

WORKING PAPER

A Theory of Change for Parents and Caregivers Towards a Technology-Enhanced Education System in Bangladesh

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Notes

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Acronyms and abbreviations

BEFA	Blended Education for All
BRAC	Bangladesh Rural Advancement Committee
CSO	Civil Service Organisation
GoB	Government of Bangladesh
NGO	Non-governmental organisation
TOC	Theory of Change

Executive summary

In November 2020, UNICEF requested support from EdTech Hub to help the Government of Bangladesh (GoB) improve the reach, effectiveness, and inclusiveness of the programme of activities proposed in the government's *Covid-19 Response and Recovery Plan: Education Sector* ([↑Ministry of Primary and Mass Education, 2020](#)). As a result, EdTech Hub worked with the government and other stakeholders to rapidly create A Theory of Change (TOC) for a Technology-Enhanced Education System ([↑Clark-Wilson et al., 2021](#)). While acknowledging that parents, caregivers, teachers, schools, and community leaders are also key stakeholders, the first TOC focused on learners in Classes 1 to 12 as, ultimately, the desired impacts of a technology-enhanced education system are directed towards learners' educational outcomes.

One recommendation of the first working paper was that **two further TOCs should be developed that would separately focus on teachers and on parents and caregivers** as key agents in the development of a technology-enhanced education system for the country.

The second TOC was created to focus on teachers ([↑Clark-Wilson et al., 2022](#)).

This is the third of the trilogy of Theories of Change. This final TOC focuses on parents' and caregivers' uses of technology as a tool that can, over time, positively impact their children's educational outcomes. The overarching goal is for all parents and caregivers to develop the competencies, motivation, and opportunity to support their children to thrive in an increasingly technology-enhanced education system.

For parents and caregivers, technology can support them to:

1. Access technology-supported learning about parenting¹ practices to improve their own and their children's well-being and holistic development.
2. Be more (digitally) engaged in the educational system such that they can become a resource for their children's learning.
3. Learn about the type of technology that supports children's learning in an (increasingly) technology-enhanced education system.

¹ While we refer to parents and caregivers throughout this paper we also use the words 'parenting' and 'parental'. However, both these terms refer to, and include, the parenting care provided by parents *and* caregivers alike.

The TOC can be viewed [here](#).

This TOC aligns with the National Blended Education Masterplan (2022–2031)(currently a draft), which outlines the vision and associated strategy towards an education system that fully exploits the use of technology. Stakeholders emphasise that the Masterplan highlights *the important role that parents and caregivers play in children's education and the need to provide resources to support them in this role*. This TOC provides a tool to support a more systematic approach to the design, implementation, and evaluation of specific programmes and resources aimed at parents and caregivers. It is important to explain in detail how different parent- and caregiver-focused activities influence parenting development over time and give them the competencies, motivation, and opportunity to support children to learn with technology. Hence it is the parents and caregivers who are the learners within the programmes and initiatives, and this TOC is described as 'parent- and caregiver-focused'.

The TOC was produced through a desktop review, interviews, and two stakeholder consultation workshops. Consequently, the resulting TOC draws on existing research and practice, as well as stakeholders' and experts' assumptions concerning how the evolving (and increasingly technology-enhanced) parent- and caregiver-focused programmes and initiatives might achieve their goals — and the conditions that need to be in place to achieve this. Our desktop review revealed fewer sources of evidence for the evaluation of parent- and caregiver-focused programmes, which has resulted in a more tentative TOC than the earlier learner-focused and teacher-focused TOCs.

This working paper documents and explains the parent-centred TOC, which in line with EdTech Hub's core focus, considers all parents and caregivers of learners in Classes 1–12 as its main beneficiaries.

EdTech Hub was also asked to propose strategies for the use of the parent- and caregiver-centred TOC. The recommendations are as follows.

1. **Develop a research programme to generate more robust evidence and insights** on the impacts of programmes and initiatives that are aimed at parents and caregivers to develop their competencies, motivation, and opportunity to support children to learn within an increasingly technology-enhanced education system.

