

Updated stocktaking report Education sector responses to HIV and AIDS

The views presented in this paper are those of the authors and do not necessarily represent the views of Overseas Development Institute 111 Westminster Bridge Road London SE1 7JD UK

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Updated stocktaking report Education sector responses to HIV and AIDS

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Acronyms

AAU	Association of African Universities
ADEA	Association for the Development of Education in Africa
AED	Academy for Educational Development
AIDS	Acquired Immune Deficiency Syndrome
AIR	American Institutes for Research
ART	Antiretroviral therapy
AusAID	Australian Agency for International Development
CBO	Community based organization
CIDA	Canadian International Development Agency
DHS	Demographic and Health Survey
EDC	Education Development Center
EFA	Education for All
EI	Education International
EMIS	Education Management Information Systems
ERIC	Education Resources Information Center
ESART	EduSector AIDS Response Trust
GBV	Gender-based violence
GCE	Global Campaign for Education
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
HIV	Human Immunodeficiency Virus
IASC	Inter-Agency Standing Committee
IATT	Inter-Agency Task Team
IDP	Internally displaced person
ILO	International Labour Organization
INEE	Interagency Network for Education in Emergencies
KAP	Knowledge, attitudes and practices
MAP	Multi-Country HIV/AIDS Programme
MDG	Millennium Development Goal
MICS	Multiple Indicator Cluster Survey
MoEs	Ministries of education
NGO	Non-governmental organization
NORAD	Norwegian Agency for Development Cooperation
ODI	Overseas Development Institute
OVC	Orphans and Vulnerable Children
PCD	Partnership for Child Development
PEPFAR	US President's Emergency Plan for AIDS Relief
PLHIV	People living with HIV
SHN	School health and nutrition
SIDA	Swedish International Development Cooperation Agency
SSA	Sub-Saharan Africa
STI	Sexually transmitted infection
SWAp	Sector-wide approach
UAE	United Arab Emirates
UNAIDS	United Nations Joint Programme on HIV/AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNODC	United Nations Office on Drugs and Crime
VCT	Voluntary counselling and testing
WHO	World Health Organization
WFP	World Food Programme

Executive summary

This report updates a preliminary stocktaking review of research on HIV and AIDS in the education sector carried out by the Overseas Development Institute (ODI) in September 2008, and commissioned by the United Nations Joint Programme on HIV/AIDS (UNAIDS) Inter-Agency Task Team (IATT) on Education. The purpose of the initial and updating stocktaking exercises is to expand the evidence base on education and HIV and AIDS, and to identify gaps and ways of complementing and building on existing research.

A total of 133 documents were reviewed for the initial stocktaking exercise, and a further 173 documents were reviewed for this updated report. Principal sources of the literature reviewed include contributions from the IATT members and an online search including searching the Education Resources Information Center (ERIC) database. In order to focus on current evidence within the literature, this review did not include technical guidance papers, toolkits and policy documents, as were all documents published before 2000.

The stocktaking report arrives at a set of findings summarized into the following four broad thematic areas:

1. Education and HIV prevention

Despite the large number of articles and documents available on the theme of education and HIV prevention, it was evident that the potential role of education in the AIDS response has still not yet been fully acknowledged and the role of education has yet to be recognized in absolute terms. The study began by establishing the basis for educational intervention, by looking at evidence regarding individuals' knowledge, attitudes and practices (KAP) and related social risks, with the following findings:

Teachers and schools are still seen as the main source of information regarding HIV and AIDS for young people, even among out-of-school youth. However, teachers were identified having significant gaps in knowledge about HIV and AIDS, and frustration with selective teaching was apparent. No studies within this review looked at what impact this selective teaching has on educational outcomes for students. Teacher training, or rather the lack of training, is highlighted as a factor in poor quality HIV and AIDS education. Evidence relating to the impact of teacher training on positive HIV education outcomes is not well documented.

On the whole, studies found broad support among parents for HIV and AIDS education in schools, apart from one report from Nigeria, which found very strong resistance among parents.

The findings were mixed in terms of gathering evidence to show the impact of education on HIV prevention. Several studies found that the impact of the intervention varied according to the participants' sex. However, there does not appear to be a consistent pattern regarding these differences. Race and ethnicity was another factor used to disaggregate findings on impact, although it was referred to much less frequently than gender. Considerable research has also been undertaken examining the effectiveness of abstinence-based approaches to sex and HIV education, largely in the US but also in developing countries, with limited evidence to support their widespread replication.

While non-formal approaches to education are often included as appropriate strategies for reaching marginalized and out-of-school children and young people, evidence substantiating its impact on KAP relating to HIV and AIDS is less prevalent. The broad range of activities and target groups it covers posed significant challenges for researchers looking to assess impacts and compare evaluations for success criteria.

Peer education was recognized as one 'entry point' for HIV education and represents one area of non-formal education where attempts to formally document evidence of impact have been made.

The role of media and entertainment education as a non-formal delivery method has received increasing attention as an engaging and successful method of passing on HIV prevention messages. A number of studies attempted to assess the impact that media and entertainment education have on prevention indicators. However, due to the differences in the nature of the interventions they are assessing (from global media campaigns to community based drama schemes), an overall picture of their impact is not clear.

While there are a number of studies that considered the role of schools in tackling underlying vulnerabilities to HIV, few provided evidence of its impact on HIV prevention by documenting the success of specific schemes or approaches.

2. Education and HIV mitigation

It was found that the relationship between education and HIV mitigation had not been developed to the extent that education for prevention had, although there was interest in schools as sources of care and support for both students and teachers.

The role of schools in supporting students and teachers who are HIV-positive was not strongly addressed in the literature reviewed, beyond inclusion in policy recommendations and frameworks for action.

Several reports and studies established an ambitious role for schools to play in mitigating the impacts of HIV and AIDS on learners, in particular orphans and vulnerable children (OVCs). However, far fewer studies captured the reality of this provision.

Although the potential for schools to be involved in mitigating the impacts of HIV and AIDS was widely considered, there is yet to be a strong body of evidence that supports the effectiveness of this approach.

3. Impact of HIV and AIDS on demand and supply of education

The review explored the impact that HIV and AIDS has had on the demand for education on the one hand, and the supply on the other hand, focusing on evidence regarding student enrolment, attendance and success rates, as well as the impact on teachers and on the education sector more broadly.

In terms of student enrolment, there were a number of studies that tried to establish the number of orphans and the reasons for their reduced participation in education, but the results varied. Some found a strong correlation between orphanhood and reduced participation in education.

The impact of HIV and AIDS on teachers was seen a key area of concern. Attempts to map the situation have not yet been conclusive, in part due to the complexity of factors involved and the range of contexts being considered. The current study looked at what type of data is being used to assess the situation and what some of the problems are, as well as looking at the impact of HIV on teachers and the relationship between teachers and HIV risk.

Several studies argued that research is undermined by lack of quality data and adequate contextualization supporting and explaining findings linking teachers' attrition rates with HIV and AIDS, or on the impact of HIV and AIDS on absenteeism.

The increasing level of antiretroviral (ARV) treatment coverage is one factor seen as contributing to lower and decreasing teacher mortality rates.

In terms of the impact of HIV and AIDS on the education system as a whole, it was argued that policies focusing on a single factor, such as teacher supply or curricula development, will be insufficient in protecting the system. Instead HIV and AIDS needs to be mainstreamed into strategies designed to promote and protect educational quality.

Other studies argued that HIV and AIDS is not the only factor undermining the effectiveness of education systems, but it is exacerbating existing weaknesses in systems and should therefore be addressed within a wider context of meeting service delivery challenges. Again lack of data was highlighted as an issue that needs to be addressed.

4. Policy responses

Evidence related to how HIV and AIDS has been mainstreamed, first at national/country level within education policy, and secondly within education and workplace policies, was also explored. The IATT on Education 2004 Global Readiness Survey provided the most comprehensive review of the extent to which HIV and AIDS has been mainstreamed into educational policy.

Workplace policies for teachers were also regarded as a way of managing and mitigating the impact of HIV and AIDS in education institutions, as well as helping to respond to the needs of HIV-positive teachers. The role of teachers' unions in developing and supporting the implementation of workplace policies was also recognised. However, there is still a lack of full discussion as to the progress being made in this area and evidence supporting the impact these policies have on prevention and mitigation outcomes for schools and universities.

Although this study originally planned to review literature on efforts to mainstream education into HIV and AIDS policy, the searches carried out did not reveal any documents or literature on this topic. Further searches, supplemented perhaps by key informant interviews and/or case studies, may unearth documentation and attempts to mainstream education into HIV and AIDS policy.

While there is a considerable amount of information and documentation on financing of HIV and AIDS responses generally, nothing was found that focuses specifically on financing HIV and AIDS education. Another more in-depth round of searches may well reveal further studies; a further possibility is that information on this theme may be embedded in the broader literature on HIV and AIDS financing. There were, however, several studies that assessed the effectiveness and costs of preventing and treating HIV and AIDS. School-based education strategies and highly active ARV therapy were estimated to be less cost-effective in terms of averting HIV infections. Research indicated that cost reductions can be achieved when HIV prevention interventions are taken to scale. However, in general there is a striking dearth of evidence on the cost and potential cost-effectiveness of quality sex, relationships and HIV education programmes that are implemented at this level.

In terms of international support, there are some reports arguing that the international donor community has failed to deliver on its commitment to the prevention of HIV, especially with regards to supporting programmes that provide free and universal access to education. However, the UNAIDS IATT on Education report on coordination, harmonization and alignment (2008) found that development agencies can be credited with providing support to improving coordination of the HIV and AIDS response.

This report also acknowledges a number of limitations it stays with:

Although the team tried to carry out as thorough and as comprehensive a search as possible, there is no doubt that further documentation exists that has not been included in this review.

Creating a suitable framework to present the findings was challenging due to the overlapping nature of issues and the variety of perspectives they can be approached from. As far as possible, findings referred to here were used to highlight commonalities or contrasts in research. However, due to space constraints, no reports' findings were fully explored or presented, which meant that the study could not do justice to the full richness of data available.

Taking findings out of context also creates the potential for misrepresentation, where context is not fully explained or the research's intentions are not fully appreciated. Where possible, contextual details were supplied, but this report should only be used as an indicator of what evidence is available, as opposed to a complete and fully accurate reflection.

Finally, while this report attempted to take into account a number of cross-cutting issues such as gender, age and cultural context, often the literature reviewed did not sufficiently disaggregate or capture these issues. Similarly, due to limitations of time, the authors were perhaps unable to delve more deeply into the documents to extract this information.

1. Introduction

While significant efforts have been made to expand prevention and treatment of HIV and AIDS, there is ample evidence that multisectoral efforts are required at national, regional and global levels to halt the spread of HIV and to address and mitigate the impacts of the epidemic. In the context of such a response, the education sector must play a major role. Education, in both formal and informal contexts, has been shown to be critical in HIV prevention (Kelly, 2005) and can play an important complementary role in ensuring care and support for those who are affected by HIV and AIDS (UNAIDS Inter-Agency Task Team (IATT) on Education, 2008).

The UNAIDS Inter-Agency Task Team (IATT) on Education was established in March 2002 in recognition of the need to improve and accelerate the education response to HIV and AIDS. Its specific objectives are to promote and support good practices in the education sector related to HIV and AIDS; and to encourage alignment and harmonization within and across agencies to support global and country level actions. To this end, the IATT contributes to the HIV and AIDS response by furthering dialogue and understanding around the role of education and by generating documents, experiences and research that can be shared.

In September 2008, the Overseas Development Institute (ODI) was commissioned by the United Nations Educational, Scientific and Cultural Organization (UNESCO) to carry out a stocktaking review of research on HIV and AIDS in the education sector. The aim of this review was to identify research that had been carried out by the UNAIDS IATT on Education, its members and others, and to identify gaps and ways of complementing and building on existing research. A total of 133 documents were reviewed. Findings were then presented at the IATT research meeting in September 2008. Given the time constraints under which the first report was completed, it was felt that a large amount of information had yet to be 'mined' and included. Thus it was proposed that the IATT should commission a more comprehensive stocktaking exercise, which would build on the first, update it with missing and more recent publications in the field of HIV and AIDS in the education sector, and provide more in-depth analysis of the data, including an assessment of the quality of the evidence presented. With such information, the IATT would then be better able to identify the availability and gaps in the evidence base for advocating and programming education sector responses to HIV and AIDS.

Two key products have been produced in this second phase of the stocktaking: a report updating the literature review, summarizing the evidence from the research presented, and an accompanying document, commenting on the quality of the evidence and its impacts. This document is the first of the two, summarizing evidence from the literature review. Following a description of the methodology used for this review, a summary of findings by theme and sub-theme is presented.

2. Methodology

2.1 Structure and framework development

The first stocktaking report framework was organized around five key themes with further sub-themes:

- i) knowledge, attitudes and practices (KAP)
- ii) factors that contribute to behaviour change
- iii) the learning environment
- iv) impact of HIV on education systems, and
- v) policy response.

These themes were guided by the issues that emerged most clearly and repeatedly from the literature being reviewed. Although the framework for this report has not been fundamentally changed, greater links have been made to the IATT Strategic Approach's broader objectives of 'Prevention of HIV infection' and 'Mitigation of impact' and its ten key principles for an effective education response. Thus, the report is split into four broad thematic areas, with additional focus areas within the themes:

- i) Education and HIV prevention.
- ii) Education and HIV and AIDS mitigation.
- iii) Impact of HIV and AIDS on education.
- iv) Policy response.

The first focus area occupies 50 per cent of the report, a percentage that reflects the quantity and range of evidence available in relation to this theme. The additional focus areas were identified by IATT members in response to the first stocktaking report; these have increased the breadth of research included, but have also helped to highlight areas where demand for information is not met by supply.

One key issue brought up at the IATT September 2008 meeting was the need for greater clarity on a number of cross-cutting issues and in particular how the situation may differ according to gender, age, education level and within different cultural contexts. Efforts have been made, therefore, to take into account these cross-cutting themes, restructuring and/or expanding on existing text where the information is available.

2.2 Process

A number of activities were carried out in preparation for this report, these included:

- a call to IATT members for additional data, resources and publications to be included in the updated literature review
- conversations with key IATT members regarding which documents they thought were critical and needed either inclusion or further mining
- a presentation of the work so far at the June 2009 IATT meeting in order to obtain feedback and input from IATT members, and
- a further online search including searching the Education Resources Information Center (ERIC) database.

As was the case for the first stocktaking review, both grey and published materials were included in this document. A further 173 documents were reviewed for this updated report; additionally a number of documents reviewed for the first stocktaking exercise were mined in more depth in order to achieve a greater depth of understanding.

