaces and girls' clubs

In contrast with the somewhat narrow focus of the sex education programmes reviewed for this study, there is good evidence from an emerging body of literature, that using complementary learning spaces to school (e.g. NGO programmes, girls' clubs or clubs where girls and boys have space to reflect on aspects of gender) are very effective in giving opportunities to discuss gender equality, develop confidence to strategise for the future and reduce risk-taking behaviour. Murphy-Graham's in-depth research study (2010) analysed the effects in a rural Honduran Garifuna community of an innovative NGO run secondary education programme, which aimed to build young women's knowledge, self-confidence and awareness of gender equality. Outcomes from the programme included young women being encouraged to form opinions, to speak out in public, to find support in other women and to negotiate with husbands about their domestic lives, personal relationships, aspirations and opportunities.

Gains in confidence have also been associated with participation in girls' clubs. Bandiera et al. (2012) used a RCT to study girls who were members of the *BRAC Uganda Empowerment and Livelihoods for Adolescents* (ELA) programme. This was not a school-

4. Evidence on the expansion and improvement of girls' education and gender equality

based programme, but operated at a fixed meeting place within each community, offering life skills and vocational training to girls aged 14-20. Girls were surveyed at baseline and then again two years after the programme had been rolled out. Participation in the programme was seen to delay girls getting married and having children, to increase their capacity to say no to unwanted sex, and to increase their engagement in self-employment activities. Unterhalter and Heslop's discussion of the TEGINT project in northern Tanzania and northern Nigeria (2012), considered in Section 4.2, reviewed the differences between girls who did and did not participate in girls' clubs organised by the project. They found that girls who attended clubs regularly had opportunities to discuss and reflect on reproductive rights and gender equality, and to participate in a range of sport, art and social activities and in a programme of visits away from their village. Those girls were more articulate about claiming their rights to education and being able to challenge gender-based violence than girls who were not in clubs. Parkes et al. (2013) followed girls in clubs associated with the Sexual Violence against Girls in Schools (SVAGS) project in Ghana, Mozambique and Kenya and found participating in the clubs helped girls to become more knowledgeable about what to do when faced with violence, and to gain confidence to discuss issues like the importance of girls' schooling with others. However, the success of the clubs in enabling girls to speak out about sexual violence was closely related to community contexts, underlining the importance of interventions on norms to be carefully tailored and negotiated at local level. Bandiera et al. (2012) similarly identified positive effects on adolescent girls of membership of girls' clubs in the ELA programme in Uganda, particularly in improving girls' knowledge of HIV and birth control.

Work with boys

Only a small amount of research was included in this review on interventions with boys to build support for gender equality or to understand aspects of their sexual identity, as the search terms did not specify work in this field. However, some studies included in the review indicate this is an important area for further literature review and research. Lloyd et al's (2000) study of Kenyan schools found that that girls were significantly more likely to drop out of schools where boys were left free to harass them and where girls' unequal treatment was not recognised by boys, than where boys were more respectful and sensitive to them. Ssewamala et al. (2010) used an RCT to evaluate an economic empowerment programme in rural Uganda that was offered as a supplement to the care provided for girls and boys who were AIDS orphans. The additional programme, which complemented provision in school, offered support on asset building and financial planning to save for secondary school. They found that participation in the programme had more striking effects on boys, compared to girls, in reducing risk-taking behaviours. Some of these risks were associated with gender inequalities, indicating the potential of further interventions of this nature with marginalised boys. Gervais (2011) conducted research with 69 Quechua adolescent boys to track their changing views on gender issues as a result of their participation in a series of 45 human rights workshops. These were intended to create awareness around human rights, gender equality and citizenship. The study showed how boys who participated in the workshops showed heightened gender consciousness and changed views about women. The assessment made of their views was 'women are equal to us and cannot be used as objects'. Boys who had participated in the workshops frequently referred to ideas around sexism and patriarchy, though they also tended to see women as vulnerable and needing protection. They also reported improved relationships with girls and having more friends who were girls and being more sensitive to their worries and concerns.

Addressing and examining male and female gender identities was a key feature of an intervention based around a drama project that examined themes about gender and power in two secondary schools in South Africa at a time of high concern at the HIV epidemic and gender-based violence. Morrell et al. (2009), in reviewing responses to this over five years,

showed how difficult it was to change mores and how fragile the shifts associated with single interventions might be. The first promising outcomes from a drama initiative led to girls being offered opportunities to speak in school assembly and start a football club. However, these apparent shifts in the gender norms of the school met setbacks in subsequent years, with overtly sexist ideas being public expressed by members of the Students' Representative Council (SRC), and a lack of resources or support available to girls to challenge aspects of the wider culture around beauty pageants or virginity testing. The need for sustained work with boys and girls linked to whole-school change that was also engaged with processes beyond the school emerged as an important concern.

Including the marginalised

Interventions that seek to enhance the capacity of poor or marginalised women and girls to participate in discussing school practices and reflecting on their experiences are not well documented, but the few studies there are indicate the potential for work in this area. The study of a programme for AIDS orphans in rural Uganda discussed above (Ssewamala et al., 2010) found that girls who were in the economic empowerment programme had slightly less risky sexual attitudes than those in the control group.

Unterhalter's analysis (2012a) of data from quantitative and qualitative studies in Kenya, South Africa, Tanzania and Nigeria shows how poor girls who are able to see a range of wider opportunities - for example other girls going to school and staying there - are more articulate in analysing the problems that may confront them, in contrast to girls in very isolated, rural settings. Warrington and Kiragu's study of Maasai girls in Kenya (2011) concluded that support of key people, including parents and other family members, teachers, community leaders and NGO workers, helped them to negotiate pathways through the immense barriers they faced, as a marginalised community, in achieving their educational aspirations.

Higher education opportunities

Del Franco's study of women college (higher secondary) students in south west Bangladesh (2010) showed how having access to this level of education enhanced notions of self and participation in the public domain. The qualitative data showed subtle shifts in female agency, the capacity of young women to negotiate and define aspirations for themselves (rather than those defined by their families for them) and take control of their life choices. The effects of schooling on their personal sense of self suggested that they were more prepared to delay marriage and raise children 'in the right way' - in other words, supporting their children's learning; they demonstrated changing attitudes to their husbands, for example by desiring to work, and improved capacity for integration, understanding and work in a wider network of social relations. These micro-shifts involved shifts in self-esteem, but still within a discourse of compliance with male authority in the household, restrictions on their sexuality, concerns for reputation and limited options in the labour market.

Literacy programmes

Although women's literacy programmes are not a primary focus of this review, many studies suggest that they can be a key area for transforming gender norms and identities, particularly when they offer women and girls the chance to develop gender awareness, as well as literacy knowledge and skills. Researchers working in the field of adult literacy have questioned assumed causal links between women's literacy and economic development, health or fertility, and instead have highlighted the way in which literacy practices are embedded within social and cultural norms and structures of power (for example, Kalman, 2001, 2005; Puchner, 1995; Robinson-Pant, 2001, 2004; Street, 2004). A number of detailed ethnographic studies have examined the ways in which literacy practices interact with gendered power relations at the level of the family and the

4. Evidence on the expansion and improvement of girls' education and gender equality

community. They have revealed, for example how literacy sessions have provided a space for women to come together and collectively challenge male practices such as the consumption of alcohol within the community (George, 2004; Khandekar, 2009) and how participation in literacy programmes may be a way of resisting unequal relations within the family (for example, Kalman, 2001). Marphatia and Moussie (2013) show how the combination of participation in a literacy circle and a review of time use by men and women helped develop women's capacity to look at household relationships, including decisions about children's schooling. A randomised controlled trial conducted in South Africa suggested that participation in a literacy class was a key variable related to women's acceptance or rejection of intimate partner violence (Pronyk et al., 2006). Ethnographic research has also pointed to the way in which literacy programmes may contribute to changing identities among women. Robinson-Pant, in her detailed study of literacy programmes for women in Western Nepal, revealed how women participants contested the dominant model of literacy put forward by the international aid agency, which focused on form filling, keeping minutes and doing accounts in order to promote 'empowerment' through economic activity and independence, but nonetheless saw participation in the programme as being valuable in enabling them to gain a new literate identity and providing a space for them to come together as a group (Robinson-Pant, 2000, 2001).

These studies suggest that programmes that combine interventions in several domains can help to change gender relations and gender norms. Studies of adult education programmes, which were excluded from this review, offer valuable insights regarding ways to improve the quality of education for adolescents and enrich formal school experiences.

Conclusion

The research reviewed indicates that there is strong evidence from work in Africa that clubs are an important space where girls and boys can discuss and challenge gender norms, including those associated with sex, gender-based violence and school progression. There is promising evidence that interventions which focus on clubs for girls only or girls and boys, widen the horizons of children in marginalised communities. Linking these with improved communication channels, service provision for dealing with violence and sex education appear particularly fruitful. There is also promising evidence that work with adult women and men in literacy or other programmes which specifically look at aspects of girls' education yield results in terms of changing household work burdens. There is no evidence that sex education given in the form of facts about biology alters attitudes to gender norms. There is promising evidence that programmes of sex education in school that take on board aspects of examining gender relations can, if other aspects of the school culture are supportive, help to shift some gender norms.

While there remains a need to carry out more detailed research on interventions in this area, the studies reviewed indicate that programmes focusing on changed gender norms and increased female participation have considerable potential. Many of these programmes are complementary to the work of the school, sometimes taking place in schools but outside the normal curriculum, at other times taking place in communities. They provide a good platform for discussion and debate between girls, boys, parents, teachers and other community members. An important issue for future work in this area is the sustainability of these gains, since often the programmes are led by NGOs and may be time limited. Attention to how discussions and reflections on gender norms can be embedded within communities, through, for example, religious institutions, women's groups and school structures, will be important in future research on how to sustain change and participation. The review also indicates how few studies have taken account of gendered social divisions within communities, associated with poverty, ethnicity or location, and which strategies concerned with gender equality in education support wider

notions of inclusion and help advance insight and change with regard to intersecting inequalities.

