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POSITION PAPER

How to Design EdTech Programmes That Lead to Gender-Transformative Change

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Authors Fiona Samuels
Carmen Leon-Himmelstine
Rachel Marcus
Christina Myers

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Reviewers

Kate Jefferies

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Abbreviations and acronyms

BC	British Council
EDGE	English and Digital for Girls' Education
GEC	Girls' Education Challenge
GESI	Gender Equality and Social Inclusion
ICT	Information and communications technology
IGWG	Interagency Gender Working Group
LMIC	Low- and middle-income country
ODI	Overseas Development Institute
PEAS	Promoting Equality in African Schools
VSO	Voluntary Service Overseas

1. Introduction

Educational technology (EdTech) is widely considered to be a means of enabling more children to have access to impactful and continuous education. This is attributed to its potential to deliver education over distance and at scale, and because it can be personalised to children's needs ([↑Jordan, 2020](#)). However, studies of learning gaps in EdTech often show that globally — and particularly in low- and middle-income countries (LMICs) — girls do not have the same opportunities to access and benefit from EdTech as do boys ([↑Crompton et al., 2021](#)). There are multiple barriers that influence these disparities, and these barriers are usually visible throughout the cycle of EdTech programming (from design to implementation, evaluation, and scale-up).

EdTech includes a range of technologies for educational purposes including the use of information and communications technology (ICT) within and outside the education system, in schools, communities and homes ([↑Hennessy et al., 2021](#)). EdTech can include digital technologies as well as low-tech devices such as non-digital radio and television (TV). EdTech initiatives increasingly contribute to efforts to redress gender inequalities in education, as part of broader work to improve both access to learning and learning outcomes among marginalised groups, both within and outside the education system.

Applying a gender-transformative framing to EdTech programming could enable programmers to capitalise on EdTech's potential to deliver egalitarian educational opportunities, and to minimise the risk of exacerbating socio-economic and gendered divides through the use of technologies.

EdTech programming varies widely in nature and scope, with initiatives focusing on strengthening education systems and information management, and enhancing teaching and learning. To narrow the scope and highlight an area with substantial potential to integrate gender-transformative thinking, in this brief, we focus on EdTech aimed at learners — especially students of primary and secondary age. We draw on examples of four EdTech programmes that integrate a gender dimension in diverse ways while recognising that EdTech initiatives may promote more gender-equitable outcomes even where there is no explicit gender equality focus ([↑Evans and Yuan, 2022](#)). These initiatives span the spectrum from use entirely in

non-formal settings, to EdTech materials developed to support home-based learning within the formal system, to initiatives primarily within formal school settings.

1.1. What this paper does

This paper outlines how EdTech programming can adopt a gender-transformative approach to improve gender equity in access and learning outcomes. We start by explaining what the term ‘gender-transformative change’ means, and why it is needed. We then outline some key dimensions of gender-transformative approaches in the specific context of EdTech initiatives, looking at how different approaches can enhance access to education and learning opportunities and improve outcomes, and challenge discriminatory gender norms and stereotypes. Based on a desk review of grey and published materials, we then discuss insights from the approaches taken by four programmes:

Two in sub-Saharan Africa:

1. Anasoma in Kenya
2. Promoting Equality in African Schools (PEAS) in Uganda

One in Latin America:

3. Percepciones in Mexico

One in South Asia:

4. English and Digital for Girls’ Education (EDGE).

We reflect on how initiatives could be enhanced to enable more gender-transformative dimensions. The paper concludes with guidance on how to integrate a gender-transformative approach into EdTech initiatives at each stage of the programme cycle.

2. What can a gender-transformative approach bring to EdTech programming?

This section introduces evidence of gendered educational inequalities and EdTech and presents an overview of and implications related to gender-transformative approaches.

2.1. Gendered educational inequalities and EdTech: What do we know?

Globally, before the Covid-19 pandemic, approximately three-quarters of primary-school-aged children who were not attending school were girls. And in LMICs, fewer than two in three girls completed primary school, while just one in three girls finished lower secondary school ([↑Global Education Monitoring Report, 2020](#); [↑Wodon et al., 2018](#)). This situation is likely to worsen, as girls — especially those living in poorer households in low-income countries — are more likely to have missed out on learning during the pandemic than boys ([↑Dreesen et al., 2020](#)). Girls are also at greater risk of not returning to school and of dropping out if they do go back, often due to issues related to gender norms, early marriage and pregnancy, and gender-based violence ([↑Dreesen et al., 2020](#); [↑Global Education Monitoring Report, 2020](#); [↑Hallgarten, 2020](#)).

The experience of learning during the Covid-19 pandemic, when many schools in many parts of the world turned to distance learning / online sessions, has put the spotlight on the use of EdTech (including blended learning, i.e., combining distance / online learning with in-person learning) to improve educational access and outcomes for children. However, despite increased awareness of EdTech's potential use and reach, it has not necessarily addressed the socio-economic and gender inequalities that often prevent positive learning outcomes for all children and young people. On the positive side, there is growing evidence that if structural factors, equity, and inclusivity are considered in the design of EdTech, it can promote similar or greater levels of engagement by girls and women than their male counterparts, and thereby start to address gender disparities in education ([↑Webb et al., 2020](#)). Similarly, this suggests that EdTech could be harnessed to support girls in accessing learning opportunities and in complementing their learning, both formal and informal. However, this is not an easy task, because the way that EdTech is accessed, designed, implemented, and used reflects existing gender-based and intersecting inequalities (such as those related to class, disability status, and other social identities). These inequalities include gender gaps in digital

literacy, gender inequalities in educational material and pedagogies, gendered time-use patterns, and gendered assumptions about girls' performance and enjoyment of technology. All of these inequalities create barriers for girls in accessing EdTech (↑[Crompton et al., 2021](#), ↑[Webb et al., 2020](#)).