As for the first stocktaking review, it was decided to focus on research articles and publications. While recognizing the importance of toolkits, good practice guides or policy documents were largely not summarized nor included in the analysis text. Although some documents published before 2000 were included, generally the search was limited to documents published since 2000. Searches were also limited to documents that explicitly link to HIV and education; research on related fields, for example gender and education, were included if they made an explicit link to HIV within their findings.

2.3 Limitations

Although the team tried to carry out as thorough and as comprehensive a search as possible, there is no doubt that further documentation exists that has not been included in this review. In particular, searches for the final sub-themes on financing of HIV and AIDS education and international responses unearthed relatively few results. This could be explained by the fact that such documents may be less accessible through literature searches, and may require a case study and key informant interview approach.

Creating a suitable framework to present the findings was challenging due to the overlapping nature of issues and the variety of perspectives they can be approached from. As far as possible, findings referred to here were used to highlight commonalities or contrasts in research. However, due to space constraints, no reports' findings were fully explored or presented, which meant that the study could not do justice to the full richness of data available. Taking findings out of context also creates the potential for misrepresentation, where context is not fully explained or the research's intentions are not fully appreciated. Where possible, contextual details are supplied, but this report should only be used as an indicator of what evidence is available, as opposed to a complete and fully accurate reflection.

Focus 1. Education and HIV prevention

As identified in the methodology, well over 50 per cent of the articles reviewed for this report relate to this first theme of education and HIV prevention. Despite the large number of articles and documents available on this theme, it was evident from discussions at the recent IATT meeting in June 2009 that the potential role of education in the AIDS response has still not yet been fully acknowledged and the role of education has yet to be recognized in absolute terms. Whilst the supporting report presents a more in-depth review of the quality of evidence available, this report provides an overview of the issues being discussed, the types of evidence being presented and recommendations being made.

Due to the variety of angles from which this theme is addressed, there are many sub-themes included in this section. The section begins by establishing the basis for educational intervention, by looking at evidence regarding the knowledge, attitudes and practices (KAP) of students, teachers, parents and community members, as well as HIV-related risks and underlying vulnerabilities in school settings. Approximately three-fifths of the literature falls within this sub-theme.¹ The section then moves on to research that evaluates the impact education has on individual KAP and underlying risk factors, exploring also the effect education has on achieving effective prevention outcomes.

1.1 Assessing the situation by looking at individuals' KAP and related social risks

This section considers the literature that provides a picture of the situation. It first explores evidence regarding the KAP of students, before moving on to teachers and finally to parents and community members. For students and teachers, the sections are divided further into KAP for HIV and AIDS, and KAP for HIV and AIDS education. Whilst the former explores KAP issues such as knowledge of HIV transmission and prevention, the latter addresses what people know, think and do about HIV and AIDS education. For example, it is often related to how teachers' attitudes affect how they teach AIDS education. For the parents and the community, the focus is on their KAP towards HIV and AIDS education. The section then moves on to explore what the literature says about the role of schools in addressing underlying vulnerabilities.

Where available, information is disaggregated by sex and age of students and children and by different levels of schooling. The majority of evidence comes from Africa (52 studies), although there is some evidence from low-prevalence settings such as Russia (one study), the US (15 studies) and Iran (three studies).

1.1.1 Students' KAP

HIV and AIDS

The majority of information on young people's KAP in relation to HIV and AIDS is collected through self-assessed surveys. These surveys vary in scale from specific target groups within a community or region (see Halpern et al., 2008; Turhan, 2006; El-Gadi, 2008), to broader nationwide or multi-country studies (see United Nations Children's Fund (UNICEF), 2006; Biddlecom et al., 2007). Whilst the most commonly assessed factor across the situation assessment studies is knowledge, only two studies reviewed here looked at knowledge in isolation of any other factors (Vavrus, 2006; Lal, 2008). Practices

¹ A fourth category of 'behaviour' is often included within this type of assessment, but as the distinction between this and practices was unclear, the two were incorporated within the single heading of 'practices'.

were the second most consistently considered factor. Due to the range in breadth of the research, direct comparisons between findings are not always straightforward. For example, UNICEF's report on KAP in Namibia presents findings on a range of sexual behaviour indicators, attitudes towards condoms, stigma and risk perceptions, whereas other articles are more limited in the indicators addressed. For example, El-Gadi's article focuses only on stigma towards people living with HIV (PLHIV) and knowledge related to HIV transmission (El-Gadi et al., 2008).

Whilst the majority of KAP information comes from quantitative data surveys, there are exceptions that use qualitative approaches. These provide more descriptive information, especially around attitudes and practices (see Maticka-Tyndale et al., 2005; Francis and Rimmensberger, 2008; Buthelezi, 2007). As would be expected, these studies are smaller in scale but more rooted in context. Examples of collection and analysis tools used here include Maticka-Tyndale's use of 'scripting' theory² to analyse young people's attitudes to sexual relationships. Francis and Rimmensberger (2008), who looked at KAP of out-of-school young people in South Africa, trained young people from the study's target group to conduct interviews in their communities. Results produced interesting insights into the key role of friends in influencing positive behaviour but also sharing misinformation. Teachers and schools are still seen as the main source of information, despite this group's lack of access to them. Buthelezi (2007), who argues that current HIV interventions are based on adult 'world views' of HIV and sex, as opposed to young people's perspectives, used participatory research methods based around film and discussion to help develop a meaningful dialogue with young people. These insights were then used to develop future interventions. The depth of analysis offered by these articles can help to unpack some of the findings from the broader survey-based studies, as well establishing hypotheses to be tested by quantitative research.

Findings by age, gender and level of education

Due to the range of approaches being used in these studies, finding suitable groupings to present comparable findings proved difficult. For example, it is not possible to group results by school level (that is, primary, secondary or tertiary levels) because some of the surveys are by age group, and do not distinguish between young people who are in or out of school or their level of schooling.

Similarly, gendered analysis tends to be inconsistent across the indicators observed. For example, UNICEF's report on Namibia highlights differences in male and female behaviour in the 15–24 year old age range but otherwise does not disaggregate all findings by sex (UNICEF, 2006). Where gendered analysis is given, there are often clear differences between boys and girls that will be highlighted as much as possible within the findings.

Bastien's (2008) methodologically rigorous study on out-of-school youth showed that boys aged 13–18 had higher 'AIDS knowledge' levels than girls and, in particular, were more likely to know about tests to diagnose HIV. A higher proportion of girls, however, knew that HIV could be transmitted from mother to child, and that a healthy looking person can have HIV. Lal (2000) found that males had significantly higher knowledge scores than girls amongst college students in Kerala, India, which the author associated with increased social freedom of men, especially after they attain puberty.

² According to scripting theory, sexual behaviour is elicited by social and cultural circumstances. Sexual scripts specify with whom people have sex, when and where they should have sex, and what they should do sexually. The metaphor of theatrical scripts, with its sequencing of events, use of cues, and interpretations and improvisation of roles, provides a heuristic for understanding what is happening in sexual encounters. (For a review of scripting theory applied to sexuality see: Gagnon, 1990; Gagnon & Parker, 1995; Simon & Gagnon, 1986; 1987 (Maticka-Tyndale and Herold, 1997).

Overall, the study found high levels of knowledge amongst college students in relation to routes of transmission but low awareness of sexually transmitted infections (STIs) and HIV prevention methods (*ibid.*). However, findings from this report are undermined by weak explanation of the methodological approach. Andersson (2004) found that 60 per cent of South African students (aged 10–19 years) stated that condoms could prevent HIV infection. Older females in urban areas were significantly more likely to know this than younger females.

Ganczak's (2007) study examined knowledge levels of university students in the low-prevalence setting of the United Arab Emirates (UAE), using a previously tested WHO instrument. It found that 75 per cent of those surveyed had low knowledge levels, although 90 per cent knew the main routes of HIV transmission. Castle (2004) used qualitative methods to establish knowledge levels amongst young people in a community in Mali. Whilst knowledge of modes of transmission amongst the focus group members was quite high, misconceptions remained. For example, the most frequently stated mode of transmission involved urinating in the same place as an infected person (Castle, 2004). Biddlecom et al.'s (2007) highly comprehensive study brought together findings from four southern African countries and found that, while 90 per cent of 15–19 year olds had heard of HIV, only 40 per cent could correctly identify ways of preventing transmission and reject common misconceptions about transmission.

Maticka-Tyndale et al.'s (2005) consideration of attitudes found that sexual encounters between young people in Kenya were described as 'mundane and inevitable', with a predetermined sequence of events and girls and boys playing complementary roles. Marson and King (2006), who undertook a systematic review of qualitative empirical studies of young people's sexual practices and attitudes (although not in relation to HIV and AIDS), also found that gender played a strong role in social expectations relating to sexual activity. According to the multi-country review, all societies displayed strikingly similar expectations of women and men's behaviour, with men expected to be heterosexually active and women expected to be chaste. It also found that, despite widespread stigma associated with women carrying condoms, women are still considered to be responsible for pregnancy prevention (*ibid.*).

Andersson's study in South Africa (2004), which reviewed attitudes to sexual violence amongst 270,000 school students aged from 10–19 years, found some alarming results about the acceptability of sexual violence and what constituted sexual violence. For example, 60 per cent of the boys surveyed aged from 10–14 years believe sexual violence does not include forcing sex on someone you know, with 62 per cent of girls in the same age group also believing this. While this study followed a rigorous methodology, the findings were not always fully explored. For example, the highly inflammatory finding that 16 per cent of respondents would 'spread infection intentionally' was not explained further, beyond clarifying this was mainly a view found amongst rural males aged 15–19 years. The study also found a strong link between a history of being forced to have sex with forcing others to have sex, and to having misconceptions around HIV risk and cures, such as having sex with a virgin (Andersson, 2004).

In Ganczak's (2007) college-based study, attitudes towards those living with HIV were very negative, with 97 per cent of respondents feeling that all people entering UAE should be tested for HIV and only 27 per cent feeling that children with HIV should be allowed to attend schools (these findings were not broken down by gender). Castle's (2004) Mali-based study found evidence of high levels of stigmatizing attitudes amongst participants, with high-level agreement between rural participants that PLHIV should be excluded from society. From these discussions, Castle was also able to extract that women and girls were largely blamed for the spread of the disease (2004).

Reported condom use is provided as a key indicator for practices in many of the studies. Bankola (2007), in an analysis of data from National Adolescent Surveys in Burkina Faso, Ghana, Malawi and Uganda, found that reported consistent condom use among sexually active young people aged 12–19 years was less than 50 per cent in all four countries. Levels were highest in Ghana (47 per cent) and lowest in Malawi (20 per cent). Biddlecom et al. (2007) found that preventing pregnancy rather than preventing STIs is the most commonly cited reason amongst females in all four countries for the use of condoms. For males this was found in Ghana and Uganda. In their review of qualitative surveys of young people between 1990 and 2004, Marson and King (2006) found that young people reported condoms to be 'stigmatising and associated with a lack of trust'. Lal et al.'s (2000) study of knowledge and attitudes of college-aged students in Kerala, India revealed through focus group discussions that the social stigma associated with condoms made it almost impossible for young women to obtain them.

HIV and AIDS education

Students and young people are far less likely to be surveyed about their knowledge, attitudes and practices (experiences) of HIV and AIDS education. Only seven studies include students and young people in their sample group. Jacob et al.'s 2007 study into young people's perspectives on HIV education in Uganda is one of the most comprehensive of these studies in that it is not subsumed within a wider survey of HIV and AIDS KAP, or looking at students as a secondary group to teachers. Student responses to this survey on the HIV and AIDS curriculum in Ugandan secondary schools provide some insights into students' attitudes towards HIV education and how it could be improved: 58 per cent of students said their school does not teach HIV in the school curriculum although schools were given as the primary response to the best space to learn about HIV; 63.8 per cent felt that students' reactions to implementation of HIV education in schools would be 'very positive'; with a further 25.5 per cent feeling that it would be 'positive' (Jacob et al., 2007).

Mturi and Hennink (2005) conducted 46 focus groups (ten with students) in Lesotho to identify current sources of sex education and views about the proposed introduction of sex education in schools. They found broad support amongst young people interviewed for HIV and AIDS education in Lesotho. It was identified that the delivery of sexual information through schools was desired as it could overcome difficulties of addressing the issue with parents and provide a neutral information source (Mturi and Hennick, 2005).

Njue et al.'s 2009 study in Kenya records the experiences of students through 60 focus group discussions. Problems identified relate to time and quality of HIV and AIDS teaching, where lessons are short and methods unsatisfactory, an example being the teacher handing out books and asking students to read the material. Frustration with selective teaching was apparent, with examples given of teachers ignoring questions relating to condoms and avoidance of discussion around relationships. Teachers' over-reliance on simple messages about 'how people get it and why it is dangerous and that we should avoid sex' were not felt to reflect the complexities of young people's lives (*ibid.*, p. 175). While this study provides rich information on the views of young people, due to the anecdotal style of findings there is nothing to indicate how common certain views are.

Buthelezi et al. (2007) take research into young people's perspectives on sexuality and HIV education a step further, and use findings gathered from young people's written responses to a television documentary they watched. They used this data to build a case for life-skills programmes being based on the 'world view' of young people (as opposed to adults) in order to be effective (Buthelezi et al., 2007).

1.1.2 Teachers' KAP

HIV and AIDS

All of the reports reviewed in this analysis (15 studies) identified that teachers had gaps in knowledge about HIV and AIDS. The questions most commonly asked of teachers were about their knowledge in relation to condom use and promotion. Kiragu et al. (2006) found that teachers in Kenya had relatively good levels of knowledge but still had significant misconceptions on key issues, in particular a concern that condoms did not provide sufficient protection from HIV. Amadi-Ihunwo (2008) used a qualitative survey and found school managers in South Africa had a very diverse understanding of HIV and AIDS, with many negative cultural beliefs affecting their understanding. Chege (2002), who undertook research into the KAP of primary school and student teachers in Rwanda, found that a significant number of teachers did not have 'adequate general knowledge' of STIs including HIV. The study also found that 85 per cent of them had encountered problems in accessing information that responded adequately to their questions on the subject (this was more of a problem for female teachers). McGinty and Mundy (2009) found that student teachers in Namibia also had significant knowledge gaps, particularly in relation to transmission and prevention of HIV, as well as more complex areas to do with home-based care techniques and antiretroviral medication. Over a third of respondents felt they did not have enough knowledge to answer secondary school students' questions about HIV and AIDS.