4.4 Social change, girls' education and gender equality

The ToC suggests dynamic links between three areas of intervention in expanding and improving girls' schooling, reviewed in Sections 4.1, 4.2 and 4.3, and complementary processes of social change. Two nodes of social change are identified. Firstly, an **enabling environment** associated with a climate of change in support of girls' education and gender equality globally, nationally and locally, and **complementary institutional processes**. These include legal and regulatory frameworks, attention to peace and security, the terrain of the media, and faith-based organisations. A second node of social change is associated with **empowerment** as an outcome of **expanded and improved education** for girls. Although the concept of empowerment is much debated, in the ToC it is associated with the participation of educated girls and women in political, economic, social, cultural and technological fields. The ToC assumes that this leads to a challenge to gender norms and relations and a reshaping of gender relations in institutions.

The key areas in which research reviewed for this study has identified connections between girls' education, gender equality and these nodes of social change can be found in Box 4.4.

Box 4.4: Areas of connection between girls' education, gender equality and nodes of social change

An enabling environment and complementary institutional processes	Empowerment outcomes
<ul style="list-style-type: none"> • Participation in policy formation by women's rights activists • Legal reforms: minimum age of marriage, property ownership, anti-discrimination laws • State capacity to implement policy • Funding streams/gender budgeting • Labour market regulations and female labour market opportunities 	<ul style="list-style-type: none"> • Combined economic, health and education interventions • Programmes to combat violence beyond schooling

With the exception of work based on surveys regarding labour market access and participation, most of the research in this area comprises critical policy research or qualitative studies regarding policy implementation. Some investigations are based on in-depth studies relating to combined empowerment interventions for adult women. The ToC highlights how social division in the distribution of resources and contestations with hierarchies and forms of exclusion are evident in the gender norms and relations which (a) shape institutional processes, (b) limit or expand girls' and women's capacity to claim education rights and (c) challenge and change gender and other inequalities. Much of the research relating to this field documents these problems; however a few studies show how aspects of the positive feedback loop work.

Participation in policy formation by women's rights activists

A number of studies indicate that networks of women's rights activists have contributed to policy development for gender equality in schooling at global, national and local levels. Research has reported on feminist alliances pressurising the state for change in national education policy in Australia (Blackmore, 1999), England (Arnot, 2007), India (Peppin

4. Evidence on the expansion and improvement of girls' education and gender equality

Vaughan 2013), Taiwan (Lee, 2011), Scotland and Sweden (Forbes et al. 2011) and for provision at district level in India (Unterhalter and Dutt (2001). Pressure for change at the global level is also documented (Unterhalter and North, 2011). All these studies show how significant these networks are in shifting a frame of reference, and securing policy change and resources for girls' education and gender equality. But there are gaps in what we know about whether these initiatives are sustained and how much they connect with wider changes towards gender equality, or whether they elicit a backlash. Unterhalter (2007) notes how the work of international women's rights activists in the 1990s was disconnected from that of education activists, and this disconnect persisted after Dakar and the MDGs, in part because of the lack of attention to processes for making connections entailed in the MDG project (Jones et al., 2010; Unterhalter and Dorward, 2013). Nitya Rao⁹ notes that this is a feature of activism in India, where for example, early childhood care and education has been advocated by child rights and child development advocates rather than feminist groups, and a similar disconnect has been noted in South Africa (Karlsson, 2010). The dynamics associated with these networks forming and fragmenting merit investigation.

Legal frameworks

The significance of having in place key features of a national legal framework beyond the education sphere is confirmed, for example, the introduction and enforcement of age of consent laws related to marriage in early marrying societies. Each year that marriage is delayed in Bangladesh adds a fifth of a year of additional schooling for girls (Field and Ambrus, 2008). Women's legal rights to assets in land and other forms of property, regardless of her marital status, are generally associated with improved access to education (Aggarwal, 2004). Anti-discrimination laws in some countries in Western Europe and in Japan from the 1970s were associated with considerable expansion of education opportunities for girls, although not all girls were able to benefit equally, and inequality continued in many areas of employment and other areas of inclusion (Chan-Tiberghien, 2004; David et al., 1997).

Policy implementation and financing

The review indicates that it is not only girls' and women's capacity to claim education rights; also of key significance is the capacity of the state or the leadership of institutions to implement policy and to translate or carry across the agreed-upon commitments into viable programmes, projects or actions. However, when gender is a component of a particular budget stream as in the case of the SWAPs reviewed by Seel (2007), programmes for change are implemented.

The difficulties of policy implementation, *despite* commitments on paper and the presence of key champions, are reported in several articles regarding the limited resources of those responsible for gender mainstreaming in South Africa (Karlsson, 2010) and Gambia (Manion, 2012). Silfver (2010), in discussing gender mainstreaming in Laos, highlighted the international power dynamics involved, and showed how without the capacity and keen attention to the local context, gender mainstreaming could turn into a form of neo-colonialism. Unterhalter and North (2011) have documented the lack of a shared understanding of gender among elite policy makers and some of the limits this puts on policy horizons. Difficulties in taking policy to practice are noted in failures to understand problems faced by girls in rural communities (Jones, 2011), and a limited focus on the connection girls make between school and home (Unterhalter, 2013). Thus there is an interaction of differently located power structures leaving the state unable to deliver

⁹ Nitya Rao, Personal communication, 26 September 2013

gender-equitable policies to women and girls, and those in power in turn, are not able to respond and make informed demands on the state. Meanwhile past weak commitment by a government to gender equality constrains the potential scope of government action in the present - for example, Pakistan's historical underinvestment in girls' education limits the supply of teachers in rural areas and slows the potential speed of reform (Andrabi et al., 2013).

This suggests that a key area for research is to identify sites where this has been successful and what can be learned. Creighton and Park (2010) provide a historical perspective over six decades on the interaction between state efforts at educational reform and gender in Mexico. They find that policies that did not have a specific gender focus, but rather focused overall on expanding educational expenditures to build more schools and standardise access and instruction, were effective in reducing gender inequalities in educational participation; they also find that increased female labour force participation is significantly associated with a narrower gender gap in education, suggesting that reform in schooling needs to proceed hand-in-hand with attention to economic policies.

A further issue emerging from the review is that there are very real contrasts in how gender is understood, with very different levels of understanding in a range of sites where policy is implemented (Manion, 2012; Miske et al., 2010; Unterhalter, 2012b; Unterhalter and North, 2011). This is an issue for governments, NGOs (DeJaeghere and Wiger, 2013; DeJaeghere et al., 2013; Sharma et al., 2013) and private sector foundations (Moeller, 2013). There are tensions in attempting to translate or carry across (Unterhalter, 2009) the international commitments into action on gender equality and education at the local level. The idea of using or developing a shared framework such as the 'Common Indicator Framework' (CIF) developed by CARE USA (see Miske et al., 2010) seems promising. The CIF was developed as a conceptual tool for the analysis of gender dynamics in education and the way gender issues vary according to context in order to enable the development of more appropriate interventions that respond to the context, as well as changed awareness at the ground level that can trickle up to higher levels, leading to gender mainstreaming throughout operations. The analysis by Miske et al. of its use in Cambodia and Mali suggests that the development of such tool can be valuable in shaping attitudes and practice. However, other examples of this were not identified in our literature search.

Labour market participation and earnings

Women's capacity to participate in the labour market is confirmed by a number of studies as an important component of their support for education for themselves and other members of their family. However, women's access to more education does not translate into better employment in all societies, as the gender dimensions of the current crisis of youth unemployment in Europe indicate. The links between expanding education for girls and economic growth is thus not a simple one. However, there are different dynamics in many developing countries. Aslam et al. (2010) found that the income and earning gap between men and women in Pakistan and India was narrowed for those with a secondary education or more compared to a primary education. The authors found large premiums on education and skills for women in both India and Pakistan. A study of longer-term employment outcomes for lower-caste men and women in Mumbai, India according to whether they had previously attended local-language or English-language secondary schools showed how dramatically women with an English-language education were able to benefit from the new jobs becoming available in the context of rapid global change, with the result that gender inequalities in labour-force participation and earnings among this lower-caste cohort rapidly narrowed over time (Munshi and Rosenzweig, 2006).

Economic access to work and influence does not simply translate into experiences of empowerment; Para-Mallam's Nigerian study (2010) confirmed this since it indicated the

4. Evidence on the expansion and improvement of girls' education and gender equality

level of success educated women could achieve within religious cultures in terms of gaining professional employment, but also the hostility and gender discrimination they encountered verbally and structurally, at work and at home.

It can thus be seen that while opportunities for women's employment do not automatically translate into improved education, just as expanded education provision does not in and of itself lead to more access to the labour market or more respect when women do achieve success in gaining professional occupations, the relationship between the two is necessary, if not sufficient.

Empowerment outcomes

A second node of the ToC postulates that an outcome of expanded and improved education for girls would be enhanced opportunities for women to participate in reshaping gender relations in economic, political, social, cultural and technological fields; this would feed back to changes in the law and the enabling environment. We use 'empowerment' as the term for this process, although we acknowledge that there is considerable controversy regarding its meaning (Eyben et al., 2008; Monkman, 2011; Murphy-Graham, 2012; Unterhalter et al., 2013). Duflo (2012) reviewed the literature on economic development and empowerment and found that education is a necessary but not sufficient condition for empowerment: continuous policy commitment to equality for its own sake may be needed to bring about equality between men and women.

The literature on these connections found to be of sufficient quality to be in this review was small. The most direct causal links are seen in combined empowerment programmes. A Malawian study (Lindgren et al., 2005) on the views of women regarding the impact of HIV and AIDS on their lives, their roles in prevention, and the barriers they face in their prevention efforts found that education alone often succeeded only in providing knowledge. Knowledge on its own did not lead to change in the socio-cultural norms that made it difficult for behaviour change to be affected. A combination of education, female economic empowerment, leadership training and encouragement is suggested. Thus, there is a need to change the policy, laws and cultural norms that have put women in a subordinate role in the society so that they are able to engage meaningfully in efforts to curb HIV.