Gender inequalities are not only either replicated or challenged through lack of access to education, but also through the content of educational materials and initiatives. For example, if educational materials make an effort to depict women and girls or men and boys engaged in non-stereotypical activities, or encourage students to reflect on gender inequalities, this can start to catalyse transformative change. Many EdTech interventions directly aim to raise awareness of gender inequalities as a main educational objective (e.g., ↑[Myers, 2021](#); ↑[Stoeger et al., 2013](#)). However, how best to integrate gender-based learning outcomes or inclusive educational content into EdTech interventions that have broader educational objectives (such as improving literacy and raising awareness of gender inequalities) seems to be underexplored. Further, although practitioners are starting to think about how education systems could make a greater contribution to dismantling gender inequalities (see, for example, ↑[Harper et al., 2020](#) and ↑[Plan International et al., 2021](#)), very little of this thinking focuses on EdTech.

When EdTech interventions propose only technical solutions (for example, adding new features to mobile phone applications) to address inequalities, they risk failing, as other underlying factors often undermine the success of these interventions. Instead, EdTech initiatives need to adopt a more holistic approach to address gender inequalities — one that considers the political, structural, and contextual conditions that enable or prevent their success (↑[Zubairi et al., 2021](#)).

2.2. Gender-transformative approaches

Gender-transformative programming has emerged over the past decade in response to a growing recognition that despite progress in achieving gender equality, deep-seated challenges remain. Common to the various definitions of gender-transformative approaches (see the [Annex](#)) is a focus on achieving change in the factors that underpin gender inequality. All these definitions also emphasise shifting discriminatory norms that can make inequalities seem normal and natural, and the importance of redistributing power. The Interagency Gender Working Group's¹ definition is widely used and provides a useful working definition:

¹ See www.igwg.org/about-igwg/

A gender-transformative approach addresses the causes of gender-based inequalities and works to transform harmful gender roles, norms and power imbalances. (↑[Interagency Gender Working Group \(IGWG\)](#), no date)

As described in detail elsewhere (↑[Marcus et al., 2021](#)), gender-transformative approaches are guided by a set of principles that increase the likelihood of long-lasting systemic impact on gender equality. These combine principles that directly focus on challenging forces that contribute to gender inequalities with more process-oriented principles that aim to strengthen ownership, impact, and scale. We list some of these principles below.

2.2.1. Elements with a direct focus on challenging gender inequalities

- Focus on actions that challenge the roots of gender inequalities, including discriminatory stereotypes and norms, educational and economic inequalities, and inequitable laws and policies.
- Promote voice, empowerment, and representation of marginalised women and girls.
- Work intersectionally, and are sensitive to how different identities and inequalities intersect with, and compound or mitigate, gender inequalities.
- Engage men and boys in support of gender equality.

2.2.2. Process-oriented elements

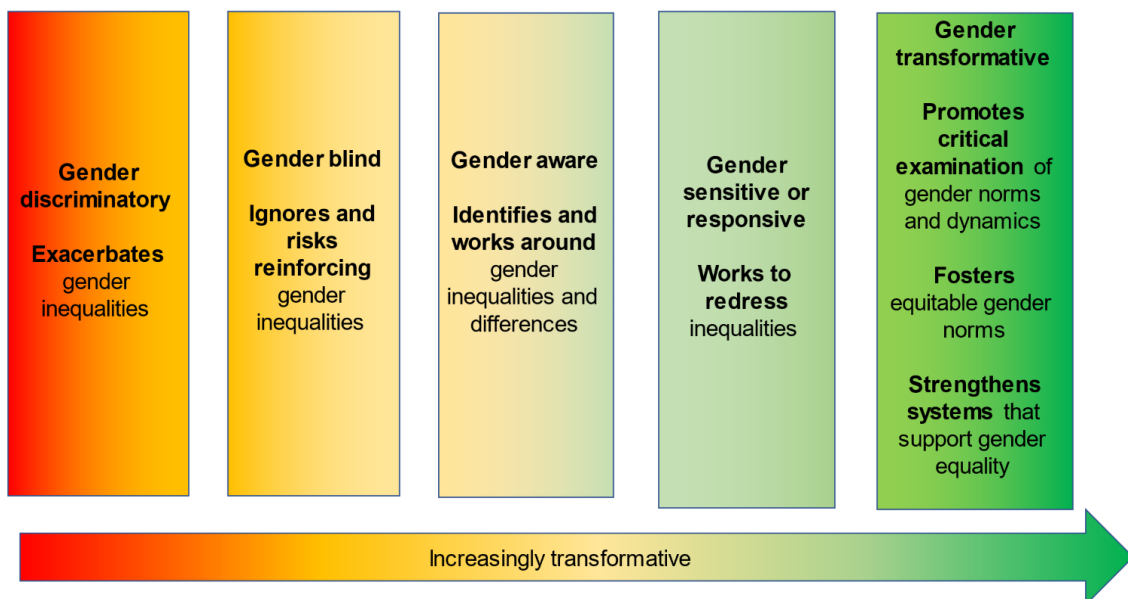
- Carry out programming with long-term horizons, recognising that sustained change rarely occurs rapidly.
- Combine actions focused on individuals and those that aim for wider influence (e.g., on policy).
- Work across multiple sectors involving different kinds of partnerships.
- Co-create, implement, evaluate, and adapt initiatives with end-users to promote ownership and sustainability.

In this paper, we apply and tailor these principles, developed in the context of community development programmes, to various types of EdTech programming.

Many organisations use a continuum to classify approaches to gender inequality and help orient action towards changes that are likely to have a

stronger, more transformative impact (see [Figure 1](#)). At one end of the continuum are approaches that risk worsening gender inequalities; at the other end are transformative approaches, which can help achieve lasting shifts towards gender equality. In the middle are gender-aware, gender-sensitive, or gender-responsive approaches — terms used to describe approaches that recognise and respond to gender inequalities, without necessarily seeking to challenge their underlying causes.