Moving to the lower prevalence settings: in Russia, Avina and O'Connell (2006) surveyed science teachers and found that 44 per cent had low knowledge, much lower levels than a comparative study of elementary school teachers in the USA, which used the same assessment methods. In Massachusetts, USA, Dawson (2001) found that there was a clear link between the subject that teachers taught and their level of knowledge, with science health teachers knowing significantly more than teachers from other disciplines. In Iran, Mazloomi (2008) looked at a cross-section of high school teachers from ten schools in Yazd city. Results showed overall that there were moderate levels of awareness, with good awareness of sexual contact as a transmission route of HIV at 93 per cent. Mean test results for female teachers were significantly higher than for male teachers, although potential reasons for this disparity were not discussed. Several studies indicated that main sources of information for teachers were from the media, including radio, newspapers and television (Bankole and Mabekoje, 2008; Mazloomi, 2008; Kachingwe, 2005).

Overall, there are far fewer studies that considered teachers' practices with regard to their own risk. Kiragu (2006) looked at Kenyan teachers' attitudes to voluntary counselling and testing (VCT) and condom use and found that only 61 per cent knew condoms were effective against the spread of HIV, and three out of four had not been tested for HIV.

Indicators relating to teachers' attitudes towards people with HIV were frequently included (Yanez et al., 2002; Kiragu, 2006; Adamchak, 2005), but a clear picture did not emerge from findings. These four studies showed that teachers felt children with HIV should be allowed to attend school, but Kiragu's report (2006) supplemented this with information about teachers' fears of risk from HIV-positive students. Yanez (2002), who surveyed teachers in Venezuela, found that 64 per cent confirmed that they wished to know the HIV status of children enrolling in their school. Castle (2004) found that, while teachers in rural Mali had fairly accurate levels of knowledge on HIV and AIDS, they still held stigmatizing views and encouraged isolation of PLHIV. Dawson (2001), however, found that good levels of knowledge correlated positively with positive attitudes towards

HIV and AIDS in the USA, and that female teachers held more positive attitudes than male teachers. In this particular study, results for attitudes were obtained through a 25 question survey of general and educational AIDS-related issues. However, results are combined to provide an overall attitudinal score for HIV and AIDS, reducing the nuance of findings. The gendered trend was reproduced in Mazloomy's study in Iran, where positive attitudes towards PLHIV correlated with higher knowledge test scores (Mazloomy, 2008). Evidence of teachers' stigma towards other people in the community with HIV was also found by Kiragu (2006) in Kenya and Chege (2002) in Uganda, who both reported that teachers said they would not want to buy food from PLHIV (Kiragu et al., 2006; Chege, 2002). Kiragu's report also showed that fear of being discriminated against was a barrier to getting tested and disclosing one's positive status to school authorities. A recent World Bank (2009) report and film provides in-depth and personal testimonies about the stigma being faced by teachers from other teachers as well as the community in a variety of countries in sub-Saharan Africa.

HIV and AIDS education

Research on KAP among teachers also considers knowledge, attitudes and in one case practices in relation to teaching about HIV and AIDS. Twenty studies reviewed included findings on this theme, which predominantly have a single country focus and almost exclusively within Africa. Exceptions include the ActionAid report (Boler, 2003a), which compares the situation in India with that in Kenya, and the Avina and O'Connell's study in Russia (2006).

The impact of teachers' attitudes and knowledge on teaching was the focus of several studies that highlighted considerable concerns about practices of 'selective teaching' reducing the effectiveness of HIV and AIDS education (see *inter alia* Boler, 2003a; Adamchak, 2005; Visser, 2006; Mufune, 2008; Bankole, 2008). Boler's comparative study in India and Kenya highlighted that teachers' negative attitudes and beliefs are particularly problematic. For example, it was revealed that teachers were unwilling to talk about condoms due to social unacceptability. It also found that messages presented by teachers were often contradictory, particularly with regard to abstinence, and that some teachers believed that condoms promoted promiscuity (Boler, 2003). Bankole (2008) identified that teachers in Nigeria fear that HIV education will lead to increased sexual activity of their students. Mufune (2008) captured data from students in Namibia stating that male teachers asked boys to leave when teaching about girls' sexual organs, and girls to leave when discussing those of boys. In the same study, teachers listed love, emotion and masturbation as topics they were not comfortable teaching about. Boler also establishes that sensitivities relating to the topics surrounding HIV and AIDS further the practice of 'selective teaching' and an overly scientific approach to the subject (Boler, 2003a; also found in Mufune, 2008; Njue, 2009). In Nigeria, one study (Oshi et al., 2005) found that teachers' concerns about the cultural implications of sex education were so strong that it entirely prevented them from addressing it. As a result, HIV prevention was only discussed in relation to sharing needles and razors.

Several reports indicate that teachers' attitudes to HIV and AIDS education are positive and feel that they have a role to play in teaching young people about HIV (Kiragu et al., 2006; Adamchak, 2005; Kachingwe, 2005; McGinty and Mundy, 2009). Boler's report noted that teachers felt that the responsibility for HIV and AIDS education should be shared with parents and religious leaders (Boler, 2003a). Teachers surveyed by McGinty (2009) also mentioned that parents should play a role, but felt cultural inhibitions prevented parents from addressing sexual health matters, thereby increasing the importance of schools taking that responsibility. This finding was also observed by Mufune when talking to teachers in Namibia (2008). However, their capacity or willingness to do this is

influenced by a variety of factors, both attitudinal as identified above, but also as a result of inadequate teacher training (Kachingwe, 2005).

Helleve et al. (2009) undertook a qualitative study into perceptions among South African life-orientation teachers to HIV and AIDS education. They found that teachers did not share a common understanding of why they needed to teach about HIV and AIDS; for some it was about restoring moral values; others saw it as necessary for socio-economic reasons. Many were more concerned with preventing young people's engagement in sexual activity than preventing HIV. There were also differences in whether teachers saw content as neutral or whether it should be made compatible with local culture. The article highlighted the potential problem of adjusting teaching to fit with cultural norms, especially when these may be underlying factors in increasing risk (*ibid.*).

Visser-Valfrey's research (2004) in Mozambique looked at how teachers' personal practices affect their teaching. They found that teachers who consistently used condoms and had a high perception of their own risk were more likely to talk about HIV in class. From an alternative perspective, teachers in Kachingwe's 2005 study in Malawi identified personal behaviour as affecting teachers' ability to be HIV prevention leaders, due to risky behaviour that reduced their validity as role models.

The need for further training was recommended by a number of studies including Kachingwe (2005) and Avina and O'Connell (2006). This latter found that low overall knowledge levels of science teachers in Russia meant they were not prepared to teach about HIV if included nationally in the curriculum. Teacher training, or rather the lack of training, especially in the skills required to lead discussions and help change behaviour, is highlighted as a factor in poor quality HIV and AIDS education (Boler and Carroll, 2005a; Oshi et al., 2005). Research attempting to document access to and quality of teacher training indicates a continuing lack of consistent teacher training opportunities (Boler and Carroll, 2005a; Education International (EI), 2007; UNAIDS IATT on Education, 2004). While the majority of research is focused on Africa, research by Smith et al. in 11 Asian countries in 2003 found that teacher training on HIV and AIDS tends to be short-term and in-service. Among the countries included in the review, only Papua New Guinea, Thailand and Viet Nam conducted pre-service training on these issues, although this situation may have changed in the interim period (Smith et al., 2003). Research also reveals teachers' desire for better training and support, due to lack of confidence in delivering sexuality and HIV education (Boler, 2003a; Mathews et al., 2006; Kachingwe, 2005; Ahmed, 2006; Helleve et al., 2009).

1.1.3 Parents' and communities' KAP

HIV and AIDS and education

This research only fully accessed three articles that consider the communities' or parents' KAP in relation to HIV education. ActionAid's 'The sound of silence' and Mbonile and Kayombo's study in Dar es Salaam, Tanzania both consider community attitudes to sex education in schools, but come up with different results (Boler, 2003a; Mbonile and Kayombo, 2008). Boler's report showed that respondents in India and Kenya consistently put teachers in the top three trusted sources of HIV information. However, in the Tanzanian study teachers were in fifth place after parents, religious leaders, the media and health workers (*ibid.*).

Mturi and Hennink's (2005) research in Lesotho found that there was broad support from parents for HIV and AIDS education in schools. Mufune (2008) also found broad support among parents and community members in Namibia, albeit through a small-scale

qualitative survey. Fayorsey's research in Ghana found that 99 per cent of parents interviewed agreed that HIV and AIDS should be taught in schools and 96 per cent would be willing to let their children join 'anti-AIDS clubs' (Fayorsey, 2002). Mbonile and Kayombo's Tanzania study revealed that, where parents did support sex education, they were opposed to teaching about condoms (Mbonile and Kayombo, 2008). In Minnesota, USA, a telephone survey looked at parents' attitudes to comprehensive sex education in a state where abstinence-only education is promoted. It found that, despite restrictive government policy, parents were in favour of comprehensive sex education, as well as abstinence education in schools (Eisenberg, 2008).

In contrast to these positive findings, Oshi et al. (2005) presented evidence of community resistance so strong to sex and HIV education in Nigerian schools that teachers feared they would be prosecuted or expelled from the community if they were to address it in schools. These findings were based on teacher responses in focus group discussions and not tested against attitudes gathered from within the community. This is a particularly important limitation in light of Boler's finding that teachers in both Kenya and India perceived parental support to be lower than it actually is (Boler, 2003a).

In addition to attitudes, Boler's report also captured the level of knowledge that parents had of sex education taking place in school. This element of the study showed a sharp difference between India, where only 12 per cent of parents were aware that their children were being taught about HIV and AIDS, in contrast to Kenya where 68 per cent knew. However, it was not evident whether they knew the content of the courses (Boler, 2003a).

1.2 Evidence showing impact of education on prevention outcomes

This section goes on to explore the impact that education has on HIV risk and related knowledge, attitudes and practices, as identified in the previous section. It starts by discussing evidence that identifies the links between increased education and decreased HIV-related risks. The large section that follows explores data examining HIV education interventions in formal educational settings; it starts by looking at socio-demographic factors that are addressed by some studies, continuing with issues around curriculum content and development, delivery methods and quality and teaching training. The final sub-section under this section explores the role of informal education and its effects on HIV KAP; it does so by looking at evidence on peer education and entertainment education. As in the previous section, where possible it distinguishes between age, gender, school level and cultural context. For this section, 41 studies were reviewed. As before most of the evidence is from Africa, although again data from lower prevalence countries such as China (four studies), the US (nine studies), Mexico (two studies) and Thailand (one study) are presented.

1.2.1 Access to education

The UNAIDS IATT publication 'Quality education and HIV and AIDS' (2006b) sets out a framework of ten principles for quality education in relation to HIV and AIDS, five at the level of the learner and five at the level of the learning system. The majority of the studies reviewed here, which make the link between access to education and HIV and AIDS (risk or prevalence), do not specify the quality of this education and only a few consider the level of educational attainment achieved. In contrast to later sections, the studies reviewed here provide broad pictures by tracking trends in relationships as opposed to impacts of specific interventions.

According to the literature, access to education and educational achievement have not always been associated with HIV prevention, with research prior to 2000 showing that prevalence levels were higher amongst more educated people (as highlighted in Jukes and Desai, 2005; Hargreaves and Boler, 2006; Badcock-Walters et al., 2004).

In 2001, Gregson et al. (in Duflo et al., 2006) hypothesized that, whilst various demographic and socio-economic conditions put people with higher education at risk in the early stages of the epidemic, they would also be in a better position to respond to information about the disease and change their behaviour accordingly (Duflo et al., 2007). Hargreaves et al.'s 2008 review of the evidence in sub-Saharan Africa (SSA) between 1987 and 2003 documents the changing patterns of risk associated with educational attainment and concludes that early patterns of HIV prevalence seem to be reversing, with disproportionate new infections occurring among least educated members of society (Hargreaves et al., 2008a).

Despite the quantity of evidence demonstrating the positive impact of education on HIV prevalence, according to the World Food Programme (WFP), the relationship between the level of education and protection from HIV and AIDS is less clearly substantiated (WFP, 2006b). ActionAid's 'Girl power' report (Hargreaves and Boler, 2006) reviewed 45 articles on the impact of girls' education on HIV rates and included six that compared results for primary and secondary level completion. All of these showed lower HIV risk for those who completed secondary education as a result of having fewer sexual partners and using condoms more frequently. The report therefore 'tentatively' suggests that higher levels of education provide greater protection from HIV and AIDS.

Michelo et al. (2006) mapped the relationship between educational attainment and HIV prevalence in Zambia using population-based surveys over an eight-year time period (1995–2003) where participants had been tested for HIV. Over the eight years, male and female respondents with higher education attainment in the age group of 15–49 years showed significant decreases in HIV prevalence, although this was less significant for rural males. Prevalence rates amongst less educated groups remained stable or even increased over the eight-year time period. The strongest evidence for the pattern of higher education and reduced HIV prevalence was amongst those aged 15–24, where infections are likely to have happened more recently. In the older groups, changes may be influenced by mortality rates.

A more recent study by Johnson et al. (2009) in South Africa tested pregnant women visiting antenatal clinics over a five-year period (2000–2005) to identify factors associated with HIV infection. This study established that, in recent years, education has become a protective factor for women aged 15–29 years, with HIV risk significantly lower for those who had completed secondary level education compared to those with only primary level education. The biggest jump in terms of reduction in risk was between those who had completed primary education and those with partially completed secondary education. Over the five-year period, HIV risk for women who had only completed primary education increased 8 per cent per annum but did not increase for women with secondary education. For women older than 25, HIV risk did not differ by education level.

While this evidence provides promising results regarding the effectiveness of education as a factor in reducing HIV risk, it does not answer the question of why or how education should have this effect. The 2004 Global Campaign for Education (GCE) report suggests two key reasons for how basic primary education is effective in responding to HIV and AIDS (GCE, 2004):

- 1) A complete primary education provides people with the minimum skills required to process and evaluate the information necessary to make decisions to protect them from HIV and AIDS.

- 2) Education increases status, independence and confidence to act on knowledge about how to stay safe (this is considered to be particularly important for girls).

As suggested by the first point, several studies attempt to assess or prove the impact education has on developing skills relevant to reducing HIV risks. A meta-review by Badcock-Walters et al. (2004) of evaluations relating knowledge to behaviour change confirms that *“the cognitive and literacy skills required to make informed choices in respect of HIV/AIDS risk and behaviours change, are substantively based on levels of education and literacy”* (Badcock-Walters et al., 2004, p. 20). On the basis of analysis of 32 Demographic and Health Surveys from the 1990s, Vandemoortele and Delamonica (2000) establish that literate women are three times more likely to know that a healthy-looking person can have HIV, four times more likely to know the main ways to avoid HIV and AIDS and better-educated girls are more likely to start sexual activity later and require their partners to use condoms.