Hatcher et al. (2011) looked at the IMAGE (microfinance for AIDS and gender equity) intervention in South Africa, which used Freire's notion of problem-posing education to critically analyse socio-cultural norms around sexuality and HIV. They concluded that economic empowerment linked with this process of reflection could increase participants' capacity to envision a better future and lead to increased educational aspirations for them and their children and protective attitudes including reduction in risk-taking sexual behaviours.

The work concerned with education and gender-based violence beyond schooling is still emerging. A paper on Sierra Leone found that while education made women more intolerant of practices that conflicted with their well-being (e.g. domestic violence, unprotected sex), increased education had no impact on men's attitudes towards practices which might enhance women's well-being (Mocan and Cannonier, 2012). In contrast, Vyas and Watts (2009), in their systematic review of economic empowerment and intimate partner violence in 41 low- and middle-income settings, found that higher education, along with household assets, was protective against intimate partner violence, though their findings were mixed on whether women's involvement in income generation protected them from violence. Their findings correspond with Panda and Agarwal (2005), who found that owning a house or land reduced the risk of marital violence, but employment, unless regular, made little difference. Murphy-Graham's study of a Honduran secondary education programme (2008, 2012) lends some support to ways in which programmes aiming to empower women can enable them to negotiate less violent

intimate partner relationships. Overall, while there is some evidence of links between empowerment, education and strategies to address gender-based violence beyond schooling, more work is needed in this area to better understand these relationships.

Conclusion

The research reviewed looked at two nodes of social change associated with girls' education and gender equality. One focused on supporting strategies to promote policies, practices and processes in these areas through the creation of an enabling institutional environment for reform. There is promising evidence which suggests that key to this node of change is encouragement of and opportunities for women and women's rights groups in policy making (whether globally, nationally or locally) and that this needs to be combined with legal reforms that remove obstacles to women's advancement formally. The effects of these latter reforms are hard to independently assess but particularly the protection of girls from early marriage is key to facilitating their continuing schooling. There is promising evidence that the involvement of women's rights activists with government policy and financing affects the implementation of gender reforms, but their sustainability has not been researched. Local and national power structures play a role in the delivery of gender politics and complicate the process. Further agreement on what defines gender, the nature of gender equality, and views regarding gender norms and identities, would be helpful for advancement of gender reforms. The evidence reviewed therefore suggests that what works is key shifts in policy with regard to legal reform combined with the activism of a strong women's movement that keeps the implementation of policy under review.

There is evidence that educational policies which lack a gender focus may not succeed in reducing inequalities. Strategies to improve female education do not necessarily reduce barriers in access to the labour market, but are a key contributor to women gaining this access. There is promising evidence that suggests that when there are labour market opportunities, this is accompanied by growth and development of women's rights activism and engagements with education.

The second node of social change refers to the empowerment outcomes of expanded and improved education in various social, political and technological spheres. There is promising evidence that shows that expanded education opportunities for girls and women are beginning to challenge some aspects of unequal gender power. However, it is evident from the work reviewed that education cannot independently create empowerment; there needs to be continuous policy commitment. There is promising evidence that combined empowerment strategies that link health to education are potentially beneficial, as for example in the IMAGE study in South Africa, or that link education to leadership, as in work on India reviewed in Section 4.2. However, the long-term sustainability of these interventions has not yet been examined. There is thus a salutary reminder that knowledge on its own does not necessarily lead to changes in socio-economic norms.

5. Conclusion: key findings, gaps and notes for a future research agenda

The study aimed, in a relatively short time period (six months) to undertake a rigorous review of literature on interventions in relation to girls' education and gender equality. Through a systematic approach to searching and reviewing material in this area the review identified some salient features of the published literature in English. Although limited by time constraints, particularly with regard to regional reach, the review highlights a range of literature which deals with interventions concerned with resources, infrastructure and changing institutional cultures, but finds a more limited number of studies dealing with shifting norms and enhancing opportunities for participation in decision making by the most marginal. The review investigates literature which looks at the linkages suggested in the ToC that postulate a connection between a supportive climate for the expansion and improvement of girls' education, various forms of intervention and their outputs, and an outcome associated with enhanced empowerment.

The process of conducting the review entailed establishing agreed criteria for inclusion and exclusion of particular works, assessment of the weight of evidence in the studies reviewed and identifying the forms of effects of different kinds of interventions. The methods were more systematic than those used in previous literature reviews that members of the team had contributed to (e.g. Unterhalter, 2005), but also sometimes limiting because of the very narrow focus on forms of intervention, which meant that much relevant work on wider conditions associated with interventions were not included in the review. Nonetheless, the method has yielded a useful systematisation of what this body of literature reveals. A range of formally shared criteria were used to judge the rigour and weight of evidence of the studies reviewed. A number of methods were adopted to check the internal consistency of this process. However, in the course of conducting the review, the omission of an explicit category concerned with reflections on context in the assessment of rigour emerged as an area of discussion. This has bearing for future assessments of evidence in this area.

Our analysis of the distribution of literature included in this study indicates a fair range of studies across different geographical contexts, but some regions are more intensively researched than others. There is less research on urban contexts than rural, and only a small proportion of the studies reviewed deal explicitly with marginalised communities, suggesting a gap in the evidence. There are virtually no studies of conflict-affected countries, where large numbers of children are out of school or have irregular access.

There is a good body of quantitative literature, primarily focused on resource and infrastructural interventions and aspects of learning outcomes, but there is a lack of in-depth qualitative research and longitudinal studies that develop causal explanations (Maxwell, 2013). More quantitative research reviewed was ranked as high quality than qualitative or mixed methods. In order for qualitative studies to be assessed as rigorous it is important that they adopt research designs that are relevant and precise enough to address the research question, and collect and analyse data with appropriate reflexive and dialogic skills. We recommend that the concept of rigour used to assess research should be expanded to include an explicit concern with the extent to which studies pay adequate attention to context, as well as with reflexivity adopted by the researchers regarding their methodologies and analysis.

There are more studies on the expansion and improvement of girls' education, and less on its links with gender equality within and beyond schools. The existence of a positive feedback loop, where educated girls and women are able to change education and other institutions, draw in the support of men and boys to challenge gender inequalities, and support enhanced women's participation in the political, economic, cultural and social

spheres, remains rather under-researched. This suggests that it may be useful to consider moving away from an exclusively girl-focused agenda and towards a gender-focused agenda. Latin America, and its continued gender inequalities, justifies this approach. Currently the gender gap favours girls, yet the region faces many obstacles to attaining gender equality. Similar comments have been made regarding the United States, the EU and Australia. In some of the literature reviewed, there are indications of a 'backlash' because of the support for girls' education. This might have the result that efforts to promote gender equality become undermined and lose credibility. This emphasises the importance of developing research on girls' education and gender equality in school and the ways in which it links with other processes beyond school.

In response to the two elements of the research question, we conclude by drawing out key features from the research and what appear to us as important areas for a future research agenda.

5.1 Resource and infrastructural interventions

Our analysis of the literature indicates that poor families are more likely to educate their children, particularly girls, when provided with some additional resources to cover some of the direct and indirect costs of their school attendance. The effectiveness of resource interventions depends on careful targeting of educationally under-resourced families and the thoughtful design of critical programme features such as the specific grades when dropout risks, particularly for girls, are highest. The cost-effectiveness of resource interventions depends on finding the lowest value of a stipend that will assure meaningful effects, particularly for girls. Resource interventions can be more cost-effective when introduced in settings where schools are accessible and of reasonable quality. When reasonable quality is not present, there is the danger that gains in enrolment can be erased by declines in quality. Complementary in-kind health interventions can enhance enrolment and learning gains for both boys and girls.

From our rigorous review of the literature, we consider current research priorities for **resource interventions** to be:

- Longitudinal studies which follow cohorts of children who have been exposed to these interventions in order to assess longer-term effects for gender equity in early adulthood
- Randomised interventions to test the benefits for enrolment, retention and learning of providing girls and their parents with accurate information about the social and economic returns to secondary school completion, including the specific return on English language education
- In-depth qualitative studies that look into the ways in which resource interventions in cash or in kind are understood and used by school communities, taking account of local relations of power and social divisions.

Our key findings from our discussion of **infrastructural Interventions** highlight that school proximity is differentially important to girls. There is no evidence that toilet provision for girls makes any difference to their school attendance. Interventions that provide 'girl-friendly features' differentially improve enrolment and learning for girls. Interventions that combine resource support with intensive after-school learning enhancements focusing on the development of personal and social competencies also have the potential to empower girls.

We consider some key gaps in relation to research on **infrastructural interventions** to be:

- More specific identification of what comprises the most critical features of school infrastructure for sustained enrolment and learning achievement for girls

5. Conclusion: key findings, gaps and notes for a future research agenda

- Qualitative work on school transport, boarding schools and aspects of the journey to and from school, taking account of adolescent girls and participation at junior and senior secondary levels.

5.2 Interventions to effect institutional change

Our analysis suggests that the processes of institutional change required to support girls' access to and participation in high-quality, gender-sensitive and empowering schooling are complex, and require attention to both whole-system reform and institutional change at the school and classroom levels.

Education system reforms

The research reviewed has emphasised the significant impact that having well-trained teachers can have on girls' schooling and attainment and points to the need for interventions that engage with teacher education, training, attitudes and levels of support. This includes both initial teacher training and appropriate INSET training, which not only improves teachers' overall levels of qualification but also enables them to engage explicitly with ideas around gender equality. Our findings also suggest that investing adequate resources to implement gender mainstreaming at different levels of the education system is important for embedding a concern with gender in educational institutions.

From our reading of the literature, we consider current research priorities for **education system reforms** to be:

- Randomised studies of alternative approaches to gender training for teachers
- Qualitative studies at classroom level that examine how and why teachers and teacher trainers draw on their training on gender equality issues in their own teaching practice, and how learners respond to this
- Qualitative investigations into gender mainstreaming efforts in school governance
- Examination of how forms of state provision (centralisation, decentralisation, funding modalities) might or might not be associated with expanding girls' education and gender equality.

School and classroom reforms

Our key findings from our discussion of literature relating to institutional reform processes at school and classroom levels suggest the importance of a 'quality mix', involving a range of different interventions that are closely attuned to the particular local context. This includes explicit concern with gender equality in teaching, learning and management, including attention to the curriculum, learning materials and pedagogical practices. It may involve supporting women in educational management positions and the employment of female teachers.