2. **In alignment with the National Blended Education Masterplan, explore whether a more explicit strategy focused on the needs of parents and caregivers** would accelerate efforts towards a technology-enhanced education system in Bangladesh. The strategy should incorporate and align the work of government and other stakeholder organisations.
3. **Conduct further stakeholder workshops to familiarise government departments and stakeholders with the parent- and caregiver-centred TOC** and support the creation of programme-specific versions that might enable more systematic monitoring and evaluation of programme outcomes over time.
4. **Discuss with the government and key digital providers how to ensure that relevant data is made available to programme teams** to enhance the quality of monitoring and evaluation activities for programmes and initiatives aimed at parents and caregivers.
5. **Identify gaps in data that represent valid 'outputs' for parental support programmes and initiatives** to provide better evidence that short- and medium-term outcomes have been achieved.
6. **Identify gaps in provision by using teacher, learner, and parent and caregiver demographic data** to identify the harder-to-reach learners and inform the design of new programmes for parents and caregivers that aim to support these learners.
7. **Explore whether a TOC for national or district level administration teams working in education,** focused on their professional learning needs, might support the development of a technology-enhanced education system in Bangladesh.

1. Introduction

The Theory of Change (TOC) is a living tool to enable stakeholders to continually learn about and improve the various programmes that are implemented for parents and caregivers as part of an overall strategy. An effective TOC supports continuous evaluation throughout the lifespan of the programme or initiative while offering multiple stakeholders greater learning opportunities, better documentation processes, and a shared understanding of the efficacy of the programmes ([Annex 5](#) outlines some approaches for this.)

1.1 Context of support

Since the onset of Covid-19 and the subsequent school closures, it is widely acknowledged that parents and caregivers were forced to take on additional roles to support children's home learning. Although several initiatives have been implemented to provide parents and caregivers with additional support, this rapid move to technology-enhanced learning has highlighted the need for them to quickly become more digitally engaged. However, the impacts of such initiatives are hampered by the limited access for many parents and caregivers to suitable technologies and the appropriate support and training to enable their children to access learning resources.

In Bangladesh, there is now a much greater community awareness of the potential for technology to support children's education, as exemplified by the upcoming National Blended Education Masterplan (2022–2031). There are plans for the Masterplan to highlight the importance of parental involvement² as part of the overall strategy to enhance education quality. Policymakers emphasise that parental involvement in primary and secondary schooling is essential to improve the quality of learning at each stage of the education cycle. Furthermore, the attitudes of parents and caregivers towards the use of technology for their children's learning can affect programme outcomes. Hence, there is an increasing need to design and implement programmes that are directed towards or involve parents and caregivers, for which a TOC would support comprehensive and robust monitoring and evaluation in the future.

Given the key role parents and caregivers play in ensuring the long-term success of a digitally enhanced education system for learners in Classes 1–12 in

² While we refer to parents and caregivers throughout this paper we also use the words 'parenting' and 'parental'. However, both these terms refer to, and include the parenting care provided by parents *and* caregivers alike.

Bangladesh, EdTech Hub was asked to provide support for government and development partners to develop a parent- and caregiver-centred TOC. Between May and October 2022, this work aimed to:

1. Identify the implicit TOC behind existing programmes for parents and caregivers in Bangladesh towards a technology-enhanced education system

This draws on existing theory and practice as well as stakeholders' assumptions of how programmes for parents and caregivers achieve their outcomes and what conditions need to be in place to achieve this. This builds on knowledge of international good practices regarding the elements, methodologies, and approaches from around the world.

2. Assess the implicit TOC for coherence, logic, and inclusiveness

This includes verifying assumptions against existing evidence to check plausibility and assessing the assumptions and evidence on the pathways of change.

3. Propose strategies for using the TOC

This includes suggestions for using the TOC as a tool to assess existing structures and requirements for parent- and caregiver-focused programmes.

The process to develop the third TOC comprised a desktop review, interviews, and two stakeholder consultation workshops. The resulting parent- and caregiver-centred TOC draws on existing global and national research and practice as well as stakeholders' assumptions about how the evolving technology-enhanced parent and caregiver support programmes and initiatives might achieve their goals — and what conditions need to be in place to achieve this. The TOC provides a tool to help situate the existing programmes and inform the design of new initiatives (non-digital and digital, synchronous and asynchronous) within Bangladesh's broader education system. This paper outlines the [resulting TOC](#) and the accompanying narrative. [Annexes 2](#) and [3](#) provide descriptions of the processes that led to the development of the TOC, which is summarised in [Figure 1](#).

Figure 1. *The TOC development process*

Review: GoB policies and strategies; programmes aimed at parents and caregivers, and associated evaluation reports.



Hold initial stakeholder workshop to: develop TOC structure.



Develop and iterate the TOC through stakeholder feedback.