De Walque (2004) undertook a longitudinal study for the World Bank in Uganda with the hypothesis that education helps people to process health education messages, thereby reducing their HIV risk. Findings were based on data collated over a ten-year period. Using results for individuals who started their sexual life after the start of the prevention campaign, they found that the higher the individual's level of education, the lower their risk of being HIV-positive, with the effect mainly concentrated in women. This evidence was used to suggest that educated individuals benefit more from prevention campaigns, thus supporting the hypothesis that education helps people to process health education messages.

A background study to the 2007 World Development Report by Duflo et al. (2006) in western Kenya compared the impacts on teenage childbearing (an indicator of unprotected sex) against three factors; increased access to education, teacher training for HIV and AIDS education and students' participation in condom debates. According to the authors, reduction in the cost of education (through provision of free school uniforms) was the only factor to make a marked difference to teenaged child-bearing (reduced by 10 per cent); it also reduced the likelihood of girls reporting having ever had sex by 13 per cent and reduced girls' school drop-out rates by 15 per cent. While not making any programme or policy-related recommendations, the report tentatively suggests that reducing the cost of education for girls provides an effective incentive for avoiding teenage pregnancy and marriage.

Birdthistle et al. (2009) attempt to prove that it may be school attendance in itself that reduces sexual risk, proposing the theory that schools may provide better access to health and counselling services, as well as providing a sexual network made up of fewer partners who are closer in age (both factors related to reduced sexual risk). Results from their study showed that out-of-school, unmarried adolescent girls in urban Zimbabwe were more than three times more likely to test positively for HIV or HSV-2 (Herpes) than their in-school contemporaries. Hargreaves et al. (2008b) also test the relationship between current school attendance and HIV risk. They looked at the prevalence of HIV infection and behaviours associated with HIV risk between students and non-students in rural South Africa. Using a random population sample of unmarried young people aged 14–25 years old, results showed that male students were less likely to be HIV-positive than their peers who were not in education (there was less of an association for female students). In relation to HIV-related risk behaviours, results showed that both men and women attending school had fewer sexual partners. Female students were found to have sex less often, use condoms more often, and those in relationships were closer in age to their partners. The article points out that results were collected in 2001, at a time when sex and life skills education was poorly developed in schools. As a result, students showed no greater knowledge than non-students and were no more likely to have attended testing. It

therefore concludes education reduces HIV risk through affecting sexual networks, power relations and communication. In turn, this helps to support self-efficacy (Hargreaves et al., 2008b).

1.2.2 Sexuality and HIV and AIDS education in formal educational settings

This section moves on to look at studies that assess the impact of specific sexuality and HIV and AIDS education interventions on student and young people's KAP. Specifically it looks at interventions within a formal education setting. This is a relatively well explored area, with a number of meta-reviews providing strong evidence from a range of sources to draw from.

In 2005, Kirby et al. published a review of 83 'curriculum-based sex and HIV education programmes' exploring their impact on sexual risk behaviours, STI and pregnancy rates and mediating factors such as knowledge and attitudes (Kirby et al., 2005; this has since been updated and can be found in UNESCO, 2009). Through this, the authors identify a set of common characteristics of the most effective programmes. The overall findings showed that targeted sex and HIV education programmes were more likely to have a positive effect on behaviour than a negative impact, as well as having positive impacts on mediating factors of knowledge and attitudes towards safe sexual practices (Kirby et al., 2005). A second meta-review focusing on risk behaviours and psychosocial factors affecting these behaviours also found widespread positive impacts on one or more sexual behaviours being measured, and further support for the positive influence of the characteristics identified in the earlier review (Kirby et al., 2006). Gordon's 2007 desk-based review of sex and HIV education in the formal education sector also concludes that programmes can help to reduce risk by increasing knowledge and affecting related values and attitudes (Gordon, 2007). Gallant and Maticka-Tyndale's 2004 literature review of school-based HIV projects in Africa shows that changes in knowledge, attitudes and behaviour occur as a result of HIV and AIDS education, but concluded that behaviour is much harder to change. The impact of such programmes on indicators such as pregnancy and STI rates is less conclusive. Gordon states that 'some' programmes had had an impact on pregnancy and STI rates, and Kirby shows concern for the fact that, of the few pieces of research in his review that looked at these indicators, most relied on self-reported data as opposed to laboratory tests. Borgia (2005), who looked at an in-school peer education intervention in Italy, concluded that positive changes to knowledge and attitudes of risk and prevention were achieved but no statistically significant improvements in sexual behaviour could be shown.

Having given a very broad indication of the overall evidence in support of HIV education interventions, the rest of this section will look in more detail at the various factors being assessed in these studies.

Socio-demographic factors

As identified earlier, while some reports providing a situation assessment disaggregate their findings using socio-demographic factors, this is by no means consistent across all studies, thus reducing the number of good quality studies to refer to.

The most frequently addressed factor is again gender where several studies found that the impact of the intervention varied according to the participants' sex. However, there does not appear to be a consistent pattern regarding these differences. For example, Maticka-Tyndale et al.'s quasi-experimental study in Kenya (2007) found that boys reported increased condom use, while girls were more likely to decrease or delay sexual activity following a primary school-level (covering ages 11–16 years) education

intervention addressing knowledge, self-efficacy and condom use. In contrast, Kirby found that gender was not a significant factor in predicting initiation of sex among participants in a US-based study (Kirby, 2004). However, it did support Maticka-Tyndale's findings in relation to condom use. Here, gender was found to be significant in all four measures related to condom use, where the intervention had a bigger positive impact on males than females. Kirby argues that this is consistent with the fact that males typically have more control over condom use than females. Aten et al. (2002) looked at the impact of an abstinence focused education programme on initiation of sex among students in the US and found that boys were more influenced by the intervention than girls. It suggested that girls may have different reasons for staying abstinent than boys, which meant that they were less influenced by the risk messages promoted through the programme.

Age is also addressed by Aten et al., who found that younger students were more likely to be influenced by programmes than older students (Aten et al., 2002). They associated this with the level of sexual experience of the individuals at the start of the intervention, with younger students less likely to have already engaged in sexual activity and therefore more susceptible to the abstinence messages of the programme (Aten, 2002). Despite a different intervention approach, the 'safer choices' programme assessed by Kirby (2004) also showed differences in impact in relation to levels of sexual experience at the start of the programme. A positive impact on frequency of unprotected sex was greater for those sexually inexperienced at the baselines, whereas condom use at last sex was higher for those who were already sexually experienced at the start of the initiative. The positive impact that this programme had on higher risk groups (those already engaged in unprotected sex) led Kirby to suggest the programme's relevance for use within schools and communities where youth are at high risk of unintended pregnancy, HIV and other STIs. Maticka-Tyndale et al. (2007) also found that the intervention had most impact on sexually inexperienced youth, concluding that it should be rolled out to the youngest age group possible.

Race and ethnicity was another factor used to disaggregate findings on impact, although referred to much less frequently than gender. For example, Kirby (2004) found that the intervention delayed Hispanic students' initiation of sex but had no impact on 'white', 'black' or 'Californian Asian' students in this area (racial groups as identified in the report). All ethnic groups showed positive effects in relation to overall condom usage. Differences were evident between the groups in relation to the protective behaviours they reported. For example, 'whites' reportedly decreased risk by increasing condom use, whereas 'blacks' reportedly reduced the number of unprotected partners. Aten (2002) identified that ethnicity was a factor in the impact of the programme but identified the need for further research into this area due to lack of conclusive results.

The cultural relevance of HIV and AIDS education programmes was brought up in a number of studies, most frequently in relation to the challenge of adapting programmes developed in a Western (often US) context to suit different countries. Lerdboon (2008) reports on the process of introducing a culturally appropriate gender component to a Vietnamese HIV education programme that was originally adapted from the US 'Focus on Kids' programme. The study does not assess the impact that making the programme culturally relevant had on its outcomes, but the steps taken to develop suitable content. Xiaoming et al. (2008) considered the potential of adapting a US programme based on a Western philosophy of individual behaviour choices for a Chinese context where Confucian principles still underpin society.

Curriculum content and development

In 2009, Kirby et al. produced an updated version of their 2005 meta-review of HIV and AIDS education interventions (Kirby et al. in UNESCO, 2009). Not only did this piece of research significantly strengthen the evidence base for the positive impact of education on HIV by collecting and combining existing data, it also helped to determine what made a successful intervention. The common characteristics that Kirby identified for effective programmes were divided into curricula development, curricula content and curricula implementation (UNESCO, 2009). Based on his findings Kirby argued that curricula content should have a clear health goal, with consistent messages about that goal and the behaviours associated with it. Activities should also be designed to suit age, culture and sexual experience and be participative in style. Social learning and social cognitive theory were used as a basis in more than half the programmes evaluated by Kirby, highlighting widespread interest in the impact that interpersonal skills or more widely, 'life skills' have on supporting safe sexual behaviour (Kirby et al., 2005). Gordon, who undertook a desk review of literature on sex, relationships and HIV education in schools, and drew from Kirby's findings as well as numerous other published and unpublished sources, identified the need to combine consideration of the facts with discussions of values and intentions that affect behaviour, as well as developing 'inter-personal' skills that support self-efficacy (Gordon, 2007).

One of the most common approaches to HIV and AIDS education has been the provision of life skills education (Boler and Aggleton, 2005). According to this study, life skills education aims to support learners not only to build knowledge, but to develop the necessary skills to protect themselves from HIV infection. Although there is consensus amongst researchers and policymakers that skills-based work is a necessary component of HIV prevention, it is far from clear which skills are protective and how they can best be acquired. HIV risk reduction is just one among a wide range of outcomes that life skills education is sometimes claimed to achieve. For example, the United Nations Office on Drugs and Crime (UNODC) has demonstrated the role of life skills education in reducing drug abuse in young people, contributing to HIV prevention by decreasing risky sexual behaviour (UNODC, 2006).

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Yankah and Aggleton (2008) reviewed 19 evaluations of life-skills programmes for HIV prevention. In order to be included in the review, the evaluation had to include a comparison group, consist of more than one educational session and have a follow-up

period of a minimum of four weeks. Although most of the studies reported positive outcomes, according to the authors, very few were able to show specific positive effects on sexual behaviour, especially for those young people who were already sexually experienced. In the few studies where behaviour change was achieved, change was often restricted to specific subgroups (for example, young men who had never had sex). The authors warn against using the term 'life skills' to incorporate all skills-based and participatory approaches to HIV prevention and suggest that more work is needed to identify which skills-focused approaches work best in which contexts, and with whom.

Keselman et al. (2007) tested a programme that related conceptual biological knowledge with critical reasoning skills. The hypothesis was that integrating HIV biology into the curriculum would enable students to reason about realistic situations involving HIV. The results were positive about the impact of the intervention on students' knowledge of HIV and also their ability to apply their knowledge to actual situations. The study does not consider the impact on individual students' behaviour but does suggest ways that biology based HIV education can still be made more relevant to real life.

Considerable research has also been undertaken examining the effectiveness of abstinence-based approaches to sex and HIV education, largely in the US but also in developing countries, notably Uganda (Bruckner and Bearman, 2005; Santelli et al., 2006; Kohler et al., 2008; Boler and Ingham, 2007). In an article published by Kirby (2008) reviewing evaluations of abstinence-based STI and HIV education programmes in the US, he found that only three out of nine programmes had any impact on sexual behaviour, in contrast to more comprehensive programmes where two-thirds were shown to have an impact. Based on this, the paper argues that abstinence programmes have little evidence to support their widespread replication (Kirby, 2008). A systematic review of all relevant studies published in 2007 concluded as follows: "*Evidence does not indicate that abstinence-only interventions effectively decrease or exacerbate HIV risk among participants in high-income countries; trials suggest that the programs are ineffective*" (Underhill et al., 2007). The authors also noted, however, that there is little robust data available and that, as most reviews have been undertaken in the US, the ability to generalize from these findings may be limited. An article by Lloyd (2007) argues that an over-emphasis on 'abstinence' reduces the effectiveness of HIV and AIDS education, as increased knowledge of HIV and AIDS will not necessarily change young people's behaviour because it does not help them to distinguish between levels of risk in their behaviour and make choices accordingly (Lloyd, 2007).

Kabiru and Ezeh's (2007) study of factors associated with sexual abstinence notes that, despite a large amount of research into correlates of sexual activity, relatively little focuses on the characteristics of young people who choose to abstain from sex. Differences emerged for reasons of abstinence between primary abstainers (those who had never had sex) and secondary abstainers (who had sex in the past but had been abstinent for at least a year). Primary abstainers were more likely to identify 'value-based' reasons, such as waiting for marriage, in contrast to secondary abstainers who more frequently chose abstinence as a protective measure against STI or HIV infection. As a result, they recommended that prior sexual experiences and contextual circumstances should be taken into account when developing abstinence programmes.

Masters et al. (2008) undertook a study in the US to ascertain the relation between attitudes to abstinence and sex and subsequent behaviour. It found that positive attitudes to abstinence led to a decreased chance of students engaging in sex within six months, with the reverse being true for those with positive attitudes to sex. Students with intentions of staying abstinent had reduced odds of engaging in sex at 12 months after the intervention. Interestingly, there was a stronger link between those who intended to have sex and their actions than those who intended to stay abstinent. According to the author,

this makes abstinence intentions poorer predictors of sexual behaviour than sex intentions. The author suggests that this is because abstinence intentions may be seen as part of a development trajectory that eventually ends in sexual activity (Masters et al., 2008).

Dupas (2009) used results from her study measuring child-bearing amongst teenagers to argue that risk avoidance messages (abstinence) are less effective than risk reduction messages (safe sex) in lowering levels of unprotected sex by participants. There were 28 per cent fewer incidences of childbirth in the year following the intervention for those who were provided with risk reduction messages. Dupas argues that abstinence-only education limits young people's ability to assess risk and choose low-risk options.

Delivery methods and quality

A number of studies consider the impact of quality and consistency of HIV and AIDS education delivery on its effectiveness. A study by James et al. (2006) revealed that the consistency with which a KwaZulu Natal Department of Education life-skills programme in South Africa was delivered had a significant impact on its outcome. Whilst initial findings showed that the programme had failed to produce significant results on students' attitudes to HIV and AIDS and behaviour intentions, this was not the case when the percentage of the course actually completed by students was taken into account. Groups that had completed the full programme showed a range of positive impacts after taking part, including increased perceptions of social support, reduction in negative perceptions about sexual behaviour, decrease in reported sexual activity and increased condom use in the short term. In order to gather these results, James combined findings from the process evaluation with the intervention evaluation results, a method that could be replicated elsewhere.