From our reading of the literature, we consider current research priorities for **school and classroom reforms** to be:

- In-depth qualitative studies that examine why particular classroom strategies and pedagogical practices (for example group learning) have particular gender effects
- Quantitative studies that enable a more specific identification of what comprises the most critical features of the 'quality mix' in enhancing gender equality and girls' empowerment within schools.

5.3 Interventions to change gender norms and increase female participation

While the research discussed in this review indicates that programmes focusing on changing gender norms and increasing female participation, which often take place outside the normal curriculum, can be key to enhancing girls' schooling and gender equality beyond the school system, interventions in this area are considerably under-researched and under-resourced. We therefore suggest the following as priorities for future research:

- Investigation into better understanding of different faith communities and their approaches to and engagement with girls' education
- Qualitative and quantitative research examining the role of learning spaces outside the formal school curriculum/timetable, including girls' clubs, and their impact on gender norms and attitudes as well as on girls' learning outcomes. In particular, these studies should be used to attempt to inform/motivate innovation in the formal school sector
- Studies examining the impact of interventions to tackle gender-based violence and to support the learning of girls from marginalised communities
- Qualitative and quantitative research examining interventions with boys and men to change gender norms and identities
- Research which engages more deeply with issues of marginalisation and explores how social divisions between girls relating to disability, ethnicity or class interact with forms of gender identity and affect processes concerned with increasing gender equality.

5.4 Interventions that link social change, girls' education and gender equality

The research discussed in this review looks at two kinds of social changes associated with the expansion and improvements of girls' education and gender equality. Firstly, changes in the legal and regulatory framework which support policy and practice in both areas, and secondly, links between girls' education, gender and women's empowerment outcomes that deepen processes to develop gender equality. Research here is still emerging, although it touches on key processes, particularly the links between school education and addressing gender-based violence, and links with economic, political and cultural participation.

We suggest developing a research programme to expand this area of investigation to include:

- Historical studies of networks for policy change that identify how women's activism has been mobilised around specific changes in education, legislation, media provision and funding flows
- Qualitative and longitudinal studies which look at the effects of combined empowerment strategies on gender-based violence beyond school, gender norms and girls' education.

5.5 Combined interventions

As highlighted in the preceding sections, a number of studies included in this review point to the value of combining a range of interventions in order to enhance girls' participation in school, the quality of education they receive and the extent to which this is empowering to them and promotes broader gender equality outcomes. Examples of this include evidence that effectiveness of infrastructural interventions are enhanced when they are linked with processes associated with learning and teaching and that a range of infrastructure interventions combined with interventions concerned with institutional

change can be important in developing girl friendly schools, with positive outcomes on girls' learning experiences. We therefore recommend that future research pays close attention to the interconnections of different sorts of interventions, how they interact with reforms in other social development sectors (e.g. health, social protection, democratic governance), and their relationship with gender equality more broadly.

5.6 Addressing context

The research reviewed in this report suggests that aspects of context can be critical to the development and impact of different forms of intervention. However, we also found that context is not given sufficient consideration in a number of research studies investigating interventions for girls' education. This is of particular concern when conclusions are suggested that a particular intervention may work in many different settings, and not sufficient attention is given to the particular conditions that made it appropriate in the setting in which it was studied.

We recommend that in developing future research and considering interventions, particular attention should be given to features of context. Our review of the literature suggests that key elements of persistent areas of social division are associated with this field of enquiry, and these need to be taken into consideration when researching or developing interventions to improve girls' schooling and enhance gender equality. This list comprises:

- Socio- economic status/class (understood both in term of access to economic, political and social/cultural capital)
- Race
- Ethnicity
- Location (i.e. social and material access to infrastructure and resources)
- Levels of discrimination and exclusion associated with disabilities
- Levels of confidence in reporting of aspects of violence

However, in our view, features of inequality are context-specific and, just as we are concerned that there is no one size fits all intervention, we would also caution against a canonical list of social divisions for all contexts.

5.7 Ensuring research quality: developing practitioner research and enhancing Southern research capacity

A considerable body of grey literature developed by NGOs and multilateral agencies was excluded from the analysis for this report as studies did not meet the requirements for rigour which led to research being ranked as medium or high quality. This literature - which is often targeted at a policy or advocacy audience - highlights interesting examples of innovative work and promising interventions being carried out by NGOs and other agencies. However, the methods used to collect the data and develop the analysis used in the case studies provided are often not described, and there is often little or no reflection on the role of the researchers in the projects discussed. Sometimes raw data is presented, with no attempt to synthesise or analyse its implications. There is thus a considerable lost opportunity to tap into the experiences of practitioners on the ground in understanding the processes of change associated with NGO and other projects. However there are some examples of good practice, whereby NGOs have partnered with external institutions to develop research around particular programmes. The action research strategies that NGOs adopt are often very fruitful areas for further methodological reflection, but these processes tend not to be documented. More generally, there is a need to ensure that research undertaken in association with particular projects and programmes is based on clear research questions, methodologies and analytical frameworks, and that these - along

with reflection on their implications and limitations - are clearly documented in the literature produced.

A feature of this review was the under-representation of work by researchers located in the global South. This is a considerable gap for this field of enquiry, indicating the limited circulation of the work of these scholars, but also suggesting the importance of developing policy which aims to enhance research capacity, publication and dialogue on girls' education and gender equality with researchers located in the global South.

5.8 Prioritising for a future research agenda

The topics suggested for future research outlined in Sections 5.1-5.5 are not prioritised. However, the recommendation from this review is that particular attention be given to the gap in research on norms and inclusion, and that the areas of intersecting inequalities associated with particular contexts of exclusion come high on a list for future research. This, in our view, will help provide information and understanding to help realise some emerging features of the post-2015 framework concerned with addressing equity and the interconnectedness of education and social change in all areas, most notably with regard to gender equality.

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Appendices

Appendix 1: Search strategy

Search terms run by data based searched. Those shaded grey were selected for further analysis.

Eric

General/by region

Search terms	Number of documents	Abstract only search ¹⁰ (all words)	Abstract only gender/girls ¹¹
Girls and Africa	178		171
Girls and Africa and School			113
Gender and Africa	520	273	
Gender and Africa and School			173
Gender and Africa and Equality/Equity	75		63
Gender and Africa and school and Equality/Equity			28
Girls and Asia	11		106
Girls and Asia and School			67
Gender and Asia	277	100	
Gender and school and Asia			103
Gender and Asia and Equality/Equity	42		41
Gender and school and Asia and Equality/Equity			14
Girls and “Latin America”	23		
Girls and school and “Latin America”			12
Gender and “Latin America”	74		
Gender and school and “Latin America” and equity/equality			4
Gender and Poverty	728	411	
Gender and Poverty and	105		

¹⁰ Search terms had to appear in the abstract.

¹¹ Either gender or girls (as appropriate according to search terms used) had to appear in the abstract, but not the other search terms used.

Search terms	Number of documents	Abstract only search ¹⁰ (all words)	Abstract only gender/girls ¹¹
Equality/Equity			
Girls and school and “developing countries”			49
Gender/Girls and school and “developing countries”			83
Gender and “developing countries” and school and Equality/Equity			12

By focus country

Search terms	Number of documents	Abstract only search (all words)	Abstract only gender/girls and countries
Gender/Girls and Morocco	22		
Gender/Girls and Tunisia	11		
Gender/Girls and Peru	29		
Gender/Girls and Ethiopia	41		
Gender/Girls and Ghana	89		
Gender/Girls and Tanzania	56		
Gender/Girls and Malawi	39		
Gender/Girls and Bangladesh	79		
All countries and gender/girls and schools			120

Selected searches combined to remove duplications before importing

ERIC - total imports from combined selected searches: 346

Medline

Search terms	Number of documents	Abstract only search (all words)	Abstract only gender/girls/education
Girls and education and Africa	208	74	
Gender and education and Africa	584	199	
Girls and school and education and Africa			118
Gender and Africa and school and education and Equality/Equity	36		15
Girls and education and Asia	132		

Interventions to enhance girls' education and gender equality

Search terms	Number of documents	Abstract only search (all words)	Abstract only gender/girls/education
Gender and education and Asia	414	101	
Girls and school and education and Africa			68
Gender and Africa and school and education and Equality/Equity			7
Gender and education and Asia and Equality/Equity	19		
Girls and education and "Latin America"	19		
Gender and education and "Latin America"	102		
Gender and education and "Latin America" and equality/equity	4		
Girls and school and education and "Latin America"			10
Gender and "latin America" and school and education and Equality/Equity			1
Gender and education and Poverty	659	275	
Gender and education and Poverty and Equality/Equity	38		
Gender/Girls and education and "developing countries"	729	201	
Girls and education and "developing countries"	253	65	
Gender and education and developing countries	526	147	
Gender and education and developing countries and equality/equity	42		
Girls and school and education and developing countries			132
Gender and "developing countries" and school and education and Equality/Equity			13

Search terms	Number of documents	Abstract only search (girls/ gender and countries)
Gender/Girls and education and Morocco	36	
Gender/Girls and education and Tunisia	22	
Gender/Girls and education and Peru	64	
Gender/Girls and education and Ethiopia	58	
Gender/Girls and education and Ghana	59	
Gender/Girls and education and Tanzania	104	
Gender/Girls and education and Malawi	41	
Gender/Girls and education and Bangladesh	140	
Gender/girls and education and school and all 8 countries		138

Selected searches combined to remove duplications before importing

MEDLINE - total imports from combined selected searches: **368**

Web of Science

Search terms	Number of documents	Abstract only search (all words)	Abstract only gender/ girls/education
Girls and education and Africa	195		
Girls and school and education and Africa	127		
Gender and Africa and school and education and Equality/Equity	21		
Girls and education and Asia			
Girls and school and education and Asia	20		
Gender and Asia and school and education and Equality/Equity	2		
Gender and education and Asia and Equality/Equity			
Girls and education and "Latin America"			
Gender and education and "Latin America"			
Gender and education and "Latin America" and equality/equity			
Girls and school and education and "Latin America"	12		
Gender and "latin America" and school and education and Equality/Equity	1		