Present a “final for now” TOC as a tool to support design, implementation and evaluation of programmes.

1.2. A parent- and caregiver-centred TOC to inform a technology-enhanced education system in Bangladesh

A TOC is an established methodology to support the evaluation of programmes (or interventions). The ‘theory’ is the description of how a programme is expected to bring about the desired changes (or impacts) for the beneficiaries of the programmes, in this case, parents and caregivers. Given the key role of different parent- and caregiver-focused activities in supporting children’s learning, it is important to explain in detail how they influence the development of parenting over time, towards the overarching goal of parents and caregivers learning how to support children to learn with technology. Hence, it is the parents and caregivers who are the learners within the programmes and initiatives and the TOC is described as ‘parent- and caregiver-focused’.

Our desktop review of evidence and associated stakeholder discussions revealed that few of the current programmes and initiatives aimed at parents and caregivers are focused on this goal. Many are focused on the development of essential parenting knowledge and practices concerning food and nutrition, hygiene, and supporting children’s early development through play. In addition, the role and use of technology in the programmes we reviewed also varied greatly.

Hence, we categorised the focus for parent and caregiver learning in three ways:

1. Technology-supported learning about parenting practices to improve parents' and children's well-being and holistic development.
2. Learning about technology to enhance parents' and caregivers' digital literacy to become a resource for their children's learning.
3. Learning about the type of technology that supports children's learning outcomes.

The following programmes provide current stakeholder examples of each of the above categories..

1. **Pashe Achi (Right Beside You) intervention (BRAC):** A telecommunication model consisting of tele-counselling and tele-learning for parents and caregivers to promote children's well-being and development through play-based learning, positive parenting, and self-care practices of parents and caregivers. The intervention provides both psychosocial support and learning support.
2. **Teach for Bangladesh:** Through 'parent shobhas' (parent circles) in their children's schools, parents and caregivers are offered a programme of support to develop their digital skills. They are also provided with a handbook of digital content that provides process-oriented instructions to support them in practising their new digital skills following training.
3. **ToguMogu:** A mobile app platform that connects parents and caregivers to resources (and each other) to support their children's learning. The resources aim to educate parents and caregivers to recognise key milestones in their children's development and access resources / support / learning as needed.

Furthermore, within a nationwide technology-enhanced education system, it is anticipated that parents and caregivers will have increasing opportunities to engage in new, technology-enhanced opportunities to learn within both directed (formal initiatives and programmes) and self-directed contexts.

By identifying the different activities that parents and caregivers engage in, it is possible to determine the evidence (in the form of metrics, measures, and data) that can inform the design as well as the measurement of the impact of different programmes or initiatives. Viewing parental and caregiver participation in this way also enables the impacts to be considered individually, collectively, and cumulatively as parents and caregivers are likely

to experience multiple opportunities that respond to the multiple needs of their children over time.

1.3. Content of parent-focused programmes and initiatives

There is general agreement in educational research that parental engagement in children's education positively impacts children's academic and non-academic development ([↑Hossain & Atencio, 2017](#)). Furthermore, a recent systematic review ([↑Jasmine & Nduna, 2022](#)) revealed that parents in rural and urban settings in Bangladesh place high importance on education for their children. However, despite both the perceived positive effect of parental engagement and the prioritisation of education by parents, there has been relatively limited research into the role of parental engagement in education in Bangladesh ([↑Hossain & Atencio, 2017](#)).

In other contexts, research into the perceptions and roles of parents in technology in education identifies that they are torn between seeking to ensure children can fully utilise technology to reach their educational objectives and reducing protection risks associated with technology use (see, for example, [↑Gür & Türel \(2022\)](#)). In the Bangladeshi context, there is a small body of research into the risks associated with technology use and parental perceptions and responses to this, particularly for teenagers engaging with technology (see, for example, [↑Chandrima et al., 2020](#); [↑Keya et al., 2020](#)).

Investigating the role of parents in education programming using technology in Bangladesh reveals an evidence gap. Workshop attendees indicated that they were at the early stages of monitoring the impacts of their programmes on the participating parents and caregivers, with most programmes mainly focused on evaluating the impacts on the children. This gap is seen in terms of

1. understanding how parents perceive and support the use of technology in their children's education;
2. how parents use technology to increase their engagement in their children's education.