As discussed in section 1.1.2, there is considerable evidence to suggest that teachers are 'selective' about the HIV and AIDS education they provide to students as a result of negative attitudes to the subject, as well as personal inhibitions. However, no studies within this review look at what impact this has on educational outcomes for students. Likewise, despite assertions in good practice guides that 'child-centred' teaching techniques are more effective (for example, Senderowitz et al, 2006), evidence linking this to increased impact on learning outcomes for HIV and AIDS KAP was not found within this assessment.

Teacher training

According to the UNESCO 2006 report 'HIV and AIDS education: Teacher training and teaching', the two key ways of measuring the effectiveness of teacher training programmes is to explore its impacts on both teachers' and students' behaviours (UNESCO, 2006). Despite this, evidence relating to the impact of teacher training on positive HIV education outcomes is not well documented. An evaluation of a teacher training programme on STI and HIV prevention in Zimbabwe by the Zimbabwean Ministry of Higher Education and Technology (Chifunyise et al., 2002) found that, four years after the introduction of the programme, the course succeeded in developing confidence among student teachers to discuss sexuality issues openly, and to teach about them without feeling embarrassed. The course was less successful in developing positive attitudes towards people living with HIV; the majority had negative attitudes toward associating with and assisting colleagues living with HIV. Chao et al. (2007) demonstrated that teachers' estimates of HIV prevalence among students, teachers and community members, and perceived self-risk of infection went up significantly after receiving HIV and AIDS training, but it is not possible to conclude whether this changed their sexual or teaching practices.

A small-scale evaluation of an intensive HIV and AIDS teacher training programme in South Africa found that, despite increased confidence, knowledge from the course was not well retained by the participants (Ahmed, 2006). It also found that participants did not feel confident in replicating the group-based participative teaching approach in their classrooms, partly due to the large class sizes making small group work difficult to manage. Concerns about teaching about condom use were not sufficiently addressed and teachers remained concerned that teaching safe sex would be construed as condoning sexual activity by students. The conclusion was that, due to the complexity of issues being addressed and attitudes related to HIV and AIDS education, short bursts of training are not adequate. Instead it needs to be made part of ongoing professional development and integrated into pre- and in-service training.

Duflo et al.'s background paper to the 2007 World Development Report attempts to capture the impact of teacher training in the HIV and AIDS curriculum in western Kenya on the incidence of teenage pregnancy, as well as on knowledge, attitudes and behaviours related to HIV and AIDS (Duflo et al., 2006). In this trial, the impact of teacher training was shown to have had little impact on students' knowledge and self-reported sexual activity and condom use, or on teenage child-bearing. However, it did increase students' 'tolerance' towards people living with HIV and girls exposed to the programme were more likely to be married to the fathers of their children (Duflo et al., 2006, p. 4). This suggests that more research is needed into how teacher training can be made more effective.

Jeffrey (2009) undertook a study regarding the impact of teacher training for university science and engineering teachers on the levels of integration and mainstreaming of HIV and AIDS into university courses. Universities from four sub-Saharan African countries were included, namely Botswana, Ghana, Kenya, Rwanda, with the majority of universities coming from Kenya. The analysis suggests that the training helped to identify 'entry points' for integrating HIV into the areas of engineering, mathematics, biology, chemistry and physical science lectures, and increased awareness of the importance of doing so. The report provides a list of training-related impacts but does not support them with evidence, thus weakening its argument. It states presence of HIV and AIDS common teaching units, VCT services, integration of HIV in research initiatives within the universities but does not make clear whether these were established prior to, or following, the training. Therefore, it is not clear if it was the presence of these services that supported the integration of HIV teaching, or if the training of teachers has had a broader impact on the number of available related initiatives.

An evaluation of the personal and environmental factors influencing the delivery of HIV and AIDS education in secondary schools in Cape Town, South Africa, by Mathews et al. (2006) is sceptical of the impact of teacher training on improved delivery when used in isolation of other support measures. Respondents in the study identified the value and importance of interventions that go beyond teacher training to improve school functioning and climate. For example, a school HIV and AIDS policy, a climate of equity and fairness, and good school/community relations were considered as critical (Mathews et al., 2006).

The UNESCO-led UNAIDS initiative, EDUCAIDS, has identified that in particular more research is needed to determine the long-term impact of teacher education programmes with relation to approaches and modes of delivery, effect of refresher courses and indicators to monitor and evaluate education programmes on HIV and AIDS (UNESCO, 2008b).

1.2.3 HIV KAP focused interventions through informal education

This section will address literature addressing HIV and AIDS education interventions taking place outside formal education settings. This category is more challenging to define

as non-formal education can take many forms; for example, a study of non-formal education in Nigeria identified 16 different types (Odukoya et al., 2006). This section will briefly consider the availability of evidence before looking at what has been found in relation to peer education interventions and success in using media and entertainment based education.

While non-formal approaches to education are often included as appropriate strategies for reaching marginalized and out-of-school children and young people (UNAIDS IATT, 2009), evidence substantiating its impact on KAP relating to HIV and AIDS is less prevalent. The broad range of activities and target groups it covers pose significant challenges for researchers looking to assess impacts and compare evaluations for success criteria. Odukoya (2006) provides case studies of three projects in Nigeria that show evidence of improved knowledge, attitudes and behaviour of participants, but these have not been tested with the rigour of the studies presented in previous sections. Di Noia and Schinke (2007) provided a rigorous evaluation of an early adolescent girl-focused, non-formal programme in New York called 'Keepin' it safe'. It showed that the programme increased knowledge and had a positive effect on 'perceived efficacy' and use of condoms, abstinence and sexual assertiveness. However, a more recent report by the Association for the Development of Education in Africa (ADEA), which looks at HIV education in a post-primary setting, notes that the absence of published data makes it hard to draw conclusions as to the effectiveness of such programmes on protecting learners and staff from HIV infection, or in facilitating access to care and support for those who are infected or affected by HIV and AIDS (Allemano and Nzioka, 2008).

Peer education

Peer education is recognized as one 'entry point' for HIV education by the EDUCAIDS Framework for Action (UNESCO, 2008a) and represents one area of non-formal education where attempts to formally document evidence of impact have been made. Adamchak's Youthnet publication 'Youth peer education in reproductive health and HIV/AIDS' (2006) contains a review by Maticka-Tyndale of 34 peer education evaluations. Results from the review highlight the success of the projects in reaching large numbers of young people (often marginalized and vulnerable) and in connecting young people to services. Some had an impact on behaviour change in relation to condom use and number of sexual partners but none on abstinence (Maticka-Tyndale in Adamchak, 2006). Challenges put forward in the review include: the maintenance of networks and costs associated with peer education; recruitment and retention and motivation of peer educators; the lack of training; the lack of skills for challenging norms and encouraging critical thinking; lack of skills in averting stigma when discussing sensitive topics; isolating nature of role (peer educators may be seen as favoured by teachers/programme staff); and sustainability when based on volunteerism.

A more recent review of evaluations of peer education programmes by Kim and Free (2008) has built on Harden's 1999 review of the effectiveness and appropriateness of peer-delivered interventions for sexual health. Only 13 articles (covering geographical regions of Africa (3), Europe and North America (9) and Latin America (1)) met the criteria of including appropriate comparison groups, pre- and post-test intervention data and reported all outcomes. Overall, the researchers felt that these reviews did not provide convincing evidence that peer-led education improves sexual outcomes for adolescents, although most did have a positive effect on measures of knowledge, attitudes and intentions. The article concluded that lack of process evaluations made it harder to assess why the jump between the theoretical effectiveness of peer education and the practice had not yet been successful (*ibid.*).

Huang et al. (2008) examined a peer education scheme in China conducted with senior high school students. It explored its impacts on knowledge, behaviour, intentions and attitudes towards PLHIV and towards premarital/extramarital affairs. Knowledge in the intervention groups increased significantly compared to the control groups (which continued with normal classes led by health teachers). However, attitudes towards pre- and extra-marital sexual relations did not alter. Marked changes to behaviour intentions were also found, with increased levels of intended abstinence and contraceptive use. The study does not detail the process of the intervention but finds a relationship between the size of the group and impact, with participants in smaller groups showing greater changes in knowledge, attitudes and behaviour intention. Another study by Merakou and Kourea-Kremastinou (2006) tested the effectiveness of a peer education model being used in schools in Athens, Greece. It found that students in the intervention group were slightly empowered with regards to taking personal responsibility and adopting safer sexual behaviour practices. Discriminatory attitudes towards certain groups (for example, drug users, men who have sex with men and HIV-positive people), as well as attitudes to condoms, remained unchanged.

Campbell and McPhail (2002) try to address the processes and mechanisms behind successful peer education schemes. They provide a theoretical framework based on social identity, empowerment and critical consciousness (both in terms of emotional as well as cognitive and intellectual empowerment) and social capital. They argue that it is important that peer education schemes are based on a theoretical framework in order to be successful.

Lesko (2007) provides an alternative commentary on a high-profile peer education scheme in South Africa called Love Life. Her review focuses on the peer educators who are aged 18–25 years. The study draws on in-depth interviews with 20 of the peer educators to consider the impact of the programme on them and their feelings towards it. It discusses in some depth the conflicts in constructions of sexuality and ideas of ‘good’ and ‘bad’ youth and how this interplays with the success of the programme. She also argues that evaluations of peer education schemes need to be better at taking into account issues of gender and power relations.

Media and entertainment education

The role of media and entertainment education as a non-formal delivery method is receiving increasing attention as an engaging and successful method of passing on HIV prevention messages. As referred to earlier, Jacob et al.’s article, which presents the views of young people in Uganda, revealed strong positive reactions from the respondents for the potential of non-formal methods such as mass media, drama, youth groups, parent-teacher associations and music for helping students learn about HIV (Jacob et al, 2007). ActionAid’s report also highlighted the role of media as a trusted source of HIV information (Boler, 2003a) and Bankole et al. (2008) found that exposure to mass media was an important predictor of consistent condom use among adolescents surveyed in Burkina Faso, Ghana, Malawi and Uganda.

A number of studies considered here attempt to assess the impact that media and entertainment education have on prevention indicators. However, due to the differences in the nature of the interventions they are assessing (from global media campaigns to community based drama schemes), an overall picture of their impact is not clear.

Do (2006) provides an evaluation of a 13-week television drama broadcast in the low HIV prevalence setting of Bangladesh, measuring increases in HIV health knowledge and visits to health clinics. The results indicated that there was a positive relationship between viewing the show and increased HIV and AIDS awareness, use of contraceptives

and, amongst married men and women, increased visits to health clinics. Geary (2007 and 2008) also looked at the impact of televised information on HIV and AIDS, specifically the MTV 'Staying Alive' campaign targeting a global youth audience. Feedback gathered through focus group discussions held in Nepal, Brazil, Kenya and Senegal demonstrated the potential of the documentary format in encouraging empathy and positive attitudes amongst viewers. Other impacts identified included increased interpersonal communication on the issues raised by the public service announcements, particularly with teachers and sexual partners. The author concludes that, although the individual impact is small, the large numbers reached led to a good cost-benefit compared to other national communication campaigns.

Adamchak's 2008 evaluation of the Ugandan Straight Talk youth media initiative, which measured reported exposure of young people to a number of products, amongst other things, found that the radio broadcasts were the most popular product followed by the newspapers. Based on an adolescent household survey in six districts in Uganda, it found that greater knowledge of HIV and protective behaviours were related to greater exposure to the products. Adolescents exposed to two products were 2.15 times more likely to score higher on knowledge indexes than unexposed youth, and those who had been exposed to all three products were 2.72 times more likely to be better informed than unexposed counterparts. It did, however, also reveal that there was still considerable room for improvement in the level of knowledge of adolescent males and females.

In South Africa, Middelkoop et al. (2006) recorded a significant impact on VCT uptake in a community where a drama-based intervention took place focusing on tackling misconceptions and encouraging self-referral for VCT. Demand for VCT in the two control communities rose at a rate comparable to before the intervention (17 per cent), whereas in the intervention community there was a 172 per cent rise in self-referrals. It is not clear, however, how sustainable these results are, or the sustainability of the type of intervention itself.

Glik (2002) looked at 51 youth performing arts and theatre prevention programmes in the US in order to define their characteristics, distinguishing them from other forms of health education in order to help evaluate them more systematically. The article highlights that formal evaluation and impact assessment within the programmes were almost non-existent, especially when considering the impacts of the programmes on participating youth (youth performers); instead the programmes relied on audience reactions as monitors of success.

1.3 School-related risks and underlying vulnerabilities

This study did not explore this theme fully due to its potential breadth and since it is largely captured in the wider literature on gender, poverty and vulnerability. However, it was included in the study because of the potential role of schools perceived in addressing underlying vulnerabilities.

There is considerable evidence linking sexual violence and HIV transmission, thus making women more susceptible to contracting HIV (for example, ActionAid, 2004; Andersson et al., 2004). Research into levels of violence in schools has revealed them to be environments where gender-based violence is taking place on an alarming scale (Mirsky, 2003; ActionAid, 2004; Abrahams et al., 2006; Andersson et al., 2004; Burton, 2005). Burton's review of violence in schools in Malawi showed a third of students reported that teachers in their school demanded sex in exchange for good grades. Research by Plan International in Togo also revealed that sex is expected in exchange for grades (Plan, 2006). However, none of these studies provide direct causal evidence between HIV prevalence and violence in schools.

Research by ActionAid conducted in more than ten countries in Africa and Asia found that the violence faced in and around schools included: sexual harassment in the school environment; corporal punishment and public shaming by school authorities and teachers; patriarchal practices, cultures and traditions, such as early marriage; the exclusion of married and/or pregnant girls and young women; fear of and actual violence on the route to school; poverty leading to vulnerability to trafficking and transactional sex, especially with older men; and excessive household burdens and child labour. This demonstrates the wide range of types of violence that are seen to be significant factors in forcing girls out of the education system (ActionAid, 2007).