Interventions to enhance girls' education and gender equality

Search terms	Number of documents	Abstract only search (all words)	Abstract only gender/ girls/education
Girls and education and “developing countries”			
Gender and education and developing countries			
Gender and education and developing countries and equality/equity			
Girls and school and education and developing countries	86		
Gender and “developing countries” and school and education and Equality/Equity	12		

Search terms	Number of documents	Abstract only search (girls/ gender and countries)
Gender/Girls and education and school and Morocco	9	
Gender/Girls and education and school and Tunisia	4	
Gender/Girls and education and school and Peru	22	
Gender/Girls and education and school and Ethiopia	15	
Gender/Girls and education and school and Ghana	35	
Gender/Girls and education and school and Tanzania	55	
Gender/Girls and education and school and Malawi	12	
Gender/Girls and education and school and Bangladesh	53	
Gender/girls and education and school and all 8 countries		

Selected searches combined to remove duplications before importing

Eldis

Search terms	Number of documents
Education and gender	2003
Education and gender and girls	667
Education and girls	904
Education and gender girls and equity	61

Search terms	Number of documents
Education and gender and girls and equality	195
Education and girls and school	551
Education and gender and school	688
Education and gender and girls and school	394
Education and gender and girls and school and equality	111
Education and gender and girls and school and equity	39
Education and gender and Morocco	18
Education and gender and Tunisia	15
Education and gender and Peru	32
Education and gender and Ethiopia	71
Education and gender and Ghana	74
Education and gender and Tanzania	78
Education and gender and Malawi	76
Education and gender and Bangladesh	119
Education and girls and Morocco	8
Education and girls and Tunisia	8
Education and girls and Peru	14
Education and girls and Ethiopia	46
Education and girls and Ghana	39
Education and girls and Tanzania	36
Education and girls and Malawi	47
Education and girls and Bangladesh	54
Education and gender and girls and Morocco	5
Education and gender and girls and Tunisia	4
Education and gender and girls and Peru	9
Education and gender and girls and Ethiopia	30
Education and gender and girls and Ghana	26
Education and gender and girls and Tanzania	22
Education and gender and girls and Malawi	36
Education and gender and girls and Bangladesh	39
Education and gender and girls and school and Morocco	3
Education and gender and girls and school and Tunisia	2
Education and gender and girls and school and Peru	7
Education and gender and girls and school and Ethiopia	23
Education and gender and girls and school and Ghana	21

Interventions to enhance girls' education and gender equality

Search terms	Number of documents
Education and gender and girls and school and Tanzania	15
Education and gender and girls and school and Malawi	26
Education and gender and girls and school and Bangladesh	26
Education within gender	832
Girls and education within gender	362
Education and Morocco within gender	10
Education and Tunisia within gender	8
Education and Peru within gender	10
Education and Ethiopia within gender	22
Education and Ghana within gender	27
Education and Tanzania within gender	17
Education and Malawi within gender	28
Education and Bangladesh within gender	47

Bridge

Search terms	Number of documents
Education (browse)	303
Girls and Education	276
Education and girls and school	67
Education and Morocco	12
Education and Tunisia	7
Education and Peru	16
Education and Ethiopia	12
Education and Ghana	17
Education and Tanzania	31
Education and Malawi	24
Education and Bangladesh	47
Education and school and Morocco	3
Education and school and Tunisia	0
Education and school and Peru	1
Education and school and Ethiopia	3
Education and school and Ghana	5
Education and school and Tanzania	3
Education and school and Malawi	7
Education and Bangladesh	10

Journals and series hand searched

Agenda

American Economic Review

British Education Research Journal

British Journal of Sociology of Education

Comparative education

Comparative Education Review

Compare

Economic Development and Cultural Change

Economics of Education Review

Feminist Africa Journal

Gender and Education

International Journal for Educational Research

International Journal of Educational Development

Journal of Development Economics

Journal of Development Effectiveness

Journal of Economic Literature

Journal of Human Resources

Journal of Political Economy

Quarterly Journal of Economics

Studies in Educational Evaluation

Women's Studies International Forum

World Development

National Bureau of Economic Research Working Papers

World Bank Research Working Paper Series

Websites searched

3IE

ActionAid

African Gender Institute

AWID

Camfed

CARE

CREATE

FAWE

JPAL

Oxfam

Plan

Interventions to enhance girls' education and gender equality

RECOUP

Save the Children

UNESCO

UNGEI/UNICEF

World Bank impact evaluations database

Young Lives

Appendix 2: Selection of key countries

To identify countries for inclusion as search terms, a first ‘cut’ was made of low- or middle-income countries which met the following criteria. In each country, since 1991, there will be improvements in four out of the following five conditions:

- increase in gender parity in enrolments in primary (1995-2011)
- increase in gender parity in enrolments in secondary school (1995-2011)
- improvement in GDI (gender development index)
- increase in GEM (gender empowerment measure)
- improvement in learning outcome measures (e.g. SACMEQ, PISA, PIRLS, TIMSS).

Five countries were identified that met these criteria. In addition, three countries which showed improvements in three out of the five conditions set out above were also identified for inclusion as, while they did not show improvements across all of the conditions, they showed particularly strong improvements in some areas. The countries selected by this process were Morocco, Tunisia, Peru, Ethiopia, Malawi, Tanzania and Bangladesh. The material supporting this selection is presented in Table A2.1. It is important to note in reviewing this table that learning outcomes for girls in Malawi and Tanzania have both improved since 2000. But, although learning outcomes for both boys and girls improved from that date, the gender difference got bigger in Malawi and did not change in Tanzania.

Interventions to enhance girls' education and gender equality

Table A2.1: Changes in GPI, GDI and GEM 1995-2011, and in attainment in the eight countries selected for review

Country	P GPI 1995	P GPI 2011	change	S GPI 1995	S GPI 2011	change	GDI 1993	GDI 2007	change	GEM 1993	GEM 2007	change	Attainment
Morocco	0.736	0.943	0.207	0.740	0.858	0.118	0.45	0.625	0.175	0.271	0.318	0.047	PIRLS and TIMSS - in 2011, girls were doing better than boys in literacy and mathematics, though overall scores were low. No information on changes in attainment
Tunisia	0.906	0.964	0.058	0.896	1.033	0.137	0.641	0.752	0.111	0.254	N/A	N/A	PISA?
Peru	0.973	0.993	0.020	0.936	0.985	0.049	0.631	0.804	0.173	0.4	0.64	0.24	PISA - significant increase in gender gap in reading between 2000 and 2009, girls doing better than boys. Scores for both increased.
Ethiopia	0.587	0.909	0.322	0.792	0.867	0.074	0.217	0.403	0.186	0.205	0.464	0.259	?
Ghana	0.906	0.998	0.092	0.727	0.905	0.178	0.46	0.524	0.064	0.313	N/A	N/A	TIMSS - The gender test score gap for 8th Grade Ghanaian students is generally moderate and in favour of boys, in both mathematics and science. In 2003, the gender gap in the mathematics score at the mean was 17 points or 6% of the mean male score and was little changed at about 21 points or 6.4% of the male score in 2007. On the other hand, the gender gap in the science score declined from 34.5 points or 12.7% of the mean male score to 29 points or 9.5% of the mean male score. Overall, there were substantial improvements in scores between 2003 and 2007.

Appendix 2: Selection of key countries

Malawi	0.916	1.040	0.125	0.678	0.915	0.236	0.315	0.49	0.175	0.255	N/A	N/A	SACMEQ - slight improvement in girls' attainment between 2000 and 2007
Tanzania	0.982	1.032*	0.05	0.824	0.875*	0.050	0.359	0.527	0.168	N/A	0.539	N/A	SACMEQ - In Tanzania mainland as a whole, the reading achievements of both boys and girls improved by about 32-score-points in 2007, but there were still gender differences in favour of boys. As with reading, in Tanzania mainland as a whole, there was considerable improvement in mathematics for both boys and girls, with about a 30-score-point increase during 2007, but the gender gap in favour of boys remained the same.
Bangladesh	0.84**	1.04**	0.2	0.943	1.140	0.198	0.334	0.536	0.202	0.287	0.264	-0.023	

*2012 data **1990 data ***UNICEF data not verified by UNESCO

P=primary; S=secondary; GDI=gender development index; GEM=gender empowerment measure; GPI=gender parity index

Appendix 3: Division of articles for review among team members

Madeleine Arnot: Sociological studies, including material on youth studies (i.e. from about age 15), and studies relating to interventions concerned with masculinities, education and the labour market, education and the reproduction of social divisions, schools and citizenship.

Cynthia Lloyd: Literature by economists on costs and benefits of education for girls, including extensive recent literature on educational interventions, such as scholarships and cash transfers and other approaches to cost reduction as well as interventions to improve access and quality, specifically for girls. These include randomised controlled trials, natural experiments and quasi-experimental designs. Evidence from longitudinal studies will be important as well in order to assess the impact of specific policies and interventions on longer-term outcomes.

Lebo Moletsane: Studies examining the impact of health on schooling and the ways in which poor health negatively impacts on the expansion and improvement in girls' education; and the impact of health-related interventions in improving schooling for girls.

Erin Murphy-Graham: Studies examining major international and national policy initiatives that focus on expanding access to and improving the quality of education for girls and those examining the linkages between girls' greater access to education and the broader development implications of expanding and improving girls' education.

Amy North: Small-scale, localised studies that used anthropological methods to look at marginalised or excluded groups with regard to specific interventions and their effects.

Jenny Parkes: Studies concerned with children's (girls and boys) responses to school-based interventions to deal with issues relating to their experiences of school, violence, conflict, children's identities and relations with parents (including aspects of child labour, girls' clubs and other NGO activities).

Mioko Saito: Studies concerned with assessment and girls' learning achievement, including large-scale assessment studies that used Item Response Theory (IRT) for test calibration in order to measure the change over time in learning achievement of boys and girls and what this tells us about the outcomes of particular interventions focused on improving girls' learning and producing gender equitable outcomes over time. Also randomised or quasi-experimental studies with control and treatment groups.