Figure 1: *The gender transformation continuum.* Source: Gender Equality and Social Inclusion (GESI) team at the Overseas Development Institute (ODI), reworked from the Interagency Gender Working Group’s Gender Integration Continuum (†Interagency Gender Working Group (IGWG), no date).



2.3. Potential of EdTech to promote gender-transformative change

EdTech, like any technology, has the potential to either reinforce or challenge gender inequalities. Here, we set out some of the ways with which EdTech could contribute to challenging gender inequalities, to improve both equity in access and learning outcomes.

2.3.1. Through its role in improving access to educational opportunities

Where EdTech enables children without access to education to learn, it can help address inequalities in access. As noted earlier, gender inequalities in

access to face-to-face learning are particularly sharp among poor households in low-income countries and in fragile and conflict-affected contexts.²

2.3.2. Through its impact on learning outcomes

Where EdTech boosts learning outcomes, it can help redress gendered inequalities in learning that are often context- and subject-specific. Closing gender (and other) gaps in foundational learning and in pass rates for key school-leaving exams can help eliminate one of the key barriers to gender equality in labour markets.

2.3.3. Through its potential to promote gender-equitable values and challenge discriminatory norms and stereotypes

Like non-tech based educational materials, EdTech content can reinforce or challenge gender stereotypes. Materials can be planned to depict women, men, girls and boys in non-stereotypical roles, and to challenge taken-for-granted ideas. Some initiatives use EdTech to share curriculum content (for example, for citizenship or social studies, personal, social and relationships education) that directly challenges gender inequalities, or integrates discussion of gender inequalities (for example) into language learning. In contexts where there are few women teachers, having radio lessons or video content narrated by a female teacher may also help model women in positions of authority.

2.3.4. Through its potential to redress gender inequalities in access to and use of technology

In many contexts, technology — and particularly digital technology — is ‘coded male’. Boys are expected to be more proficient at handling it than girls, and are often given more opportunities to build those capacities. In some contexts, girls’ access to specific technologies is more restricted than boys’ access because of concerns about safeguarding girls’ well-being and reputation. EdTech programmes have the potential to help marginalised girls and women build familiarity with, and agency to use, technology, thus redressing gender inequalities in an increasingly important skills area (digital skills) in the modern world.

At the same time, a learning modality that is primarily based on individual engagement with content rather than collective learning and interaction may

² We recognise that gender inequalities in access are not always the greatest inequality in a given situation (income or geographical barriers may be greater, and / or intersect with gender in different ways).

also have inherent limits as a means of challenging discriminatory gender norms and stereotypes. Collective settings provide a space for peer-to-peer learning, and for more easily correcting misunderstandings that can help transform ideas about gender ([↑Harper et al., 2020](#)). These spaces are absent in much distance learning 'one-directional' approaches, such as radio or video lessons.³

The principles we outlined in [Section 2.2](#) are derived from programming outside the education sector. We provide a checklist ([Figure 2](#) below) that draws on these principles and adapts them to be relevant for EdTech initiatives, also considering the different ways in which EdTech can challenge gender inequalities (outlined above).

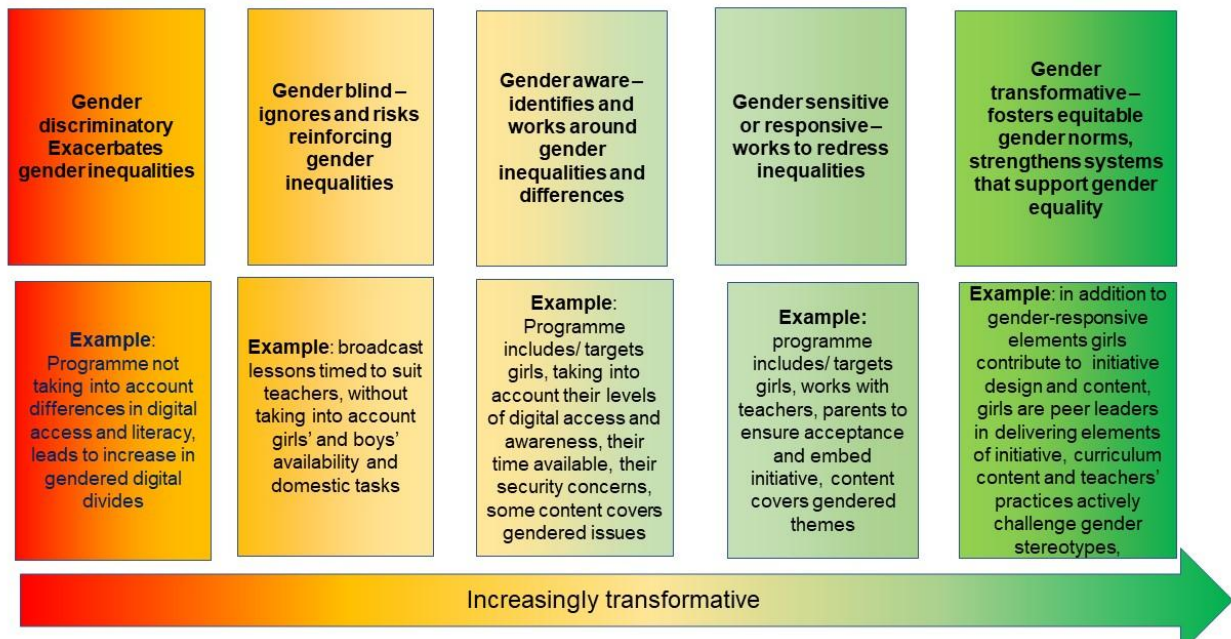
³ Of course, schools may also reinforce gender norms and stereotypes, particularly where teachers and school leadership are not sensitised to gender inequalities and schools make inadequate efforts to prevent gendered bullying, harassment, and other forms of school-related gender-based violence ([↑Harper et al., 2020](#); [↑UNGEI, 2019](#)).

Figure 2. Checklist to help EdTech initiatives strengthen transformative impacts on gender equality.