Mirsky (2003) presents findings drawn from research from around the world in her review of sexual violence in the education sector, and argues that, whilst there is evidence that sexual violence from harassment through to rape does take place in the education sector, it remains an unaddressed problem. Many of the reports reviewed note high levels of acceptance by both men and women of gender-based and sexual violence due to cultural gender roles and norms (ActionAid, 2004; ActionAid 2007; Mirsky, 2003; Plan, 2006). Mirsky (2003) argues that there is significant 'under-reporting' of violence, due in part to the problem of women believing it to be 'normal', but also because talking about it may lead to 'harm or shame'. Bhana's (2007) qualitative study looking at male teachers' attitudes to gender-based violence in KwaZulu Natal, South Africa, also highlights the cultural norms associated with gender-based violence (GBV). Morrell (2003) considers the issue of 'silence' in relation to HIV and gender relations in schools and uses a theoretical discussion of the nature of silence and its relationship to power and violence to analyse responses by South African students to questions about their lives and relationships.

Other risks associated with schools relate to the need to have adequate water and sanitation facilities to promote good health and hygiene. This is seen as being especially important for children living with HIV, who are more vulnerable to infections that cause diarrhoea. Separate toilets for girls and boys and for teachers and pupils are also important to reduce the risk of sexual harassment of girls and to address girls' specific needs. Such facilities can enable girls in particular to stay in school, reducing the likelihood that they drop out of school and the associated risks of HIV infection.³ The link between girls' vulnerability and inadequate sanitation at schools is made by Abrahams et al. (2006), in their review of the 'intersections of sanitation and sexual coercion and girls' safety in schools'. They conclude that poor level of sanitation of toilets means that both their use and avoidance put girls at risk.

Having identified in section 1.1.4 a number of studies that establish the relationship between schools and underlying vulnerabilities, this section looks at studies documenting interventions or school-based approaches to addressing these vulnerabilities. As in the previous section, much of the research/many of the studies on this theme is/are not specifically focused on HIV and AIDS, but take a holistic approach to vulnerability, where HIV risk represents just one potential negative cause and outcome of vulnerability. Some of the issues discussed here are closely related to those discussed in sections 2.1 and 2.2.

Gordon (2007) highlights that, while an HIV-focused curriculum may help to reduce risks, it does not necessarily address the underlying causes of vulnerabilities. Most programmes he reviewed focused on eliminating risk (teaching abstinence) or reducing risk (promoting use of condoms, reducing numbers of partners); only a few programmes tried to address vulnerability through considering gender inequality, abuse and violence.

³ The inter-agency initiative Focusing Resources on Effective School Health (FRESH) promotes healthy and safe schools as a way of ensuring better health and learning outcomes for children. Its framework has four components including: school health policies; water, sanitation and the environment; skill-based health education; and school-based health resources. (Retrieved 17 September 2008 from http://portal.unesco.org/education/en/ev.php-URL_ID=35163&URL_DO=DO_TOPIC&URL_SECTION=201.html).

Plummer's recent study into the gap between HIV awareness and safety in the Caribbean strongly emphasized the influence of gender stereotypes on promoting risky behaviours, particularly in young men (Plummer, 2008). While his report does not discuss the role of formal education in challenging these gender roles, it does draw attention to the importance of peer influence, which may be of relevance when considering potential effectiveness of peer education methods. However, Plummer (2008) argues that, in the face of powerful socially embedded practices, it is insufficient to rely on an individualistic approach to behaviour change, which assumes behaviour choices are rational. Effective prevention requires change at a deeper, social level that addresses the influences over people's choices.

However, the role of schools in shaping behaviours is strongly made by various authors. For example, Leach (2003) argues that schools are guilty of perpetuating the socialization of violence if they do not take vigorous action to stamp out violence and also to promote 'constructive adolescent relationships'. ActionAid's 'Making the grade' provides a model for national policy on preventing, managing and eliminating violence against girls in schools, which includes a consideration of the roles and responsibilities of a variety of stakeholders, as well as the activities that need to be undertaken to provide a comprehensive response (ActionAid, 2007). EFAIDS partners (Education International, Education Development Center (EDC) and WHO) have developed a toolkit for educator unions to help them challenge and change negative gender stereotyping and gender inequalities in all aspects of learning institutions and to promote equal opportunities for female and male learners (Pulizi and Rosenblum, 2007). Bhana (2007) and Clarke (2008) both make the point that teachers do not exist outside cultural norms, and that it is therefore unrealistic to hold them responsible for challenging powerful gender stereotypes.

While there are a number of studies that consider the role of schools in tackling underlying vulnerabilities, few provide evidence of its impact on HIV prevention by documenting the success of specific schemes or approaches. Fiscian's (2009) evaluation of an in-school HIV education programme for girls in Ghana draws out some of the challenges of trying to change individual behaviour as well as addressing underlying causes of vulnerability to HIV. Through the project needs assessment, the issue of young girls having 'sugar daddies' was highlighted as a key challenge for HIV prevention, fuelled by lack of knowledge of risks, and underlying issues of poverty and lack of employment opportunities for females. Although the programme had a positive impact on the participants' knowledge of risks and self-efficacy, the girls still felt that they needed the sugar daddies to fulfill their need for money. Attempts to address this through skills training for micro-enterprise were less successful due to limited opportunities to put these skills into practice.

Focus 2. Education and HIV and AIDS mitigation

As identified in the IATT on Education Strategic Approach publication, the education system also has a mitigation role to play in relation to the impacts of HIV and AIDS (UNAIDS IATT on Education, 2009). According to Kelly in 2000, the relationship between education and HIV mitigation had not been developed to the extent that education for prevention had, but there was interest in schools as sources of care and support for both students and teachers (Kelly, 2000). This section will therefore start by presenting the approaches being suggested before looking at what evidence to support them has emerged on this subject since 2000. There is a strong overlap between this section and a later section looking at changing demands on the education sector and individual schools due to the HIV pandemic. Specific interventions are therefore considered here, whereas reports considering more theoretical questions about the changing role of schools, and pointing out the direction of future evidence-based research, will be addressed later.

2.1 Types of intervention

A 2008 UNESCO technical consultation report draws together the main ways in which schools are already playing, or could potentially play, a role in mitigating the impacts of HIV and AIDS. It lists these as follows (UNESCO, 2008c):

- 1) ensuring continuation of education
- 2) providing psychological support to children living with or affected by HIV
- 3) facilitating access to treatment (through education about access and treatment regimes)
- 4) facilitating home-based care (teachers and students providing outreach support to the community)
- 5) responding to basic needs (for example, through school feeding programmes, school gardens)
- 6) developing livelihoods skills to support the security of children's future livelihoods
- 7) taking universal precautions (policies and procedures that promote safety and prevent injury at school).

This report only includes countries in SSA where HIV prevalence is at a level where such extensive support by schools is required. As the report highlights, this may not be appropriate in lower prevalence settings.

The role of schools in supporting students and teachers who are HIV-positive is not strongly addressed in the literature reviewed, beyond inclusion in policy recommendations and frameworks for action. Two UNESCO technical consultation reports – ‘Supporting HIV-positive teachers in East and Southern Africa’ (UNESCO and EI, 2006) and ‘School-centred HIV and AIDS care and support in Southern Africa’ (UNESCO, 2007) – review a range of programmes to identify good practices in relation to psychosocial support, treatment education and greater involvement of HIV-positive teachers and learners in the programmes. They also highlight major gaps in knowledge, such as the need to identify the impact on teachers living with HIV. In 2007, the IATT on Education published a briefing paper on ‘Teachers living with HIV’ highlighting the fact that stigma and discrimination against teachers with HIV has reduced the effectiveness and documentation of the response to their needs, and a comprehensive response is required to address this (UNESCO, 2008b). Teachers’ unions are identified as having a significant role to play in

this, but have so far been limited in their scope for response (UNESCO, 2008b; EI, EDC and WHO, 2007; UNESCO and EI, 2006).

In 2005, UNESCO and WHO published a report based on the outcomes of a technical consultation on treatment education, which states that treatment education is the 'bridge' between treatment provision and the preparation and involvement of communities for a comprehensive HIV and AIDS response. It should therefore be seen as an integral component of HIV and AIDS planning rather than a new initiative, and should be integrated into wider HIV and AIDS education (UNESCO and WHO, 2006). The IATT on Education also published a report on this theme (UNAIDS, 2006d), exploring some of the main issues in the definition of treatment education, signalling ways that the education sector can play a role along with others engaged in efforts to achieve universal access to prevention, treatment, and care, and considering some key strategies for implementation.

The World Bank (2006) highlights the fact that the intersectoral nature of barriers faced by orphans and vulnerable children (OVC) in terms of accessing education poses a significant challenge to the education system. Bennell (2005) identifies six priority areas for OVC to be addressed by schools: identification and referral and monitoring; feeding; pastoral care and counselling; financial assistance; involvement of guardians and caregivers; support for children living with AIDS.

These reports and studies establish an ambitious role for schools to play in mitigating the impacts of HIV and AIDS on learners, in particular OVCs. However, far fewer studies capture the reality of this provision. The studies referred to below go some towards building a picture of evidence for how far this vision is being met within an African context.

In 2007, the Association of African Universities (AAU) produced a set of case studies documenting best practice in the response of African universities to HIV. While much of the focus was on activities related to prevention, attention too was given to examples of universities' support for students living with HIV, access to VCT and treatment education. It found that uptake of ARV treatment at higher education based centres, where available, was still low. One recommendation for this was opening out services to the communities in which they are based. It also highlighted that, while much progress has been made through the first generation of responses, stigma is still a considerable problem affecting the confidence of PLHIV in seeking support.

A recently published report by UNESCO presents lessons from Namibia and Tanzania on supporting educational needs of HIV-positive learners. The study was based on key informant interviews and focus group discussions held with adults from health, education and social service sectors, HIV-positive learners and youth (including some orphans). The findings show wide gaps between policies and frameworks in place to support HIV-positive learners and the experiences of learners. Stigma was also raised here as a matter of high concern, where it was considered to be greatly affecting the national response to HIV in every way. Training for teachers in counselling, treatment and referrals was recommended, as was the establishment of child-friendly services located near schools. While this study referred to interventions and projects observed by researchers, details of what these involved or indications of their success levels were not provided beyond the very general.

A study by Robson (2007) looked at the impact of HIV and AIDS on the education of affected children in high prevalence districts in Zambia. Ninety-two per cent of teachers interviewed for this study felt that they should be trained in pastoral care to be able to support orphans. Sixty-five per cent felt that the Zambian National AIDS policy does not adequately address the complex role that schools play in relation to supporting children affected by HIV and mitigating impacts. The study also revealed that many schools and

non-governmental organizations (NGOs) engage in unofficial support and monitoring activities, such as provision of food and clothes, completion of orphans' registers and soliciting for bursaries.

One identified strategy for strengthening schools' response to HIV is through increasing its links with community services. Luginaah et al. (2007) have looked at the situation in Kenya and the role of schools there as 'community based organisations (CBOs)' as part of a much broader programme. This research used a quantitative and qualitative approach involving 163 schools and found that 49 per cent of schools already took on activities beyond the day-to-day running of the school. These provisions included day-nursery care, support for orphans or widows, farming, income generation, agro-forestry, water and sanitation projects, animal husbandry and HIV and AIDS education campaigns. HIV-related activities dominated, both in schools participating in the HIV project the research was related to and in the control schools. An identified challenge to schools implementing activities was increasing the involvement of the government in running schools. For example, the initiative for free primary education has reduced schools' capacity to undertake additional activities. In addition, due to the traditional view of schools as educational providers, they do not have access to capacity building or project funding support that is available to CBOs.

Mulera (2005) conducted a study in Malawi to look at ways that schools and communities could strengthen links in their response to HIV. This research highlighted the potential strengths when stakeholders in the community are linked up to school initiatives. One example was of parents and community members playing a role in life skills education, through counselling roles and peer support amongst teachers.

2.2 Evidence of impact

Although the potential for schools to be involved in mitigating the impacts of HIV and AIDS is widely considered, there is yet to be a strong body of evidence that supports the effectiveness of this approach. A recent study by the Quality Assurance Project et al. (2008), reviewing evidence for programming for children affected by HIV in low-prevalence and concentrated epidemic situations, found that few interventions proposed to alleviate problems or remove barriers to education had been properly evaluated.

School feeding is one area where information is more readily available, although even here the relationship between school feeding and HIV and AIDS mitigation is made as part of wider goals, such as reducing gender disparity and meeting the Millennium Development Goals (MDGs) of increasing school attendance. The 2004 Global School Feeding Report identifies its potential to mitigate the impact of HIV and AIDS by helping to keep students healthy and active, thereby slowing the progression of HIV, as well as reducing the need for students to engage in 'survival sex' and expose themselves to the associated risks (WFP, 2004b). Take-home rations, as an addition to school feeding, have recently been looked at by Edstrom in Malawi as a way of increasing support for vulnerable children, their carers and other household members. This has had positive results on reducing gender disparities. He raises the question of effective targeting, suggesting that a focus on all OVC, as opposed to targeting particularly vulnerable groups within the group 'girls' and 'double orphan boys', would be more effective (Edstrom, 2008). UNESCO's 2008 study on HIV-positive learners includes sustainable feeding programmes as a 'non-negotiable element of any comprehensive response' due to the critical role of nutrition in support of antiretroviral treatment.

Programmes that distribute food to communities can, according to the WFP, improve children's nutrition, as well as providing an entry point for community education about HIV and AIDS. The WFP has produced practical guidelines for integrating HIV

awareness and prevention education into school feeding programmes, developed in partnerships with governments, UN agencies and civil society partners (WFP, 2004b).

Focus 3. Impact of HIV and AIDS on demand and supply of education

Considerable attention has been given by various authors to estimating the impact that HIV has had and will continue to have on the functioning of education systems (Risley, 2007; Kelly, 2000; Grant et al., 2004). Kelly (2000) provided a comprehensive review of the various ways in which the education system will be affected by HIV by looking at the impact on children, teachers, curricula content, organization of schools, role of education, and planning and management. He argues that the 'person-intensive' nature of the education system makes it more vulnerable to the disruptive impacts of HIV and AIDS. It is not, however, just a matter of personnel loss. Systems are disrupted, with 'bewilderment' and 'uncertainty' leading to 'chaotic conditions' and reactive responses that do not adequately reflect reality (*ibid.*, p. 44). The UNAIDS IATT on Education report on 'Quality education and HIV and AIDS' argues that education systems 'can and must change their operations in relation to HIV and AIDS', if they are to respond to the changing demands of the students and communities, as well as the educators themselves (UNAIDS, 2006b). This section, therefore, explores the impact that HIV and AIDS has had on the demand for education on the one hand, and the supply on the other hand.