Elaine Unterhalter: Studies concerned with teaching and education management, including research on interventions focused on the role of male and female teachers (training, management, inspection, identities), pedagogies and materials, aspects of school organisation (multi-grade, single-sex schools, private schools), curriculum, vocational education, ICT, school management (including parental involvement).

Appendix 4: Coding frame: EPPI-Reviewer coding framework

Screening and allocation

Screening for inclusion/exclusion (abstracts) (screening undertaken by Elaine Unterhalter and Amy North only)

- Exclude on relevance to RQ (must have direct relevance to research question)
- Exclude on geographical relevance (must either be focused on lower-/middle-income countries or be relevant for understanding issues within them)
- Exclude on date (must be 1991 or later)
- Include for full review
- Include for context/background (does not directly answer research question but may be useful for understanding contextual issues/aspects of the problem)

Allocation according to expertise (abstracts)

This is detailed in Appendix 3.

Screening for inclusion/exclusion (full document) (each team member to screen articles allocated to them)

- Exclude on topic relevance (must have direct relevance to research question)
- Exclude on geographical relevance (must either be focused on lower/middle income countries or be relevant for understanding issues within them)
- Exclude on date (must be 1991 or later)
- Exclude on rigour/quality (judgement on overall weight of evidence based on assessment of conceptual framing, openness and transparency, appropriateness and rigour, validity, reliability/trustworthiness, cogency)
- Include on significance/influence/citations
- Include for full review
- Include for context/background (does not directly answer research question but may be useful for understanding contextual issues/aspects of the problem)

Coding/review of documents/data extraction (full team - only review those included on the basis of screening above)

Brief summary of study

Level of education

- Primary
- Secondary
- Both primary and secondary
- Post-secondary
- Other
- Not specified

Location

Does the study relate to one (or more) of the case study countries?

Interventions to enhance girls' education and gender equality

- No
- Yes
 - Morocco
 - Tunisia
 - Peru
 - Ethiopia
 - Ghana
 - Tanzania
 - Malawi
 - Bangladesh

Region (if country-specific study not relating to case study country provide info on country in relevant regional box)

- Africa (by region)
 - East Africa
 - West Africa
 - Southern Africa
 - North Africa
- Asia (by region)
 - South Asia
 - East Asia
 - South-East Asia
 - Central Asia
 - Northern Asia
 - Middle East
- Latin America and Caribbean
 - South America
 - Central America
 - Caribbean
- North America
- Europe
- Global

Funding_(provide details of specific funder in relevant info box)

- Bilateral donor
- Multilateral agency
- NGO (global/local)
- Research council
- Charitable foundations

- Private sector (includes consultancy company)
- University
- Other (specify)

Methodology and methods

Methodological approach

- Positivist
- Interpretative
- Post-positivist
- Other (specify)

Type of study and methods

- Primary and Empirical (P&E)
 - Quantitative
 - Qualitative
 - Mixed methods
 - Experimental (EXP)
 - RCT
 - Natural experiment
 - Other
 - Observational (OBS)
 - Longitudinal observational study
 - Other
 - Impact evaluation
- Secondary
 - Systematic Review (SR)
 - Other review
 - Critical policy analysis
- Theoretical or Conceptual (TC)

Information on sample

Size

Population

Observations (e.g. not people - buildings etc.)

Was there a control group?

Yes

No

Sampling strategy

Probability sample

Simple random

Stratified

Cluster

Non-probability sample

Judgement

Convenience

Quota

Not clear

Assessment of rigour

- Draws on government statistics reviewed by UNESCO or similar external body
- Draws on government statistics (not peer reviewed)
- Draws on industry/economic statistics
- Draws on surveys conducted by research teams working in/with universities
- Draws on surveys conducted by NGOs/Industry/Government/development agencies
- Draws on qualitative data collected through a long period in the field (at least 3 months or more continuous presence of research team), reviewed with participants using vernacular
- Draws on qualitative data collected through a long period in the field (at least 3 months or more continuous presence of research team), not reviewed with participants
- Draws on qualitative data collected through a short period in the field (less than 3 months continuous presence of research team), reviewed with participants using vernacular
- Draws on qualitative data collected through a short period/periods in the field (less than 3 months continuous presence of research team), not reviewed with participants and/or no vernacular expertise by lead researcher
- Were research instruments tested/piloted?
 - Yes
 - No
 - Not clear
- Peer review of research design?
 - Yes
 - No
 - Not clear
- Ethics review of research design?
 - Yes
 - No
 - Not clear
- Peer review of findings/analysis
 - Yes

- No
- Not clear

Comments on overall quality of the study and evidence presented (please explain rating where possible; refer to DFID 'How to' note for detail on each category/criteria)

- Conceptual framing
 - High
 - Moderate
 - Low
- Openness and transparency
 - High
 - Moderate
 - Low
- Appropriateness and rigour
 - High
 - Moderate
 - Low
- Validity
 - High
 - Moderate
 - Low
- Reliability/trustworthiness
 - High
 - Moderate
 - Low
- Cogency
 - High
 - Moderate
 - Low
- Judgement of overall weight of evidence (WoE)
 - High
 - Moderate
 - Low

Cautions

- Limits on language skills of research team
- Limits on analysis/interpretation of data (lack of conceptual framing, consideration of literature, selective presentation of findings)
- Other (use info box to provide details)

Interventions to enhance girls' education and gender equality

- None

Context

Can the study be associated with any key *international* moments/policy frameworks? (Where possible specify how):

- 1990 Jomtien
- 1990 UNICEF World Children's Summit
- 1995 Beijing
- 1995 World Bank Education Policy
- 2000 Dakar
- 2001 MDGs
- 2005 Beijing + 10 and missed MDG target
- 2008 Financial and food/fuel crisis
- 2008 GMR report
- 2010 MDG review
- 2015 Post-MDGs
- Other (specify)

Is the study associated with any key national or local moments? (provide details in info box)

Does the study mention any features of the global, national or local context affecting girls' education and gender equality? (List features identified in info box)

- Global
- National
- Local

Does the study mention aspects of a climate of political, cultural or economic change in support of girls' schooling at global, national or local levels? (Provide details in info box)

- Change in government
- Peace processes
- Appointment of female politicians/leaders
- Donor initiatives
- Freedom of the press
- Major advocacy campaign around girls' education
- Opposition to violence against women/gender discrimination
- New education policy
- Attitude surveys on equality
- Other

Evidence of complementary institutional processes?

- Legal and regulatory frameworks

- Right to education
- Compulsory education (5,7,9 years)
- Free education (primary, secondary)
- Outlawing of female genital mutilation
- Outlawing of early marriage
- Anti-discrimination legislation
- Legal changes on rape/violence against women
- Child protection legislation
- Quotas for women in politics at national/local level
- Minimum wage/equal pay legislation
- Legal changes on women owning assets/inheritance
- Other legislation
- Media
- Labour market
- Other

Any other aspects of context hindering or supporting intervention?

Findings

Issue/problem identified/being addressed by the intervention

- Problems of access
 - Low enrolment
 - Low retention/high drop-out
 - Difficulties with transition
 - Pregnancy/early marriage
 - Exclusion of girls from marginalised communities
 - Lack of local schools or infrastructure
 - Transport issues
 - Poverty/costs associated with education
 - Negative attitudes towards educating girls
 - Other
- Aspects of quality and the school environment
 - Poor attainment by girls
 - Gender-based violence in schools
 - Gendered subject choices
 - Gender stereotyping in text books
 - Gender stereotyping in teacher practices
 - Low participation of girls/women in school governance/decision making
 - Difficulties with language

- Other

Type of intervention(s) discussed (may select more than one - provide details about the specific intervention in the info box. See details regarding categories in interim report)

- Interventions focused on infrastructure and the distribution of resources
 - Financial support
 - Stipends
 - Scholarships,
 - Cash transfers
 - Waiving fees
 - Lower fees
 - Child support grants
 - Other
 - Infrastructure
 - Roads
 - Schools
 - Boundary wall
 - Water
 - Sanitation
 - Electricity
 - Other
 - Boarding schools
 - Transport
 - School feeding
 - Other (specify)
- Interventions focusing on policy development and changing institutional cultures at different levels (international, national, provincial or local)
 - Legislation
 - Gender mainstreaming in education administrations
 - Focus on gender and learning
 - Gender-sensitive pedagogy
 - Tuition for girls
 - Other
 - Focus on gender and teaching
 - Gender-sensitive curricula
 - Teacher training programmes
 - Gender-sensitive learning materials
 - Increasing the presence of women teachers and managers in schools
 - Involving women in community engagement and school governance

- Linking education with the labour market
- Linking education with social or sustainable development (give details)
- Developing links with health programmes (including HIV)
- Focus on reproductive rights
- Other (specify)
- Interventions which address changing norms regarding gender and girls' and women's rights and support widening participation in discussion and action for previously excluded groups and individuals
 - Girls' clubs
 - Strategies to address gender-based violence
 - Training
 - Policy
 - Work with boys/men
 - Other
 - Opening spaces for girls' voices
 - Advocacy campaigns for girls' education
 - Linking with women's rights advocacy
 - Raising awareness that girls' education does not preclude other attachments (e.g. to family, religion or friendship)
 - Other (specify)

Were two or more Interventions used in combination?