Figure 3 below maps some of these elements onto the gender transformation continuum, to explore what, in practical terms, these principles could mean in the context of EdTech.

Figure 3. Integrating gender-transformative elements in EdTech programmes.
 Source: Gender Equality and Social Inclusion (GESI) team at ODI, reworked from Interagency Gender Working Group’s Gender Integration Continuum to focus on EdTech ([↑Interagency Gender Working Group \(IGWG\), no date](#)).



3. Gender-transformative elements in EdTech initiatives

Table 1 below provides an overview of four programmes, each of which uses EdTech in a different way:

1. To provide core curriculum content in schools (Promoting Equality in African Schools (PEAS) in Uganda — [↑Damani et al., 2022](#)).
2. As a discrete school-based initiative to share specific content with students (Percepciones in Mexico — [↑Avitabile and de Hoyos, 2018](#)).
3. To boost girls' familiarity with digital skills, and also gender equality and social issues (English and Digital for Girls' Education (EDGE) in South Asia — [↑GEC, 2021c](#)).
4. To complement formal learning through promoting online reading (Anasoma in Kenya — [↑Worldreader and R4D, 2017](#)).

The subsequent discussion probes aspects of their design and implementation that have the potential to catalyse a transformation in gender relations in more detail.

Table 1. Overview of four programmes and how they use EdTech.

Overview of initiative (country / implementing organisation / technology used / funder, dates)	Objective of initiative	Target group(s)	Activities carried out	Implementation modality (self-used, in / out of school, directed / in tandem / blended)	Stage of gender continuum	Scale / scale-up plans
Anasoma Project Kenya Worldreader mobile app Funder: Bill & Melinda Gates Foundation Ongoing	Redefine gender stereotypes through literature and boost women's and girls' empowerment by giving them access to a digital library of books	Women and girls (age not specified, designed for those who have a phone)	Digital library to encourage women and girls to read Study focuses on the process to design the mobile app	In / out of school	Gender-sensitive, gender-responsive and gender-transformative	No indication
PEAS (Promoting Equality in African Schools) Uganda (multiple funders, including Girls' Education Challenge) Ongoing	Increase gender equality in educational outcomes	Secondary school students attending PEAS schools ⁴	Radio-based lessons and SMS messages with academic content and quizzes during Covid-19 pandemic to complement government-issued home learning packs	Home-based, following government curriculum Teachers phoned students to check on well-being, progress, and challenges	Gender-sensitive (radio broadcasts) ⁵	Implemented throughout PEAS' 28 schools in rural Uganda

⁴ PEAS runs a chain of low-cost private schools in rural Uganda.

⁵ Broader programme includes training in gender-responsive pedagogy.

Overview of initiative (country / implementing organisation / technology used / funder, dates)	Objective of initiative	Target group(s)	Activities carried out	Implementation modality (self-used, in / out of school, directed / in tandem / blended)	Stage of gender continuum	Scale / scale-up plans
<p>Percepciones, Mexico</p> <p>Mexican Secretariat of Public Education (SEP) (funder and implementer)</p> <p>May 2009–May 2012</p>	<p>Improve on-time graduation and learning outcomes in high school</p>	<p>Students (boys and girls) entering Grade 10</p>	<p>Interactive computer software, provided students with gender-specific information about the average earnings associated with completion of high school and university education, and funding opportunities for higher education. Participants spent 12 minutes interacting with the interface and viewed a 15-second video conveying the message that youth can empower themselves through education</p>	<p>Self-use at school</p>	<p>Gender-aware</p>	<p>Implemented in 26 technological high schools run by the federal government</p>

Overview of initiative (country / implementing organisation / technology used / funder, dates)	Objective of initiative	Target group(s)	Activities carried out	Implementation modality (self-used, in / out of school, directed / in tandem / blended)	Stage of gender continuum	Scale / scale-up plans
<p>EDGE (English and Digital for Girls' Education) programme</p> <p>Different funding modalities: e.g., some contexts 95% funded by UKAid, Girls' Education Challenge, with a contribution from the British Council; others fully funded by the British Council with income in-kind from partners</p> <p>Implemented by different partners in different countries — e.g., Global Action Nepal, Voluntary Service Overseas (VSO), BRAC (Bangladesh), Digital Empowerment Foundation, Aga Khan Foundation</p>	<p>Aims to improve the life prospects of adolescent girls in marginalised communities in Bangladesh, India, and Nepal through building their English and digital capacities</p>	<p>Girls aged 13–19, attending formal education or out of school</p> <p>In Nepal, part of the VSO Sisters for Sisters' Education project (supports 1,350 girls)(GEC, 2021d)</p>	<p>EDGE model: Peer-led after-school clubs where girls develop their English proficiency, digital skills, and awareness of social issues</p> <p>Developing a cadre of peer group leaders, building their leadership skills and confidence to facilitate English and digital training in these clubs</p> <p>Developing the capacity of a cohort of trainers to train and support the peer group leaders</p> <p>Developing age- and level-appropriate materials for the training and support of peer leaders and their trainers</p> <p>Building trust within the communities to change and</p>	<p>After-school clubs, but girls can be attending formal education or be out of school</p>	<p>Gender-sensitive, gender-responsive, with gender-transformative elements</p>	<p>In 2020, the British Council (BC) was piloting programmes in Afghanistan and Pakistan</p> <p>In 2021 BC was exploring scope for scaling up approach to other regions, including East Africa, sub-Saharan Africa, the Middle East and North Africa, and Latin America and the Caribbean</p>

Overview of initiative (country / implementing organisation / technology used / funder, dates)	Objective of initiative	Target group(s)	Activities carried out	Implementation modality (self-used, in / out of school, directed / in tandem / blended)	Stage of gender continuum	Scale / scale-up plans
Nepal: April 2017–June 2021, EDGE is part of a large programme of work targeting girls' education (†GEC, 2021b)			<p>develop the perception of the value of girls in the community</p> <p>Nepal: girls' clubs use radio as a key distance learning modality. During the Covid-19 pandemic, the project expanded and further developed the radio component leading to wider engagement and reach. Weekly broadcast of radio and TV programmes centred around gender equality, social issues, and English language development</p>			

3.1. Applying gender-transformative principles to EdTech programmes

Table 2 and Table 3 below draw on the principles outlined in Figure 2 above, showing how each of the four programmes engaged with different dimensions of a gender-transformative approach. Table 2 focuses on educational aspects and broader gender-related barriers, while Table 3 focuses on process aspects.