Of the limited research available, a recent study by [↑Cristol et al. \(2019\)](#) highlights the importance of understanding the (potential) parental role in education programming utilising educational technology in Bangladesh. This study found that parents were critical to educational technology programming success as part of wider community engagement processes. A

study commissioned by Save the Children ([Ahsan et al., 2019](#)) into how mobile technology could be used to foster effective parental engagement in education in Bangladesh highlighted the importance of ensuring appropriate messaging to parents. This included ensuring mobile technology messaging to parents is accessible both technically and through the use of appropriate language; comprehensible to them; and considers their motivations and time availability.

Against this backdrop, it is perhaps unsurprising that Bangladeshi education sector stakeholders strongly support the development of a TOC which could provide guidance on how to design, implement, and evaluate programmes that aim to engage parents in the use of technology for the range of purposes previously outlined.

1.4. Structure of this document

[Section 2](#) introduces the parent- and caregiver-centred TOC for a technology-enhanced education system in Bangladesh, along with a narrative that explains its format and hypothesised causal pathways.

[Section 3](#) outlines the recommendations arising from the process of developing and evidencing the TOC.

Further details about literature reviewed, stakeholders consulted, and the design and structure of the initial stakeholder workshop and the subsequent stakeholder validation process can be found in the annexes.

2. The TOC

A TOC is an overarching framework for understanding, systematically testing, and refining the assumed connections — the ‘theory’ — that underpin a programme and also its anticipated impacts.

The complete parent- and caregiver-centred TOC is illustrated in [Figure 3](#) below. This figure is too small to be read in this document but can be viewed online [here](#).

The TOC should be read from the bottom up. It includes the following components:

- Foundational pillars
- Educational modalities
- Educational activities (for parents and caregivers)
- Short-term outcomes
- Mid-term outcomes
- The impact goal

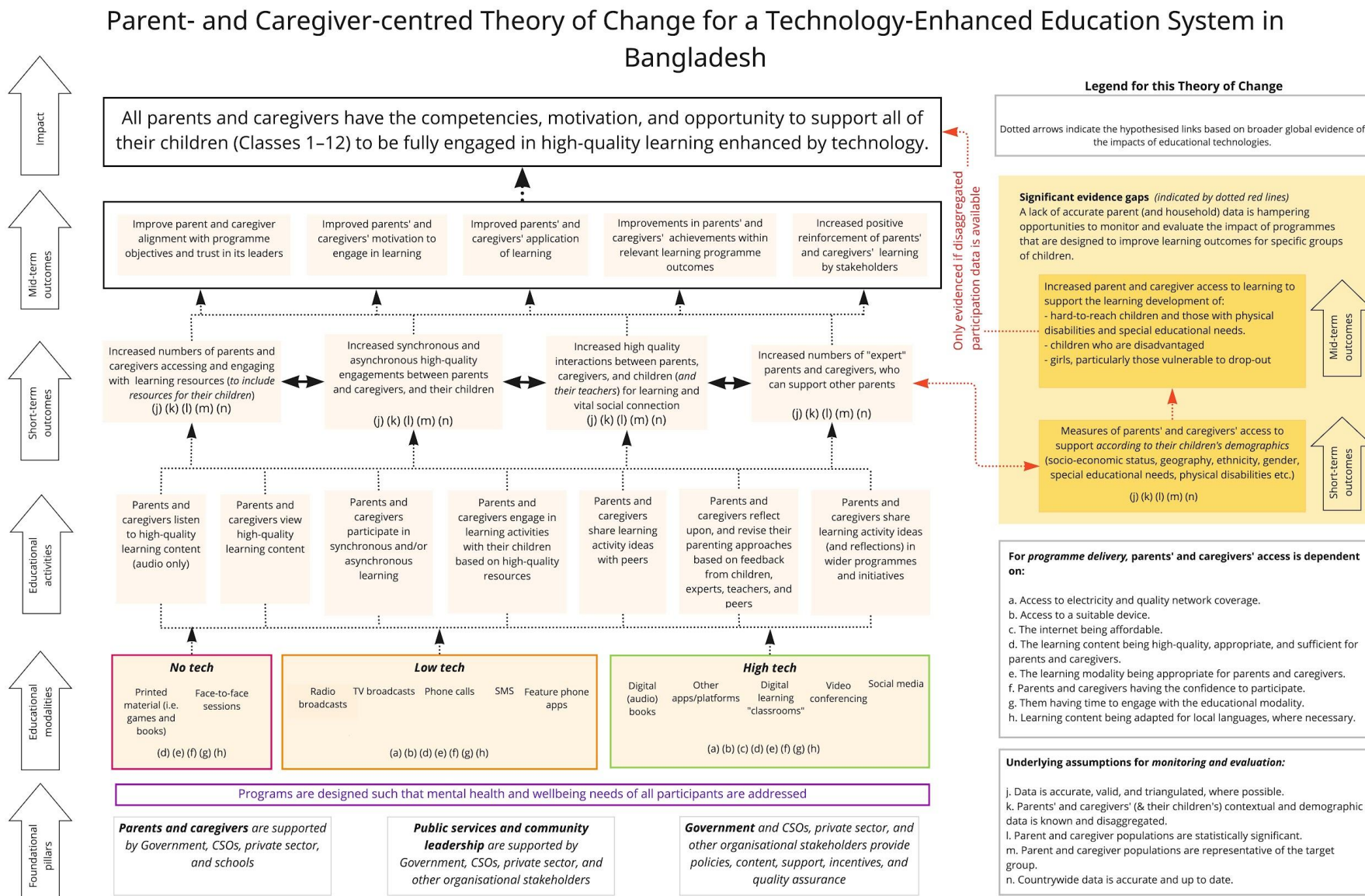
In addition, the TOC has dotted arrows that show the *potential* causal pathways between the educational modalities, activities, outcomes, and impact. As evidence becomes available for particular programmes and initiatives, solid lines can be used to indicate *actual* causal pathways.