- Yes (use info box to provide details)
- No

Describe and draw out how context was considered in the intervention

Evidence of impact on girls' education (use info boxes to provide details)

- Access
 - Enrolment
 - Retention
 - Transition
 - Attendance
 - Aspiration
- Quality
 - enhanced learning for girls - e.g. girls' doing better in assessments
 - gender equitable learning processes
 - enhanced girls' voice to claim rights
 - enhanced girls' voice to challenge violence
 - Other

Evidence of impact on gender equality outcomes (use info boxes to provide details)

Interventions to enhance girls' education and gender equality

- Educated girls and women who can participate
 - Politically
 - Socially
 - Culturally
 - Economically
 - Technologically
- Changed gender norms and identities
 - In girls
 - In women
 - In boys
 - In men
 - In relationships
- Other

Evidence of positive feedback loop between impact of interventions and contextual factors? (use info box to provide details)

Confounding factors hindering the transformative potential of intervention/positive feedback loop (with relation to girls' education, gender equality or positive feedback loop - use info box to provide details)

Additional positive insights for the research question(s) (use info box to provide details)

Surprises/counterintuitive insights and unintended consequences (use info box to provide details)

Gaps and limitations (use info box to provide details)

Influence/potential significance (use info box to provide details)

Policy implications (use info box to provide details)

Theories and location within research traditions

- Human capital/economic opportunities and endowments/barriers, costs, benefits/women in development
- Locally situated relations and meanings
- Rights (in and through education)
- Capabilities
- Defining meanings of gender, equity and equality
- New institutionalism
- Critical policy analysis
- Girls' empowerment and voice
- The reproduction of unequal power relations in or through schools
- Intersectorality
- Gender mainstreaming
- Gender and Development

- Post-structuralism; post-colonial theorising
- Psycho-social theories
- Modernism
- Other (specify)

Miscellaneous notes/comments (use info box to provide details)

Appendix 5: Tables on distribution of studies reviewed by region, funder and link with global convening

Region

Table A5.1: Distribution of studies included for full review within Africa by assessment of quality

Code	high	medium	low	total
East Africa	13	10	2	25
West Africa	4	9	7	20
Southern Africa	12	11	5	28
North Africa	1	0	2	3

Although the totals were fairly evenly distributed across East, West and Southern Africa, the high-quality studies were concentrated in East and Southern Africa

Table A5.2: Number of studies included in the review for each ‘focus country’ by assessment of quality

Code	high	medium	low	total
Morocco	0	0	1	1
Peru	1	2	0	3
Ethiopia	2	2	0	4
Ghana	1	3	1	5
Tanzania	4	0	1	5
Malawi	3	3	3	9
Bangladesh	4	4	3	11

Only Malawi and Bangladesh have significant numbers of studies associated with them.

Funding

There is a roughly even spread of sources of research funding for studies in this review across Africa, Asia, Latin America and the Caribbean, but those studies focusing on Europe, North America and Australasia were virtually all funded by universities and research councils, with a few funded by the third sector.

Table A5.3: Studies included in the review by type of funder by region

Code	Bilateral donor	Multilateral agency	NGO (global/ local)	Research council	Charitable foundation	Private sector (includes consultancy company)	University	Other/ unknown
Africa	21	15	14	17	7	7	7	19
Asia	11	12	3	3	2	2	9	13
Latin America and the Caribbean	4	3	1	0	1	1	2	5
North America	0	0	0	2	0	0	2	6
Europe	0	0	0	3	1	0	0	6
Australasia	0	0	0	3	0	0	1	1
Global	1	0	1	2	1	0	3	3

Global convening as a reference point for research

A linked feature of the distribution of research and the evidence base is associated with global and national processes that have helped mobilise resources for studies in this area. Studies were coded as to whether they mentioned aspects of international mobilisation around girls' education and gender equality.

Table A5.4: Number of studies included in full review by mention of global goals

International policy framework	Count
1990 Jomtien	7
1990 UNICEF World Children's Summit	2
1995 Beijing	8
2000 Dakar	19
1995 World Bank Education Policy	2
2000 MDGs	20
2005 Beijing + 10 ¹² and missed MDG target	3
2010 MDG review	1
2015 Post-MDGs	2
Other	19
None of the above	104

¹² The Beijing Declaration and Platform for Action was agreed in 1995 and reviewed 10 years later in 2005 (Beijing +10)

While none of these moments of global policy making were mentioned in 104 studies, 20 mentioned aspects of the MDG process, and 26 mentioned the global EFA movement (7 mentioned Jomtien and 19 mentioned Dakar). This suggests that whatever the politics or internal dynamics associated with these movements, they have been supportive of some aspects of a developing research literature in this area. Interestingly only a small number (8) mentioned the Beijing World Conference on Women, confirming suggestions made in a number of studies (Manion, 2012; Unterhalter, 2007) that after 1995, the broader women's rights agenda became somewhat detached from the girls' education and gender equality in education agenda at the global level.

Appendix 6: Initial ToC (April 2012)

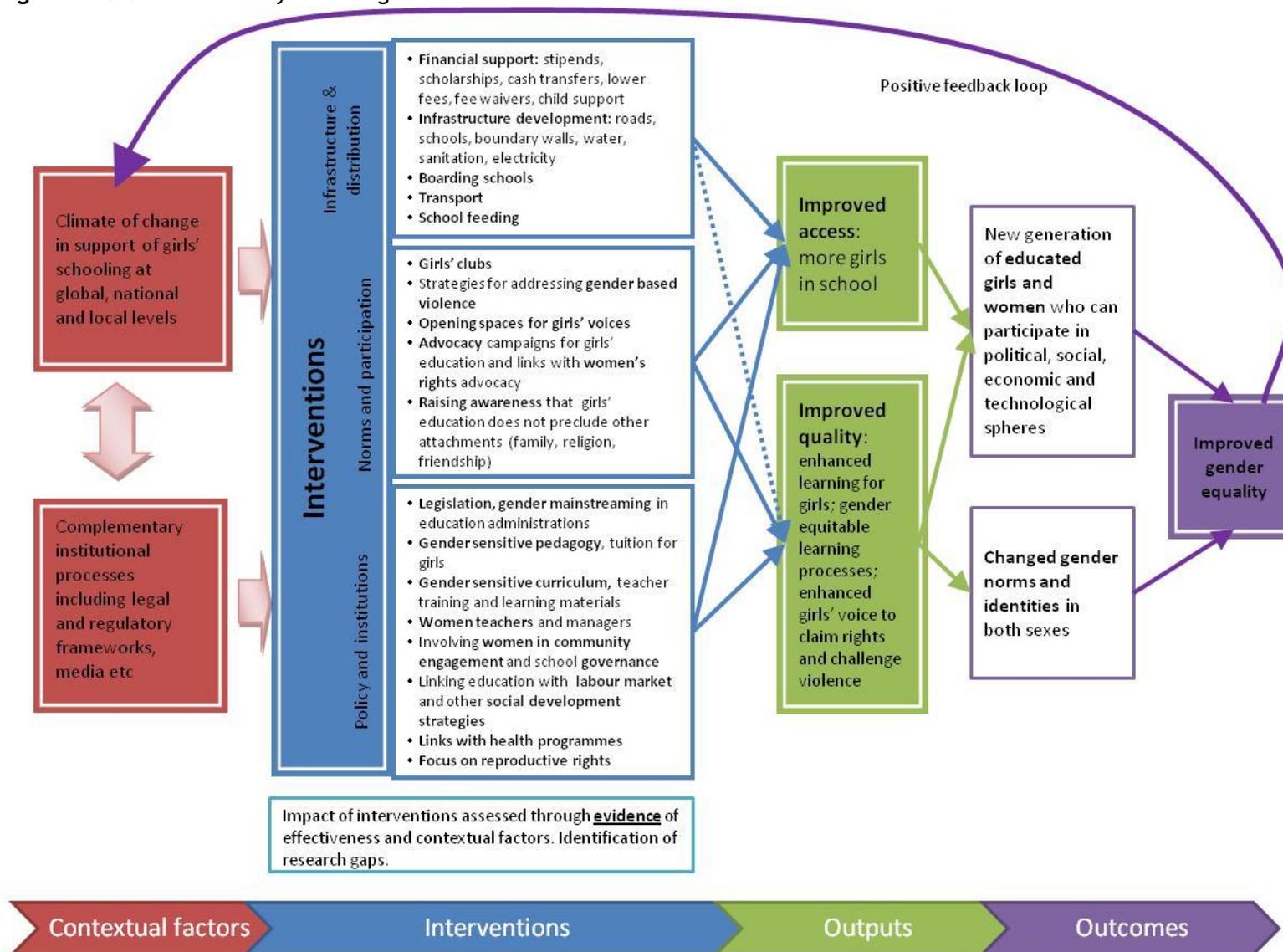
Theory of change - narrative

1. This theory of change draws on the understanding that girls' education is affected by processes within and beyond schools. The most significant of these processes are (i) the distribution of resources (for example: within households or schools, between regions or urban/rural districts, between sectors or between countries) and (ii) engagements with power, hierarchies and forms of exclusion. Fundamental to the theory of change is the understanding that gender norms and relations shape institutional processes, which have political, economic, social and cultural dynamics. These may limit or expand girls' and women's capacity to claim education rights and challenge and change gender and other inequalities.
2. A number of critical assumptions underlie the theory of change, concerning aspects of the global, national and local context in which interventions take place. These include the level or extent of a climate of support for girls' schooling (politically, culturally, economically and socially) and the existence of complementary legal and regulatory frameworks. These factors significantly influence the development and implementation of interventions for girls' education, and also their ability to contribute to improved gender equality with and beyond education.
3. The theory of change distinguishes between three different kinds of intervention aimed at improving girls' education and enhancing gender equality. These are:
 - **Interventions which focus on infrastructure and the distribution of resources.** These include the provision of financial support (e.g. stipends, scholarships, cash transfers, waiving fees, lower fees or child support grants); infrastructure development (e.g. roads, schools, boundary walls, water, sanitation, electricity); the provision of boarding schools; improved transport; school feeding programmes.
 - **Interventions focusing on policy development and changing institutional cultures at different levels** (international, national, provincial or local). These include legislation and gender mainstreaming in education administrations; focusing on gender and learning through gender-sensitive pedagogy or tuition for girls; focusing on gender and teaching through the development of gender-sensitive curricula, teacher training programmes and learning materials; increasing the presence of women teachers and managers in schools; involving women in community engagement with school governance; linking education with the labour market and other social development strategies; and developing links with health programmes and social protection (including HIV); focusing on reproductive rights.
 - **Interventions which address changing norms regarding gender and girls' and women's rights** and support widening participation in discussion and action for previously excluded groups and individuals. These include developing girls' clubs; strategies for addressing gender-based violence (for example through training, school policies or work with boys); opening spaces for girls' voices; advocacy campaigns for girls' education and linking with women's rights advocacy; and raising awareness that girls' education does not preclude other attachments (e.g. to family, religion or friendship).
4. Each kind of intervention can have a positive impact on improving both girls' access to school and the quality of education they receive (although interventions which focus on infrastructure and distribution are likely to have a stronger impact on access than on quality: this is indicated by the dotted line in Figure A6.1). However, our hypothesis is that the impact on the expansion and improvement of girls' education will be greatest when a combination of different kinds of

intervention comes together and adequate attention is paid to the context within which they occur.