3.1 Demand for education

Demand for education can be understood from two perspectives, both by the number of people wishing to access it, but also by the role it is being required to play. Changing demands for education's role to prevent and mitigate the impacts of HIV have been broadly covered in the previous section, so the focus here will be on evidence regarding student enrolment, attendance and success rates.⁴

3.1.1 Students: enrolment, attendance and success rates

In 2007, the number of orphans attributed to AIDS in sub-Saharan Africa alone was estimated to be 12.1 million (UNAIDS et al, 2008). Several studies in Africa have demonstrated that children who are orphaned are significantly less likely to be enrolled in school than non-orphans, and they tend to progress more slowly when they are enrolled (Case et al., 2004; Case and Ardington, 2006; Evans and Miguel, 2007). Kelly (2000) argues that this changing demographic is not only taxing the coping strategies of families and communities but the education system as well, which must respond to their needs. There are a number of studies that try to establish the number of orphans and the reasons for their reduced participation in education, but the results vary. Some find a strong correlation between orphanhood and reduced participation in education.

⁴ Orphans are differentiated from other vulnerable children because they have particular psycho-social needs due to grief and loss of psychological and material support. 'Children on the brink' (UNICEF, UNAIDS, USAID, 2004) defines orphans as having lost either one or both parents; elsewhere distinctions are made between maternal and paternal orphans (Boler and Carroll, 2005b). 'Vulnerable children' are considered to be "children whose safety, well being and development are, for various reasons, threatened" (Holzmann and Jorgensen cited in IATT on Education, 2004, p. 13). The relevance of distinguishing children as 'vulnerable' is however questioned in high prevalence HIV regions where all children have already been affected by the epidemic (Boler and Carroll, 2005b). The category is also considered problematic for its potential to increase associated stigma and discrimination experienced by children labelled in this way (Landis, 2002; ActionAid, 2004). HIV-positive learners are sometimes subsumed into the OVC group, which can help reduce the level of stigma and discrimination they otherwise experience (Badcock-Walters, forthcoming).

The 2002 'Children on the brink' report refers to UNICEF research in 20 SSA countries showing that children aged 5–14 years who have been orphaned were less likely to be in school and more likely to be working more than a 40-hour week than those with both parents still alive (UNICEF, UNAIDS and USAID, 2002). Robson (2007) used focus group discussions with teachers and students to establish what the impact of HIV and AIDS had been on basic education and found that orphans were most likely to drop out due to increased economic pressures, change in family structure, responsibilities to care for sick and elderly relatives or siblings, and loss of parental guidance. She also found that Grades 8 and 9 (which are not supported by the Zambian Government Free Basic Education scheme) saw greater drop-outs of members of child-headed-households where costs become too great.

Ainsworth et al. (2005), who studied the impact of parents' death and orphan status on primary school attendance, found that there was no evidence that children aged 7–14 dropped out of school due to parental death. However, the death of a parent did significantly affect attendance, with hours of school attended in the time proceeding and following a parental death much lower than normal. Bennell (2005) argues that the current and future projections of orphan populations are overestimates and that the impact on educational attainment due to losing parents is likely to be less than previously thought. However, he argues that there is a need for greater contextualization of the impact of orphans on education and that there is still much to be done in order to mitigate the impact of the epidemic on these children.

Landis' report for the WFP identifies the following challenges faced by OVC as being detrimental to their ability to access or sustain education (Landis, 2002):

- 1) Differential treatment of OVC as a result of stigma and discrimination manifests in ways such as being denied access to food, adequate shelter, health care and education; forced to work harder or longer hours; subject to physical or emotional abuse.
- 2) Increased workload of OVC as a result of caring for sick household members, or having to make up lost income by undertaking productive work (a factor that impacts disproportionately on girls).
- 3) Moving away from home to live with relatives temporarily or for longer periods reduces the likelihood of enrolling in or maintaining attendance at school.
- 4) Some children who have lost both parents and have no relatives to support them take on head of household responsibilities, which means a heavy responsibility for providing for younger siblings and very little money for education.
- 5) Children who live on the street are particularly vulnerable to abuse; lack of security and other basic necessities of life make formal education impossible to attend.

Grant (2008) did not look at the relationship between OVC status and school enrolment but on the impact of parents' knowledge and attitudes to their own personal health risk on sending children to school. It provides an interesting alternative approach to the question of changing demand. Trying to disprove Cohen and Montgomery's hypothesis that health and survival uncertainty would reduce parents' willingness to invest in children's education, Grant's evidence, based on data from a longitudinal study, suggests that parents with concrete information about future or anticipated health shocks act more altruistically towards children in relation to their schooling.

Boler and Carroll (2005b) are critical of the fact that nearly all research relating to the impact of education for OVC focuses on the indicator of enrolment, failing to establish

a wider picture of impact on progression through variables such as “*repetition, highest grade completion, learning outcomes, gendered equity and inclusivity of education*” (ActionAid, 2004).⁵

3.2 Supply of education

Evidence on attrition and mortality rates amongst teachers is presented in this section, followed by a discussion on the impact of HIV and AIDS more generally on education systems and management.

3.2.1 Teachers: attrition and mortality rates

The impact of HIV and AIDS on teachers’ is a key area of concern, as this has the potential to reduce the supply of education significantly, especially in countries where availability of qualified teachers is already a problem. Attempts to map the situation have not yet been conclusive, in part due to the complexity of factors involved and the range of contexts being considered. This section will present first what type of data is currently being used to assess the situation and what some of the problems are. It will then present what is being said about the impact of HIV on teachers and the relationship between teachers and HIV risk.

Boler’s paper (2003b) argues that research is undermined by lack of quality data and adequate contextualization supporting and explaining findings. Her report identifies and critiques a number of different methods by which the impact of HIV and AIDS on teachers is assessed. Education personnel records and Education Management Information Systems (EMIS) statistics, as well as school-based surveys, are used largely to establish mortality rates. The EMIS in many countries is poorly maintained, making data unreliable and limited in the information it provides. This problem is discussed further in articles by Buss and Patel, who advocate for a more robust alternative, the District Education Management Information System (DEMIS), which allows for much more nuanced information, such as month-by-month absenteeism information (Buss and Patel, 2006; Badcock-Walters et al., 2002). It is noted that school surveys also used for mortality estimations are not always suitable for generalizations due to localized contexts where mortality rates often differ region by region. As well as mortality rates, HIV prevalence rates are also used to estimate impact, but these are weakened by low teacher sample numbers, lack of information about the nature of the infection and how and when its impact will be felt. Modelling of future impact is the main method used for service planning, and models such as the Ed-Sida model are rigorous in their approach. However, Boler still argues that, due to the limited robust input available, data needs to be strongly contextualized (Boler, 2003).

The challenge of adequate data is highlighted by many authors in their articles; both Bennell and Grant highlight the lack of good data available linking teachers’ attrition rates with HIV and AIDS, or on the impact of HIV and AIDS on absenteeism (Bennell, 2003; Grant et al., 2004). The problem of inadequate data collection occurs at school, regional and national levels and tends to be worse in high-prevalence countries (Boler, 2003b). UNESCO (2006) reveals that the universities included in their study are not collecting data on teacher deaths related to AIDS and they are also not conducting rigorous impact assessments to understand the problem they are facing. The article by Buss on mitigating the impact of HIV on sub-Saharan African education systems also

⁵ For examples of research focusing on enrolment see: Ainsworth and Filmer, 2006; Bennell, 2005; Case and Ardington, 2006; Fortson, 2007 and Guarcello et al., 2004.

argues that, without HIV friendly workplaces free of stigma and discrimination, accurate data will not be collected (Buss, 2006).

Regions with the highest HIV prevalence rates have unsurprisingly received the most attention for impact assessment: Southern and Eastern Africa, and to a lesser extent the Caribbean. Bennell's 2002 analysis of available data on the impact of the AIDS epidemic on schooling in SSA (focusing on Botswana, Malawi and Uganda) reveals that teacher mortality rates are lower than previously estimated and in some countries there is a downward trend (Bennell et al., 2002; Bennell, 2006b). The research by Badcock-Walters et al. (2003) into teacher mortality in KwaZulu Natal in South Africa, however, reveals that teachers' deaths peak at an age below anticipated life expectancy without AIDS, and that teachers are dying at three times the rate of their peers in the general population without AIDS. From this, he argues that there is 'substantial and measurable impact' on the education systems. As well as mortality, absenteeism is also a factor in reducing the supply of quality education by increasing student-teacher ratios for covering teachers. In Zambia, Robson et al. (2007b) found that this may mean anything from one teacher to every 50 and 120 pupils. Risley's reports (2009) on Rwanda and Kenya also predict a widening gap between the Education for All (EFA) goal of a 1:40 teacher-student ratio and the reality if current levels of ARV therapy and VCT are maintained.

Coombe (2000a) warns that teachers will leave for better paid jobs where the epidemic has left jobs open. In addition teachers' HIV status will affect their motivation and interest in further professional development. Her prediction is that the quality of teachers will reduce as managers, mentors and trainers are lost and inexperienced teachers are promoted to fill their places. Elsewhere it is argued that current analysis does not adequately reveal impacts on 'morale', 'motivation' and 'overall performance', which are other important factors affecting educational quality (Bennell, 2002; Grant et al., 2004). However, Grant also warns that further research on impacts, although 'desirable', may be expensive and increase delays in response, whilst not providing significantly new information (*ibid.*).

Theron (2007) undertook a phenomenological qualitative study of health implications of the HIV epidemic on non-HIV positive staff. This was a small study but used in-depth interview techniques and identified the following thematic areas of impact: negative emotional experience; negative spiritual experience; poor sleeping and eating patterns; negative social experience; diminished professional performance. Coping responses were not specifically asked for, but some emerged. These included: increased spiritual faith; access to counselling; talking openly about the epidemic; meaningfulness of educator roles in HIV prevention; being well informed; confronting ill colleagues. The author is keenly aware of limitations of the results and stressors beyond HIV that may be contributing to teachers' responses. Therefore the article does not try to inform systemic policy change due to the size of the results, but does suggest a number of support mechanisms that could be tested. These include life-skills training, support groups, support in undertaking additional roles such as counselling training, as well as addressing stigma to reduce unnecessary fear and related stress.

The increasing level of ARV treatment coverage is one factor that is seen as contributing to lower and decreasing teacher mortality rates (Bennell, 2002; Risley and Bundy, 2007). Risley and Bundy's 2007 report on the impact of HIV and AIDS on the supply of basic education looks specifically at the effect access to ARV treatment has (or could have) on teacher supply and found that, in SSA, achieving universal access to ARV treatment would greatly reduce the scale of the recruitment problem being faced (Risley and Bundy, 2007). Their article compares the situation for SSA with the Caribbean and Greater Mekong Region of Asia and finds that universal access is always beneficial, but the cost-effectiveness varies depending on the nature of the epidemic. In SSA it is cost-

effective on education returns alone. In the Caribbean, benefits to education would pay for access to ART but not VCT. In Asia, where the epidemic is having a lower impact, the cost of testing and treatment is more than the education costs saved. Recent research by Riskey (2009) using the Ed-Sida model focusing on Kenya and Rwanda support the findings that scaling up ARV treatment and VCT provision would produce savings to the education sector through reduced absenteeism, as well as lower costs related to death and recruitment. In Rwanda, over 50 per cent of teaching population is under 30 and therefore has a 200 per cent higher risk of HIV prevalence than the general population.

Bennell (2003) tries to establish whether teachers in South Africa are more at risk of contracting HIV than the general population. Socio-demographic factors suggest that teachers will have higher HIV prevalence rates but this is not necessarily related to their job as a teacher or individual risk behaviours. Zungu-Dirwayi et al. (2007) undertook a study into factors affecting HIV prevalence amongst public-school educators in South Africa, looking at the relationship between HIV and gender, race and socio-economic status. Over 20,000 teachers took part in the study, which involved the completion of a questionnaire and specimen testing. There was a significant difference in HIV prevalence between races, with African teachers much more likely to be HIV-positive than their white, coloured or Indian-Asian colleagues. The author noted this reflected the pattern in the wider population and the fact that African teachers are more likely to teach in socio-economically deprived areas, thus increasing their vulnerability. There were higher prevalence rates among younger teachers, with the highest rate in the age group between 25–35 years. Within this age group, female teachers were much more affected.

However, for educators over 50 years old, there was a higher prevalence amongst men. The author linked this to evidence of females' reduced power to negotiate safe sex, having older partners and also gendered income inequalities making more female teachers fall into low education and income groups associated with increased vulnerability. Socio-economic status was inversely related to HIV prevalence with high-income teachers having lower levels of HIV prevalence. Migration was shown to be a factor too, with teachers who had been placed away from their families following the completion of their studies more likely to be HIV-positive.

3.2.2 Education systems and management

In addition to the impact of HIV and AIDS on teachers, another issue commonly raised is the impact of HIV and AIDS on the education system as a whole (Kelly 2000). Allemanno (2003) who looks at sub-Saharan Africa and the threat to educational quality that HIV and AIDS poses there, argues that policies focusing on a single factor, such as teacher supply or curricula development, will be insufficient in protecting the system. Instead HIV and AIDS needs to be mainstreamed into strategies designed to promote and protect educational quality.

Others argue that HIV and AIDS is not the only factor undermining the effectiveness of education systems, but it is exacerbating existing weaknesses in systems and should therefore be addressed within a wider context of meeting service delivery challenges (Grant et al., 2004; Badcock-Walters, 2002). Again lack of data is highlighted as an issue (Buss, 2006). Allemanno (2008) argues that epidemic information systems are required and Badcock-Walters suggests the potential of monthly information on deaths and absenteeism on the ability of systems to respond in a relevant manner. UNESCO's report on supporting educational needs of HIV-positive learners highlighted the concern that in highly endemic, resource poor, countries such as Namibia and Tanzania, where education systems are already stretched to capacity, anything in addition to 'core business' becomes neglected (UNESCO, 2008d).

Grassly et al. (2003) used part of the Ed-Sida model and developed it for their own needs to estimate the cost of HIV on the Zambia education system. Looking at teacher training costs and funeral costs in relation to rates of retirement, leaving before retirement, HIV infection and death of teachers, projections showed that the costs of \$1.3–3.1 million in 1999, may rise to \$10.6–41.3 million between 1999 and 2010. Considerable reallocation of resources will be needed in order to continue to meet changing demands. For example, teacher training costs will rise by 26 per cent if enough teachers are to be trained to meet the deficit.

Focus 4. Policy responses

1.1 Mainstreaming policy

This section explores the evidence related to how HIV and AIDS has been mainstreamed, first at national/country level within education policy, and secondly within education and workplace policies.