To the right of the TOC diagram is the legend — a yellow block of text that details the significant evidence gaps; the prerequisites for programme delivery; and the main underlying assumptions related to monitoring and evaluation.

All of the stakeholders involved in the development of this TOC were very mindful of the need for parents and caregivers to be in a position to take up the learnings from their respective programmes. Hence, the TOC recommends that all participants' mental health and well-being needs are implicitly or explicitly addressed when programmes are designed.

The parent- and caregiver-centred TOC is explained in detail in the narrative that follows.

Figure 2. The Theory of Change for parents and caregivers towards a technology-enhanced education system in Bangladesh. (Go [here](#) for an enlarged version of Figure 2).



2.1. Foundational pillars

Foundational pillars are the system-level structures or supports that are required to be in place to maximise the impacts of any programme or intervention designed to positively impact parents and caregivers.

Figure 3. *Foundational pillars*



The TOC is built on the following three foundational pillars:

1. Parents and caregivers
2. Public services and community leadership
3. Government and civil society organisations (CSOs), private sector, and other organisational stakeholders

Parents and caregivers

The central and critical role that parents and caregivers play in the process of systemic educational change means that, prior to the design of any programmes and interventions that target them, there are system-wide conditions that need to be in place to ensure both equity and opportunity to access the available support. For example, providing free universal access to mobile data would immediately alleviate a known barrier for many parents and caregivers. Hence parents and caregivers are both a foundational pillar **and** the focus of the TOC.

Public services and community leadership

With support from the government, non-governmental organisations (NGOs) and other stakeholders, the local public services and their community-based leaders enact the policies and use the associated resources to provide access to offer programmes and initiatives aimed at parents and caregivers.

Public services and community leadership are supported by the government, CSOs, the private sector, and other organisational stakeholders to have:

- Guidelines and an organisational culture that align with effective use of technologies that aims at high-quality parental and caregiver engagement.
- Sufficient human support and infrastructure.
- Sufficient technology resources and equitable access to them for parents and caregivers.
- An adequate physical set-up and structure for technologies, where necessary.

Government and CSOs, private sector, and other organisational stakeholders

This includes the policy frameworks, communications strategy, resources, incentives, support, and associated quality assurance processes.

The Government of Bangladesh conducted a series of “futures thinking” workshops with both public and private sector stakeholders to envision the future of education in Bangladesh in 2041 (ta2i, 2019). That exercise, in addition to the rapid experiments done by both public and private sectors during the Covid-19 pandemic, generated momentum for the creation of the National Blended Education Masterplan (2022–2031), which is currently in the public approval process. Within this Masterplan, parents and caregivers are considered to have an important role in blended education, especially since such education does not take place only within schools but also in homes and in communities. It will be necessary to develop a blended learning offer for parents and caregivers that addresses the need to educate them about the National Blended Education Masterplan, the new national curriculum, and how expectations of parenting are continuing to evolve.