Table 2: *Gender equality and educational aspects of the four EdTech programmes.*

Anasoma project, Kenya	PEAS, Uganda	Percepciones, Mexico	EDGE, South Asia
Gender equality vision / objectives			
Aimed to increase female participation in mobile reading by 2018 by providing a free service through which women and girls can read and enhance their knowledge	Aimed to enable girls and boys of secondary school age to continue learning during the Covid-19 pandemic. Focused on equal access to good-quality education, a key building block of gender equality	Aimed to improve student outcomes (performance in the last year of high school and in university entrance exams). No explicit gender equality objective	Aims to give girls from disadvantaged communities English, digital, and leadership skills for participating effectively in society, as well as greater confidence and awareness of a wider range of life opportunities

Anasoma project, Kenya	PEAS, Uganda	Percepciones, Mexico	EDGE, South Asia
Content that challenges gendered norms and stereotypes			
No such content included	No such content included	No such content included	Content included: in the list of themes under the social issues sections that guide the curriculum, areas to be discussed include postponing marriage, fair treatment of girls and boys, and the value of education, among other things
Engagement with gendered barriers to education			
Addresses discriminatory gender norms and unequal uptake of technology (mobile reading). Project could not address deep-rooted barriers such as women's literacy levels or lack of access to smartphones	Primarily through efforts to schedule radio lessons at times convenient for girls and boys	Did not address the fact that girls are likely to have lower earnings than boys even if they achieve the same levels of education or the barriers that girls can face to continue to secondary and tertiary education, or the mechanisms to motivate them to continue studying	Content included: it addresses barriers to education through providing a safe space for studying
Engagement with gendered access to technology			
Yes: directly aimed to shift norms about technology use	No explicit objective	No explicit objective	Yes: learning digital skills is a key component and targets girls

Anasoma project, Kenya	PEAS, Uganda	Percepciones, Mexico	EDGE, South Asia
Evidence of positive shifts towards gender equality			
<p>No evidence yet on Anasoma. Although relevant but not looking at Anasoma directly, a UNESCO (2014) study found that Worldreader mobile users were reading more than non-users</p> <p>Significantly more boys and men use the tool compared to women and girls, yet the women and girls who did access the library read almost three times more than their male counterparts</p>	<p>Of EdTech approaches trialled, radio lessons had the greatest impact on girls' academic learning; girls were significantly more interested than boys in tuning into radio broadcasts. (Damani et al., 2022)</p>	<p>Participants were more likely to have updated their beliefs about the average earnings associated with high-school completion. No effect on completing high school on time, but had a statistically significant effect on test scores (0.22 standard deviations) that was larger for girls than boys. 35% of girl participants took economics courses, compared with 19% in the control group</p>	<p>In the Nepal programme, endline evaluation findings (of whole programme), when compared to midline, included:</p> <ul style="list-style-type: none"> -perceived improvement in learning among the girls; -reduction in early marriage and girls dropping out of school; -increased opportunities / life choices for girls (continuing with higher education, vocational training, etc.); -increased understanding from schools of need for gender-friendly school environment (evidenced by separate toilets, trained gender focal point and female teachers, appointing girls in leadership positions) (GEC, 2021b; GEC, 2021e)

Table 3 summarises insights on process aspects that are likely to enhance the gender-transformative impacts that EdTech initiatives can achieve.

Table 3. *Process issues.*

Anasoma project, Kenya	PEAS, Uganda	Percepciones, Mexico	EDGE, South Asia
Gendered context analysis, exploring existing gender gaps in accessing and using EdTech			
Context analysis through mixed-methods research, and human-centred design methodology ⁶ and review of the literature to explore barriers to mobile reading and negative stereotypes around women using phones to read	The distance learning team consulted with boys and girls to identify their key domestic responsibilities and the optimal timings for radio-based lessons to maximise participation	No context analysis was conducted, but the information shared regarding earnings associated with high school and university education showed that such earnings are lower for girls than boys	For the Nepal programme, a GESI analysis and mapping was carried out to identify key themes for radio programmes To explore potential to scale up in other regions, scoping exercises were conducted that included gender analysis. These involved obtaining the views of potential participants and other stakeholders and identifying the most appropriate delivery modalities in different contexts, as well as which marginalised groups to potentially focus on

⁶ The main objective of the human-centred design methodology was to identify and profile their potential users (women and girls who are literate, who own or have access to a smartphone, and who are not aware of or do not use the Worldreader app) to then create solutions based on the research phase, develop a prototype and test it with women and girls and other stakeholders.