5. The theory of change's conceptual pathway assumes that improved girls' education will contribute to enhanced gender equality within and beyond school: increased access to and quality of schooling for girls will result in the emergence of a new generation of educated girls and women who are able to participate in political, social, cultural, economic and technological spheres. Meanwhile, enhanced educational quality will contribute to changed gender norms, attitudes and identities in both sexes. Together, these two changes will lead to improved gender equality within and beyond the education system.
6. Through a positive feedback loop, this improvement in gender equality further encourages the development of a climate of change that is supportive of girls' education and which promotes the implementation of new interventions.

Figure A6.1: Initial theory of change model



Reflections on the initial ToC

In the course of conducting the review, a number of questions and critical reflections have emerged regarding this version of the ToC. These are:

1. Whether the link between interventions on infrastructure and improved quality outputs was weak (as we had assumed and is represented on the ToC by a dotted line) or is in fact more clearly established and needs to be represented more firmly.
2. Whether an output box regarding empowerment should be added, distinct from quality.
3. How to categorise the relation between different kinds of interventions, for example, interventions to address changing norms may be nested in interventions to change institutions. This suggests that the ToC is too flat and that the relationship between different kinds of interventions cannot be adequately captured in its current form.
4. How or whether negotiations with power could be researched. Is the key concept to investigate rather *challenges to power*?
5. How research on boys with regard to gender equality and education could be included, including boys missing out on education and boys' underachievement?
6. Whether aspects of context, for example, the expansion of free primary education, were in themselves interventions, but not adequately noted as such in the ToC.
7. Whether key areas to investigate are not only girls' and women's capacity to claim education rights, but also the capacity of governments to implement policy. Thus a key form of intervention is to translate the agreed-upon commitments with regard to gender equality and girls' education rights into viable programmes/projects/actions and to engage in particular kinds of inclusive dialogue about these processes.
8. Nuance that the ToC does not capture: There is a tension between providing services specifically for girls and many efforts to improve access/quality that are not gender specific but could have a higher impact on girls in that girls are more responsive to certain improvements.
9. Whether the ToC adequately captures reaching the most marginalised.
10. How to deal with intersectionality, that is, the ways in which gender intersects with other processes of social exclusion.
11. How negative effects and perverse consequences associated with interventions for girls' education might be incorporated into the ToC.
12. How multidimensional interventions can be incorporated into the ToC.

Appendix 7: Distribution of studies reviewed by nature of the problem identified, form of interventions and outcomes discussed

We were able to categorise studies in terms of the kind of intervention, the problems addressed and the outcomes according to the study.

Table A7.1: Number of studies featuring different types of intervention and impact on girls' education or gender equality outcomes (showing quality of study)

Code and number of studies	Intervention: access	Intervention: quality	Impact: educated women who can participate	Impact: changed gender norms and identities	Impact: other
Infrastructure/distribution of resources (74)	58 (18 high, 27 medium, 13 low)	27 (9 high, 12 medium, 6 low)	14 (4 high, 6 medium, 4 low)	18 (6 high, 8 medium, 4 low)	3
Policy/institutional cultures (94)	39 (13 high, 16 medium, 10 low)	50 (23 high, 18 medium, 9 low)	24 (6 high, 11 medium, 7 low)	29 (10 high, 11 medium, 8 low)	3
Norms and participation (57)	25 (8 high, 10 medium, 7 low)	30 (10 high, 15 medium, 5 low)	22 (5 high, 11 medium, 6 low)	35 (10 high, 19 medium, 6 low)	1

Of the 74 studies that looked at interventions concerned with infrastructure and resources, 58 suggest impact on aspects of access and 27 on aspects of quality. Of these, 14 identified an outcome indicating that educated women could participate more fully in the society and 18 indicated some change in gender norms and identities. Thus over one-third indicated some change in outcomes beyond the school system. But of this number only a minority were ranked as high quality (4 studies on women's participation and 6 studies on changing gender norms). There thus appears an important gap on the outcome processes associated with these types of interventions.

Of the 94 studies that looked at changes in policy and institutional cultures, 39 addressed changes in aspects of access and 50 in aspects of quality. Just over half of the studies commented on outcomes, with 24 indicating that educated women could participate more fully in society and 29 indicating some change in gender norms and identities. However, here too only a small minority of studies were ranked as high quality (six studies on women's participation and ten studies on changing gender norms). Thus, although there are more studies considering the outcomes of these interventions in contrast to infrastructural interventions, there remain gaps regarding high-quality research into these processes.

By contrast, of the 57 studies that looked at changes in norms and participation, nearly two-thirds were concerned with changing gender identities (10 ranked as high quality), while just over one-third looked at the actions of educated women for change (with only five ranked high quality). It is evident that research into interventions of this type has given more attention to gender equality outcomes, but here too there is a gap regarding high-quality studies.

It thus appears that there is a significant gap with regard to outcomes of interventions concerned with infrastructure, particularly with regard to changing women's participation in political, economic and social arrangements and shifting gender norms and identities. While there is a larger proportion of studies of these outcomes with regard to interventions on changing institutional cultures, the lack of high-quality studies of these effects is notable. The smaller volume of studies on interventions concerned with changing gender norms and identities has yielded more evidence on women's participation and changing social mores; however the limited number of high-quality studies is of some concern.

Examining hypotheses in the ToC

Studies were coded as to whether or not they provided evidence of three assumptions underpinning the ToC:

1. evidence regarding how contextual factors might have contributed to the results attributed to the intervention(s)
2. whether there was an element of combined interventions and evidence regarding the extent to which this contributed to the results observed
3. evidence of impact with regard to the existence of a positive feedback loop through which a climate of change that is supportive of girls' education is further developed.

Whether or not context is discussed in the studies reviewed

An assumption in the ToC was that a key aspect of understanding the relationship between an intervention and its outcome was associated with appreciating the nuance of context. However, a considerable number of studies, particularly the quantitative studies (and a number that were ranked high with regard to quality) made no mention of context.

Table A7.2: 'Quality' of study and whether it mentions different aspects of context

Code	strong	medium	weak
Can the study be associated with any key national moments?	15	35	12
Does the study mention any features context affecting girls' education/gender equality?	32	48	18
Does the study mention aspects of a supportive climate of change?	15	31	13
Does the study mention complementary institutional processes?	14	22	11
Any other aspects of context hindering or supporting interventions?	12	21	8

Table A7.3: Methodology and whether mentions different aspects of context

Code	Quantitative	Qualitative	Mixed methods	Experimental	Observational	Impact evaluation
Can the study be associated with any key national moments?	22	22	8	6	2	8
Does the study mention any features of context affecting girls' education/gender equality?	34	26	16	10	7	8
Does the study mention aspects of a supportive climate of change?	13	20	12	2	3	5
Does the study mention complementary institutional processes?	13	13	6	2	1	4
Any other aspects of context hindering or supporting interventions?	17	11	7	2	1	2

Thus of 73 quantitative studies, only 34 mentioned any feature of the historical, national or local context that would affect girls' education and gender equality. This contrasts with the 39 qualitative studies, where 26 commented on context. Less than half of the experimental studies paid attention to national or local context. Only a small minority of quantitative studies (22/73) and experimental studies (6/26) described key national moments relevant to the study, while more than half of the qualitative studies (22/39) did this. Quantitative, qualitative, mixed-method and experimental studies all tended to focus very closely on schools, with only a minority paying attention to a supportive climate of change beyond the school, complementary institutional processes or other aspects of social process that might hinder or support an intervention. Of the 60 studies ranked as high quality, over half mentioned some feature of context affecting girls' education or gender equality, but only a quarter mentioned any national policy context, or aspects of a supportive climate for change, or complementary institutional or social processes beyond the school.

Table A7.4: Type of intervention and whether context was considered

Code	Infrastructure / distribution of resources	Policy/ institutional cultures	Norms and participation
Can the study be associated with any key national moments?	24	38	24
Does the study mention any features of context affecting girls' education/gender equality?	38	57	32
Does the study mention aspects of a supportive climate of change?	21	41	20
Does the study mention complementary institutional processes?	18	28	19
Any other aspects of context hindering or supporting interventions?	18	30	18

This table indicates that context was considered in just over half the studies reviewed dealing with interventions associated with infrastructure and the distribution of resources, but that in only a third of these was context discussed as a feature of the relationships associated with success or failure of the intervention. In interventions looking at policy or institutional change generally all described the context, but only half considered whether there was any causal relationship between context and the changes observed. Similarly with regard to interventions that addressed aspects of changing norms and addressing inclusive processes, attention tended to be given to describing context, but the extent to which context could explain success or failure was considered in less than half.

Whether or not a positive feedback loop is identified

A third assumption in the ToC was that the evidence of the impact of girls' education and gender equality would be evident through the existence of a positive feedback loop through which a climate of change that was supportive of girls' education is further developed enhancing the context in which further initiatives for girls' education and gender equality were taken forward.

Table A7.4: Type of intervention and whether there was evidence of a positive feedback loop

Type of intervention	Evidence of positive feedback loop?
Infrastructure/distribution of resources	12
Policy/institutional cultures	18
Norms and participation	13

Studies associated with all three types of intervention mentioned a positive feedback loop - 12 for studies on interventions associated with infrastructure and resources, 18 for studies associated with changing policy and institutional cultures, and 13 associated with interventions to change norms and participation. However, these comprised slightly different proportions of the studies reviewed: just under a sixth of those on infrastructural and resource interventions, just under a fifth of those dealing with interventions to change policy and institutional cultures, and nearly a quarter associated with

interventions linked with changing norms. However, these figures are very small, and it is difficult to sustain the hypothesis given this range of evidence. It is clear that there is a gap with regard to studies in this area, regardless of the type of intervention.

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