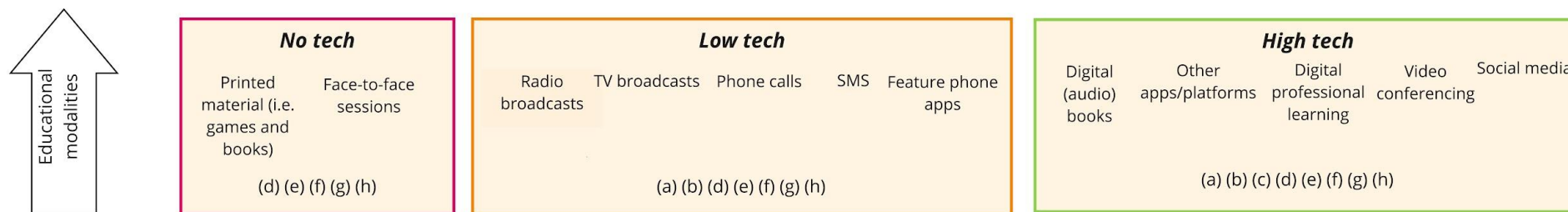
Examples of system-wide supports that might be provided by the government, CSOs, the private sector, and schools include:

- Providing parents and caregivers with access to suitable devices with affordable internet.
- Developing frameworks that outline the skills and proficiency with technology that parents and caregivers might need to support their children's learning, including children with physical disabilities and special educational needs.
- Provision of incentives to enable equitable access to programmes and interventions.
- Recognition for parents and caregivers who offer high-quality support to other parents and caregivers, which might involve the use of technology.

2.2. Educational modalities

The educational modalities included in the TOC are used within programmes and interventions aimed at parents and caregivers. They align with the 12 modalities outlined in the UNICEF *Guidance on Distance Learning Modalities* ([UNICEF, 2020](#)).

Figure 4. Educational modalities



For Bangladesh, these are grouped (and colour-coded) according to three categories: No tech (red), Low tech (orange) and High tech (green), as proposed in the Blended Education For All (BEFA) website by a2i ([a2i, 2022](#)).

Printed materials. I.e. games and books (used by all modalities)

Face-to-face sessions

Radio broadcasts

TV broadcasts

Phone calls

SMS (short message service)

Feature Phone Apps

Digital (audio) books

Other apps / platforms

Digital classrooms

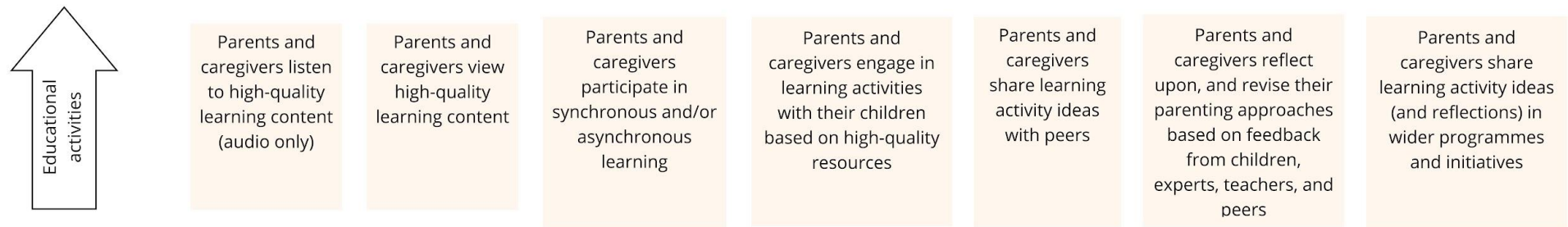
Video conferencing

Social media

By grouping the modalities in this way it is hoped to offer the designers, implementers, and evaluators of parent- and caregiver-focused interventions an increased awareness of the *possible* educational modalities that might be used both within their own programmes **and** more widely within children’s blended learning experiences. On the TOC, each modality includes letter codes that refer to their specific underlying assumptions and dependencies. These letter codes are explained in [Section 2.7](#).

2.3. Educational activities (for parents and caregivers)

Figure 5. Educational activities (for parents and caregivers)



This is the most critical component of the TOC, as it is only by considering what parents and caregivers actually *do* when engaging in programmes and initiatives that we can begin to appreciate how these activities contribute to them achieving the relevant outcome measures, which in time lead to improved outcomes for their children.