4.1.1 Mainstreaming HIV and AIDS into national-level education policy

Research promoting the role that education can play in prevention and mitigation of HIV and AIDS, or revealing its impact on the education system, frequently calls for response at the national level through mainstreaming HIV and AIDS issues into education policy and planning. Kelly's report for UNESCO concludes that education will have to go through a 'radical transformation' if it is going to respond to the challenges that HIV and AIDS presents it with (Kelly, 2004). The UNAIDS IATT on Education 'Toolkit for mainstreaming HIV and AIDS in the education sector' (2008) acknowledges the fact that ministries of education hold the main responsibility for mainstreaming HIV and AIDS into a country's education sector response, but also identify the important role that 'development cooperation agencies', (including multilateral and bilateral agencies, and civil society) have to play in supporting this process (UNAIDS IATT, 2008).

The IATT on Education 2004 Global Readiness Survey provides the most comprehensive review of the extent to which HIV and AIDS has been mainstreamed into educational policy. It is based on surveys in 71 countries across different regions with high-, medium- and low-prevalence rates and shows that steps are being made towards institutionalizing HIV and AIDS through: evidence of HIV and AIDS management structures; HIV and AIDS being put on the agenda for discussion; the mainstreaming of HIV into education strategic plans; and the creation of partnerships with other ministries, government agencies and NGOs (UNAIDS IATT on Education, 2004). Despite this, it reveals that there are significant weaknesses that need to be addressed particularly in relation to policy to address the impact of HIV and AIDS on the supply and demand, quality and outcomes of the sector, workplace policies and policies that address prevention, treatment, care and support and management of the response.

ActionAid's 2005 report 'Deadly Inertia', produced in collaboration with the IATT on Education and in conjunction with the research for the Global Readiness Survey, includes input from civil society in 18 countries (Boler and Carroll, 2005a). This report states that "*in the Asian and Latin American countries there was no policy response from Ministries of Education, firstly because HIV and AIDS was seen as the responsibility of Ministries of Health and secondly because HIV and AIDS was not deemed a serious problem*" (Boler and Carroll, 2005a, p. 5). The Global Readiness Survey highlighted that HIV is still widely seen as a public health issue and not a systematic management concern (UNAIDS IATT on Education, 2004). The ActionAid report also noted that lack of system-wide planning results in a failure to tackle the systematic issues by instead focusing on high-visibility but standalone programmes such as classroom materials. It also highlighted that in Africa, where greater progress has been made by ministries of education (MoEs) in establishing HIV and AIDS policies, they are still often not implemented because they are formulated in isolation from other policy and budgetary processes. HIV and AIDS units established to

push forward the agenda are not changing attitudes within MoEs due to lack of power, resources and isolation from the decision-making process.

A 2008 four-country case study (Jamaica, Kenya, Thailand and Zambia) commissioned by the UNAIDS IATT on Education highlights key progress made in improving the education response. In this study, the education sector emerged as one of the strongest sectors within the overall response in Kenya and Zambia, and an important contributor to the multisectoral response in Jamaica. Evidence of joint action, better involvement of stakeholders, and improved coordination was found. The study also highlighted that, in some contexts, important progress has been made towards alignment and harmonization of approaches (UNAIDS IATT on Education, 2008).

In 2007, the Networks for Ministry of Education HIV and AIDS focal points (established through the UNAIDS IATT Accelerate Initiative) undertook a rapid situation analysis to update understanding of education responses to HIV and AIDS and school health and nutrition (SHN) in SSA. The aim of this was to identify priority areas where support and resources could be focused and to act as a baseline to measure progress against. Focal points in 34 countries answered questionnaires regarding key areas of policy and strategy. This revealed that most MoEs have policy and management frameworks in place for SHN and HIV programming and ensuring a safe school environment. In many countries, the education sector is already involved in providing health education to staff and students, and a range of health and nutrition services. Key process learning from the study was the need to support quantitative data with qualitative findings about country activities to help share experiences more effectively across the network.

There are a few studies of individual policies available, but these are insufficient to provide a full picture of the current policy landscape. Dickenson (2008) provides a framework to review HIV policy evaluations, although this study does not focus on education-specific policies. Ndambuki et al.'s (2006) review of the HIV and AIDS education policy creation and implementation process in Kenya provides a comprehensive analysis of challenges to its implementation and a good model for other HIV and AIDS education policy analyses. Problems identified include a lack of clear interpretation and implementation guidelines, as well as a lack of structure for its implementation. Lack of capacity on the part of stakeholders (including teachers and head teachers) to interpret and implement the plan is also a factor; stakeholders also lack awareness and access to the policy and have not been sensitized to its contents and made aware of their roles and responsibilities within it. The main recommendations centre around the need for a coordinated implementation plan, which includes supporting guidelines, a monitoring and evaluation system, and a harmonized syllabus that integrates HIV and AIDS throughout the curriculum.

Han and Bennish (2009) review the implementation of the South African policy, which states that all children regardless of age have the right to “*have access to information on... the prevention and treatment of ill-health and disease, sexuality and reproduction*” and that no person can refuse to sell or provide condoms (where they are being distributed free of charge) to children aged 12 and over. Schools have the right to choose whether they distribute condoms, but if they do decide to they must conform with the policy of allowing access to all children. The article highlights the clash between the South African government policy and the US President's Emergency Plan for AIDS Relief (PEPFAR) guidelines, which prohibit distribution of condoms in schools and information on condoms to youth aged 14 and under. It assessed levels of support in schools in one area in KwaZulu Natal and found that staff and students generally supported distribution of condoms in school but were confused about the policy. Also government officials' statements against condom distribution further obscured official policy. The author

recommended that the Department of Health and the Department of Education could coordinate more closely by including schools as one of the public access points where condoms are distributed. It also highlights that access is not enough and needs to be combined with policy on teaching about use and perceived risk of HIV.

4.1.2 Mainstreaming HIV and AIDS into education and workplace level policy

Workplace policies for teachers have drawn considerable attention as a way of instituting the following actions and behaviours: implementation of HIV prevention training for staff and students; reducing vulnerability arising from gender inequality in staff/student relationships; eliminating stigma and discrimination and ensuring the rights of HIV-positive staff and students; providing care, treatment and support; managing and mitigating the impact of HIV and AIDS in education institutions; and providing safe, healthy and non-violent work and study environments (ILO and UNESCO, 2006a and ILO and UNESCO, 2006b). ActionAid's report 'Deadly Inertia' recommends the establishment of 'workplace policies' to respond to the needs of HIV-positive teachers, which should at the very least include confidential access to VCT and affordable treatment (Boler and Carroll, 2005a). This is echoed in UNESCO and EI's technical consultation report, which also identifies the role of teachers' unions in developing and supporting the implementation of such policies (UNESCO, 2006). The joint EI, EDC and WHO publication, 'Inclusion is the answer', emphasizes the importance of unions in tackling stigma and discrimination of educators who are living with HIV and provides a toolkit for unions to help them achieve this (EI, EDC and WHO, 2007).

While the argument for workplace policies is well made, there is still a lack of full discussion as to the progress being made in this area and evidence supporting the impact that they have on prevention and mitigation outcomes for schools and universities.

Although this study originally planned to review literature on efforts to mainstream education into HIV and AIDS policy, the searches carried out did not reveal any documents or literature on this topic. Further searches, supplemented perhaps by key informant interviews and/or case studies, may unearth documentation and attempts to mainstream education into HIV and AIDS policy.

4.2 Financing HIV and AIDS education

The original intention for this section was to review documentation on financing of HIV and AIDS education. While there is a considerable amount of information and documentation on financing of HIV and AIDS responses generally, nothing was found that focuses specifically on financing HIV and AIDS education. Another more in-depth round of searches may well reveal further studies; a further possibility is that information on this theme may be embedded in this broader literature on HIV and AIDS financing.

One area that is related to this are studies exploring cost and cost-effectiveness of HIV prevention programmes that include education interventions. The following studies are all cited in the UNESCO concept note on establishing the cost and cost-effectiveness of school-based sexuality education:

The study by Hogan et al. published in 2005 assessed the effectiveness and costs of eight interventions (including school-based education and teacher training) for preventing and treating HIV and AIDS, individually and in combinations, in terms of both costs and health impacts. The analyses focused on countries with very high adult and high child mortality in sub-Saharan Africa and countries in South East Asia with high adult and child mortality. Analyses indicated that interventions focused on mass media, education

and treatment of STIs for female sex workers and treatment of STIs in the general population were the most cost-effective in both regions. School-based education strategies and highly active ARV therapy were estimated to be less cost-effective in terms of averting HIV infections. The yearly costs of 90 per cent coverage of school-based AIDS education were valued at 77 million US dollars for sub-Saharan African countries and 176 million US dollars for South East Asian countries.

In 2005, the UNAIDS working group for an expanded response to AIDS in low- and middle-income countries produced a lower rudimentary estimate for the total cost of global school-based HIV and AIDS activities at US \$313 million for the period from 2006–2008 (UNAIDS, 2005b).

In 2006, Stover et al. published a study to accompany the UNAIDS working group study by producing cost-effectiveness analyses. The total cost for implementing expanded HIV prevention programmes (including school-based programmes) over the next ten years was estimated at US \$122 billion, with the result of averting 31.1 million projected new HIV infections. The cost of all combined prevention activities was projected to be US \$3,900 per infection averted, resulting in a cost savings of US \$780 per infection (Stover et al., 2006). The analyses did not calculate the cost of individual prevention activities per infection averted.

One of the biggest limitations with all three studies is that none of them accounted for whether or not school-based programmes were of a high quality, if they were comprehensive or if they were rolled out to the national level. Research indicates that cost reductions can be achieved when HIV prevention interventions are taken to scale, which suggests that some of these costs might be lower if government programmes were assessed (Marseille, 2007). In addition, the UNAIDS estimates in Stover et al. accounted for less than 50 per cent coverage of school programmes in concentrated and low-level epidemics and 100 per cent coverage in generalized epidemics, whereas UNESCO would advocate for near total coverage of sex, relationships and HIV education in all types of epidemic settings due to the benefits expected from reducing unprotected sexual intercourse, especially pregnancy and STIs.

In general, there is a striking dearth of evidence on the cost and potential cost-effectiveness of quality sex, relationships and HIV education programmes that are implemented at scale.

4.3 International support and response

ActionAid's report 'Deadly Inertia' states that the international donor community has failed to deliver on its commitment to the prevention of HIV, especially with regards to supporting programmes that provide free and universal access to education (Boler and Carroll, 2005a). A review of World Bank assistance to the education sector response to HIV and AIDS in Africa noted that an increasing number of education projects now include an HIV component, but few offer a comprehensive response that address issues such as teacher training, workplace policies and access for OVC (Bakilana et al., 2005). The report identified that there was a lack of engagement of education sectors with the Multi-Country HIV/AIDS Program (MAP), which reduced the amount of funds actually dispersed to the sector. However, it did also highlight that current tracking systems only account for components designated as 'HIV/AIDS specific' as opposed to recognizing support to activities with more general intent that also respond to HIV/AIDS issues, such as supporting girls' education or removing financial barriers to educational access (*ibid.*).

The UNAIDS IATT on Education report on coordination, harmonization and alignment (2008) found that development agencies can be credited with providing support

to improving coordination of the HIV and AIDS response. With regard to harmonization and alignment, there have been serious challenges, with more progress made in countries that have a sector-wide approach (SWAp). Limitations to greater harmonization and alignment include: *“the fact that key players are not part of coordination and harmonisation efforts; limited decentralisation by development partners, constraining commitment to alignment with government priorities and agendas; and insufficient staff among development partners to address the additional workload which arises from harmonisation and alignment efforts”* (UNAIDS, 2008, p. 8).

ActionAid’s report also noted that education NGOs have provided only ‘patchy’ responses, are widely under-informed about the epidemic and have in some instances used the crisis *“to promote ideological or religious beliefs of their own choosing”* (Boler and Carroll, 2005a, p. 5).

Concluding thoughts

This second stocktaking exercise has added a considerable amount of sources and documents to the first review. Nevertheless, like the first review, it has no doubt not done justice to the high-quality materials and resources that have been produced over the years. In particular, the handbooks, guidelines and manuals that are critical to the implementation of effective programmes within the education sector have not been reviewed as part of this process. The stocktaking exercise identified and reviewed a set of sources by theme and sub-theme; clearly there are further areas and themes that have not been dealt with in this review. It is also important to note that, whilst this review categorized sources into these themes and sub-themes, there is considerable overlap, inter-linkages and blurring of the boundaries between these themes.

While this second report has attempted to take into account a number of cross-cutting issues such as gender, age and cultural context, often the literature reviewed did not sufficiently disaggregate or capture these issues. Similarly, due to limitations of time, the authors were perhaps unable to delve more deeply into the documents to extract this information.

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Association for the Development of Education in Africa (ADEA) – www.adeanet.org
American Institutes for Research (AIR) – www.air.org
Association of African Universities (AAU) – www.aau.org
Australian Government Overseas Aid Program (AusAid) – www.usaid.gov.au
Canadian International Development Agency (CIDA) – www.acdi-cida.gc.ca
CARE International - www.care-international.org
Commonwealth Secretariat - www.thecommonwealth.org
Council on Foreign Relations (CFR) – www.cfr.org
Department for International Development (U.K.) (DFID) – www.dfid.gov.uk
Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) – www.gtz.de
Education Development Center (EDC) – www.edc.org
Education International (EI) – www.ei-ie.org
EduSector AIDS Response Trust (ESART)
European Commission (EC) – http://ec.europa.eu/index_en.htm
Ford Foundation – www.fordfound.org
International Labour Organization (ILO) – www.lilo.org
Irish Aid – www.dci.gov.ie
Joint United Nations Programme on HIV/AIDS (UNAIDS) – www.unaids.org
Nelson Mandela Foundation – www.nelsonmandela.org
Netherlands Ministry of Foreign Affairs – www.minbuza.nl
Norwegian Agency for Development Cooperation (Norad) – www.norad.no
Partnership for Child Development (PCD) – www.child-development.org
International Save the Children Alliance - www.savethechildren.net/alliance
Swedish International Development Cooperation Agency (SIDA) – www.sida.se
United Nations Children Fund (UNICEF) – www.unicef.org
United Nations Development Programme (UNDP) – www.undp.org
United Nations Educational, Scientific and Cultural Organization (UNESCO) – www.unesco.org
United Nations High Commissioner for Refugees (UNHCR) – www.unhcr.org
United Nations Office on Drugs and Crime (UNODC) – www.unodc.org
United Nations Population Fund (UNFPA) – www.unfpa.org
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