Anasoma project, Kenya	PEAS, Uganda	Percepciones, Mexico	EDGE, South Asia
Teacher / facilitator training / sensitisation on gender issues			
N/A	Included as part of PEAS' broader emphasis on gender-responsive pedagogy training	N/A	Peer leaders are trained to run the clubs, to provide training to others and to provide appropriate materials. Unclear if training covered gender issues Nepal programme trained master trainers to continually review and adjust content to address challenges, make it more user-specific etc., thus considering the needs / views of girls
Scale / work with other sectors			
Not to date, though this is considered for future initiatives. An outreach campaign was contemplated to encourage more women and girls in Kenya to read on the Worldreader mobile app by June 2018	N/A	Study mentions that the pilot in part was designed to assess the scalability of the intervention nationwide, but it does not discuss this in depth	The EDGE approach aims to embed into local communities so that the model is sustainable and can be replicated in other sites (unclear if this has happened or is happening) In Nepal, the approach is embedded into the government system, the resource is accessible to 7.3 million students and 147,000 teachers across the country

Anasoma project, Kenya	PEAS, Uganda	Percepciones, Mexico	EDGE, South Asia
Engagement of different stakeholders, including gate-keepers			
Engaged with men to understand their perceptions of women's empowerment during design phase	Part of support for distance learning involved teachers phoning students, usually via parental mobile phones, thus engaging parents with their children's learning, if only in passing. However, some parents were reluctant to let male teachers speak to their daughters (†Damani et al., 2022)	N/A	A key component is to build community trust to accept the girls' clubs. Community leaders and family (mothers and fathers) were involved through sharing meetings, observation during clubs, and digital fairs In exploring potential for scale-up to other countries, the possibility of including boys in the clubs was also discussed
Representation of disadvantaged girls' and women's perspectives			
Women and girls included in all phases of the human-centred design approach	PEAS surveyed students to understand the most effective learning modalities for them during the pandemic and to identify optimum schedules for radio-based lessons, considering boys' and girls' different domestic responsibilities; PEAS schools target disadvantaged rural areas (†GEC, 2021e).	N/A	Girl peer leaders are trained to run the clubs. They also act as role models In Nepal, a GESI mapping was conducted, though it does not appear that the content was 'co-created'. But content / resources were adapted when girls faced challenges in access

3.2. Good practices and limitations in integrating gender-transformative approaches

When considering the four programmes, several good practices emerge for integrating gender-transformative elements. Because the scope for integrating gender-transformative approaches varies between formal and non-formal initiatives, the initiatives are grouped accordingly.

3.2.1. Community-based programmes

The EDGE programme (both the broader programme and the Nepal programme) incorporates several gender-transformative elements:

- A gender analysis was undertaken at the start of programming to understand the context, including the digital environment, to ensure that activities and the overall approach were appropriate.
- The initiative targeted girls and sought to help them develop skills they were unlikely to acquire through formal schooling, namely digital skills and English language competence.
- Content included discussion of social issues and covered a range of gender-related themes.
- Learning took place throughout the project, which also led to adaptation of resources and processes.
- The initiative was scaled up in Nepal (through radio broadcasts and especially during the Covid-19 pandemic).
- EDGE was embedded (through working with parents and community members), which led to the programming considering how to strengthen boys' access to these key skills without undermining a safe space for girls. EDGE was also part of a wider programme targeting girls' education that worked at different levels (school environment, teachers, etc.), all of which contributed to achieving positive learning outcomes for girls.
- Adolescent girls were involved as peer leaders / facilitators of the girls' clubs and contributed to programme adaptations. However, there is no evidence that they were included in the initial design of the initiative and it is also not clear how far the programme was able to reach marginalised girls.

Worldreader's Anasoma project also involved several gender-transformative elements:

- The initiative was conceived to redress a gender inequality: women's and girls' lesser access to information.
- Through its human-centred design approach, women and girls were involved in background research and as key stakeholders in the development of Worldreader's mobile app. This focused on understanding the barriers that they face to using the app, and the kinds of books they find inspiring and engaging. This research also engaged men to better understand the context-specific barriers to women's and girls' empowerment.
- The books chosen for the app emphasised content that is actionable (for example, that gives users ideas on how to solve problems) or that is inspiring and helps readers feel empowered to take action.
- It redresses the inequalities that women and girls face regarding access to mobile reading by providing free content tailored to their preferences.
- Involving women and girls in co-creating solutions that respond to their reading needs (for instance, the design of the mobile app itself, and its content) both increases their online reading and challenges gender stereotypes and norms that prevent them from spending time reading or gaining new knowledge via online books.

Studies of the initiative also highlighted areas with the potential to extend its gender-transformative approach. These include:

- Finding ways to reach illiterate women and those with no access to a smartphone.
- Extending access to men and boys, in response to backlash against initiatives targeting women and girls. The initiative will encourage men and boys to read about women's empowerment.

Studies also highlighted that gender norms and stereotypes (such as women's and girls' lack of time to read due to household chores, or expectations that family resources should be spent on boys' education) continue to prevent women and girls from engaging with digital reading, and that addressing these deep-rooted barriers was outside the project's scope ([↑Worldreader & R4D, 2017](#)).

3.2.2. Education-system-based programmes

Neither of the two education-system-based EdTech initiatives (PEAS and Percepciones) were explicitly focused on redressing gender inequalities. However, one (PEAS), built on strong gender equity foundations, while the other managed to achieve gender equality outcomes largely through its content.

PEAS

Before the Covid-19 pandemic, PEAS was engaged in various activities to promote gender equity in education and to redress inequalities that many girls in rural Uganda face. These activities included after-school girls' clubs, designed to boost confidence and strengthen mastery of academic content, and continuing professional development for PEAS teachers in areas such as gender-responsive pedagogy and safeguarding, running girls' clubs, and community advocacy to support girls' education ([↑Damani et al., 2022](#)). Efforts to provide distance education during the pandemic were thus designed in the context of these gender-focused activities. Key gender-transformative elements of the distance learning initiative included the following:

- Undertaking a rapid analysis of the most appropriate learning modalities and tailoring distance learning accordingly. This analysis found that contrary to assumptions, boys and girls both had significant domestic workloads, and that radio lessons would need to be scheduled to suit both.
- Using widely available forms of technology (mobile phones) to engage parents and caregivers in support of their children's education through regular phone calls. As students mostly did not have their own phones, calls to students involved contacting their families. Anecdotal evidence suggests this helped engage parents in their sons' and daughters' continued education throughout the period of school closures.
- Learning and adaptation to respond to gender issues that became apparent. For example, learning that some parents were reluctant to allow girls to receive calls from male teachers led schools to ensure that they explained clearly why they were contacting students, and enabled them to request parents directly to share educational SMSs with their children.

It is not clear from the available documentation whether teachers were able to put into effect their training in community mobilisation for girls' education via

their contact with parents, to support girls having time to study and access to radios and phones when required.

Percepciones

This initiative was not designed with any gender equality objectives. However, the fact that it provided key information on future earnings of girls and boys when completing higher levels of education, and on potential funding opportunities to continue studying at university, shaped girls' aspirations to continue studying. It also motivated them to achieve better educational outcomes compared to boys and girls in the control group. This example serves as a reminder that gender-blind initiatives can sometimes achieve transformative outcomes. It is possible that its impact could have been enhanced if teachers had discussed the norms and stereotypes that lead young people into certain career pathways. In this way, when they engaged with the computer-based content, they could already be alert to how these influences might be shaping their decision-making; and / or if teachers had discussed the initiative with participants afterwards.

4. A forward-looking framework for including a gender-transformative lens in EdTech

Drawing on our analysis in the previous section and on the learning generated by the four programmes about what can help achieve gender transformation, we now outline how to integrate a gender-transformative approach at all stages of a programme cycle, identifying what needs to happen, and when. These elements of a gender-transformative approach are interrelated and build on each other.

4.1. Strategic visioning and gendered context analysis (understanding barriers and opportunities)

What needs to be done? Conducting a gender analysis is critical to ensure that a programme of work considers the interrelated factors that can influence gendered learning outcomes. The gender analysis should include the following information:

- Background information on gender issues in the region and country of implementation — for example, enrolment in primary, secondary, and tertiary education by gender, the extent of early / child marriage, the rate of female labour force participation, and the incidence of gender-based violence.
- An understanding of political, cultural, and economic factors that could influence the potential uptake, participation or impact of an EdTech initiative.
- Prevailing gendered norms that influence whether and how girls and boys access education and technology; these include attitudes and perceptions of parents and other influential community members that may affect children's access to EdTech.
- Details of the infrastructure environment, including what kinds of technology exist, who has access to it and where, potential disparities, and the potential dangers in the technology environment.
- Levels of digital literacy across different groups of learners in different regions of the country.

- Learning structures and systems — for children who are in school or out of school, numbers of teachers, gender breakdown, etc.
- Existing programming around EdTech, equity, and gender, and learning from these programmes.
- Teachers' professional development approaches and teaching pedagogies prevalent in the context, and levels of engagement with issues related to gender by teachers / trainers / facilitators (for instance, do they receive training on these issues?).
- Identification of geographical areas where gender inequalities in learning outcomes may be particularly stark, and which could therefore be potential sites for an initiative.

How can it be done? The above information can be collected in several ways:

- Through mapping exercises to analyse the context (economic, social, and political realities) in proposed programme locations, and through developing key indicators.
- Through political economy and system-level analysis.
- Through a review of existing evidence and background documentation, including academic literature, grey literature, and government policy documents.
- Through consultations with key stakeholders (such as government departments, non-governmental organisations, community / local leaders, teachers, parents, and children) working on issues related to education; these interactions could also start the process of obtaining support, buy-in, and co-creation (see below).
- Once location / programme sites have been identified, carrying out mixed-method baseline studies that explore the barriers and opportunities to EdTech and education for all children, but particularly girls, as well as levels of digital literacy, and girls' priorities, opportunities, and needs (or drawing on any such studies that already exist).

4.2. Designing an initiative, including content and process

What needs to be done? Drawing on the gender analysis, programmers need to consider the following when designing EdTech initiatives:

- How the initiative will fit with, complement or build on existing initiatives / programmes as well as regional or governmental priorities.
- The need for a comprehensive approach involving a range of stakeholders, as this is likely to be more effective in supporting gendered learning outcomes — for example, initiatives that focus on children, but also engage with teachers, the learning environment, parents, and community members (one programme would not necessarily work with all of these, but can link to others; plan to build in these other stakeholders at later stages).
- The importance of inclusive content / sessions (that is, they should not promote gender bias, discrimination, misrepresentation or under-representation), which include discussions related to gender themes, inequalities, and equity.
- The relevance of the content to the context, by disaggregating and designing activities for end-users.
- The involvement of end-users of the initiative — children (with equal representation of girls and boys) — in designing activities whenever possible.
- The involvement of other stakeholders (including parents, teachers, community members, and government authorities) in the design of gender-transformative EdTech programmes.
- How the initiative links to schools (with activities in or out of schools) and to national curriculums or priorities.
- The different demands on girls' and boys' time, adjusting programme activities and schedules accordingly.
- The potential risks and barriers to participation, especially for girls, such as violence, safeguarding, cybersecurity, data protection and management (for example, digital violence, and safeguarding concerns around girls receiving a phone call from a male teacher).

How can it be done? Some design aspects will emerge from the gender analysis. Others might include:

- Holding co-creation or design workshops with adolescents, teachers, and other stakeholders to co-create the design of the overall initiative as well as its content.
- Holding consultations with potential users (especially if extending a face-to-face programme to include a blended EdTech component).
- Once the design has been finalised, feeding back to key community stakeholders as well as relevant government officials, teachers, and others, to continue to embed the initiative and process, and to obtain support and buy-in.
- Piloting an initiative and implementing mitigation strategies to start exploring and evaluating the outcomes of an EdTech intervention.
- Using evidence or best practices related to data management, cybersecurity, digital violence, and other relevant issues.

4.3. Implementing, delivering, adapting

What needs to be done? During implementation, programmers should consider the following issues (if they have not already emerged at the design stage):

- Educators (teachers, facilitators, trainers) should have appropriate inclusive teaching skills and be aware of gendered issues in their local context; if this is not the case, training and ongoing support for educators should be built into the initiative.
- Peer-to-peer teaching and learning activities could be useful in addressing gender gaps or inequalities and building girls' skills and enabling them to become empowered.
- As with the design stage, it is vital to ensure that the timing of activities suits girls' daily schedules; they must also be able to access the technology being used and have appropriate levels of digital literacy. Regular monitoring data needs to be collected, including the number and gender of participants at each event.
- There need to be iterative and regular check-ins or reviews during implementation to understand whether the process is working and whether the content is relevant. If it is not, implementers must identify

how to change and adapt the initiative. This process should involve learners and other stakeholders (such as parents and teachers).

How can it be done? For implementation to achieve the desired improvements in access and learning outcomes, the following issues need to be considered:

- Whether there are teachers in place to support and facilitate activities; do they need training? Is there an adequate gender balance of teachers? Does the initiative consider their existing workload?
- If teachers are not available for the initiative, is there a cadre of adolescent girls / young women who could become peer educators? If so, what additional skills and support might they need?
- How to involve parents and other community members during implementation (for example, can they contribute to the initiative or be present at some of the sessions where the programme involves community-based initiatives?).
- Could children and end-users help gather inputs that could be used to improve the outcomes of the initiative?

4.4. Evaluating, redesigning, scaling

What needs to be done? At the end of the programme cycle, there should be an evaluation (tracking the same things that were measured at baseline) to share the learning generated during the initiative and contribute to thinking about how to scale up, and whether any redesign may be necessary. An evaluation should explore the following issues, as relevant for specific initiatives:

- Any change in girls' learning outcomes, education retention, digital skills, empowerment — with reference to a range of intersecting issues (for example, socio-economic status, geographical location, disability status, ethnicity); the learning environment; and teachers' knowledge / skills in relation to gendered issues and inclusive teaching practices.
- How future iterations should be redesigned.
- Always involving end-users (learners) and others (such as teachers and parents).
- Reviewing the processes for implementing the initiative (for example, does it empower girls sufficiently, or could other processes be put in place to empower them further or reach the most marginalised girls?).

- Disaggregating data related to end-user populations and evaluating the results of an initiative by considering its impact on diverse groups of learners (such as girls, boys, considering intersectionality, living in rural areas, considering parental access to education, socio-economic status, etc.).
- Reviewing content (for example, are relevant gendered themes being covered? Should additional ones be added? Or has the environment changed so that other issues need to be addressed?).
- Reviewing the stakeholders targeted (for instance, are boys included? If not, how could they be included?).
- How to scale / replicate the initiative — working with parents and community members as well as ministry of education representatives (among others) to help embed the initiatives.

How can it be done? A mixed-methods endline survey could be carried out covering the above topics. The following activities could also take place:

- Endlines analysis and rigorous evaluative studies — for example, measuring uptake, learning outcomes, and / or engagement of girls and diverse groups of learners.
- Consultation and sharing of ideas on how to redesign and scale / replicate the initiatives with key stakeholders.
- Co-creation workshops to do the actual redesign.

5. Conclusion

Despite progress, gendered inequalities in learning and learning outcomes persist, and girls are often disadvantaged compared to boys. The reasons for this relative disadvantage often lie in deeply ingrained gender norms, which can lead to parents being less likely to invest in their daughters' education, girls being more likely to marry early, girls having less time to commit to educational pursuits, and girls more generally having fewer choices and opportunities to reach their full potential. EdTech can offer a way out of this disadvantage. However, unless a gender lens is embedded from the start of an EdTech initiative, it could inadvertently increase gender inequalities rather than reduce them.

Through exploring four EdTech programmes in different countries and regions, and applying a set of questions or principles to these programmes, we have shown how each has included a gender lens. Through this analysis, we have also suggested where each initiative may sit along the continuum of gender-transformative approaches. We then provide some practical steps to consider throughout the programme cycle of an EdTech initiative to ensure that gendered issues remain at the forefront. While the aim is to achieve a transformation in gender relations, not all EdTech initiatives will necessarily be able to integrate elements that would place them at the 'transformative' end of the continuum. However, integrating programme elements or activities that shift initiatives in this direction should be a goal for all. To achieve this aim, EdTech initiatives need to do the following:

- Take into account the gendered context, intersectionality, and levels of digital literacy when designing an initiative.
- Ensure that activities target girls and are scheduled at suitable times to enable their participation, and that they are able and encouraged to take up leadership positions (such as peer trainers) where possible.
- Co-create the initiative with end-users and other key stakeholders.
- Design the content to include gendered themes / issues.
- Ensure inclusive teaching practices and that teachers / facilitators are trained in gender issues.
- Embed the initiative in family, community, and other structures, through different forms of engagement to provide the scaffolding for the initiative to be more sustainable and scalable.

As there is almost no empirical evidence of the impacts of efforts to develop more gender-transformative EdTech initiatives, learning from such efforts should be documented and shared so that principles can be refined for different contexts and types of EdTech.

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Annex

Definitions of gender-transformative approaches

Organisation	Definition
UNICEF (forthcoming)	Gender-transformative approaches explicitly seek to redress gender inequalities, remove structural barriers and empower disadvantaged populations.
↑PLAN International (2021)	Gender-transformative programming aims to explicitly transform unequal gender power relations. It addresses the root causes of gender inequality and promotes the value of women and girls. It goes beyond improving the condition of women and girls; it seeks to improve their social position. A gender-transformative programme works at several levels at the same time.
↑Interagency Gender Working Group (IGWG) (no date)	A gender-transformative approach addresses the causes of gender-based inequalities and works to transform harmful gender roles, norms and power imbalances.
United States Agency for International Development (↑USAID, 2017)	<p>USAID's Advancing Nutrition Gender Equality Strategy has used the version of the Gender Integration Continuum developed by the Population Reference Bureau (↑USAID, 2017).</p> <p>This defines gender-transformative programmes as those that:</p> <ol style="list-style-type: none"> 1) foster critical examination of inequalities and gender roles; 2) support and create an enabling environment for gender equality; 3) promote the relative position of women, girls and marginalised groups, including transforming underlying social structures, policies and social norms; 4) work to abandon the binary nature of gender.