This section of the TOC is deliberately detailed to highlight ‘typical’ activities within high-quality, parent- and caregiver-focused development programmes and initiatives. In well-structured programmes that take place over months and years, parents and caregivers will be engaging in several of these activities at different points in time, which may involve putting their learning into practice within their families and reflecting on the outcomes with other parents, community leaders, or teachers.

- Parents and caregivers listen to high-quality learning content (audio only)
- Parents and caregivers view high-quality learning content
- Parents and caregivers participate in synchronous and / or asynchronous learning
- Parents and caregivers engage in learning activities with their children based on high-quality resources
- Parents and caregivers share learning activity ideas with other parents and caregivers

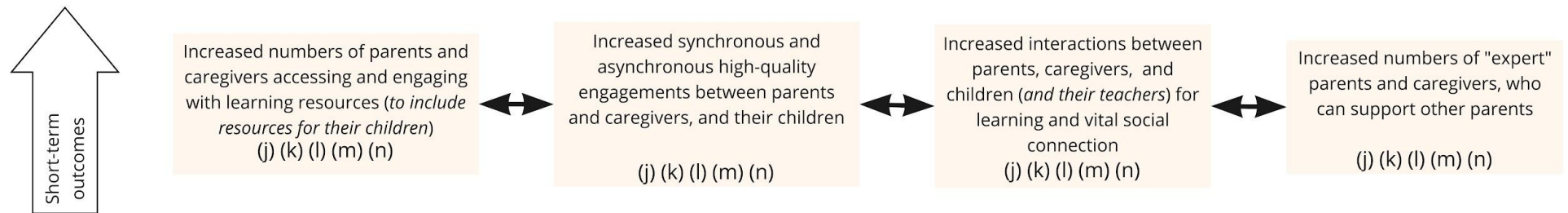
- Parents and caregivers reflect upon and revise their parenting approaches based on feedback from children, experts, teachers, and other parents and caregivers
- Parents and caregivers share learning activity ideas (and reflections) in wider programmes and initiatives

A traditional face-to-face session for parents and caregivers can be conceived as a synchronous ('live') learning activity that is typically held in a community venue or in the schoolyard or building. Similarly, providing phone call support would also be described as a synchronous learning activity. Asynchronous learning activities for parents and caregivers might include phone text support or be included within internet-based platforms that contain learning content aimed at parents and caregivers, which they access in their own time.

2.4. Short-term outcomes

The short-term outcomes might be evidenced over days, weeks, and months.

Figure 6. *Short-term outcomes*



They are:

- Increased numbers of parents and caregivers accessing and engaging with learning resources, to include resources that are designed for use by their children, such as games, books and homework tasks.
- Increased synchronous and asynchronous high-quality engagements between parents and their children.
- Increased high-quality interactions between parents, caregivers, and children (and their teachers) for learning and vital social connection.
- Increased numbers of 'expert parents and caregivers' who can support other parents and caregivers.

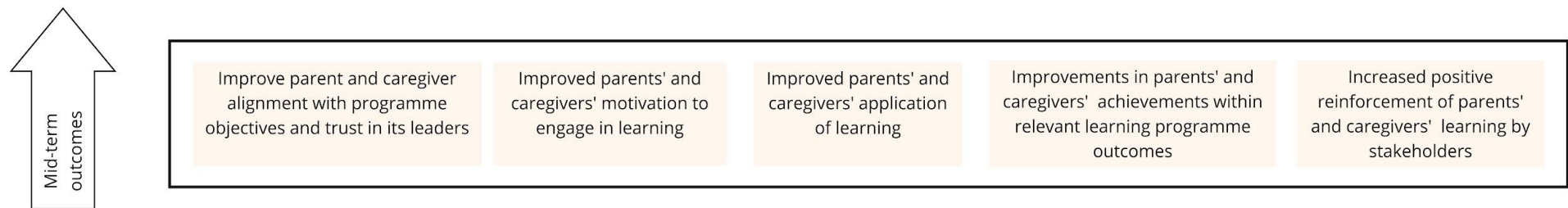
These four outcomes capture the range of quality indicators of programmes that have been designed for parents and caregivers with or without educational technologies. Each is vital to develop a community of parents and caregivers who are able to support their children in (increasingly) technology-enhanced school settings, as well as providing an out-of-school environment in which all children learn and thrive. The addition of digital technology increases the complexities as parents and caregivers, learners, and teachers learn new ways of working and interacting with each

other. It cannot be assumed that the addition of technology will automatically lead to improvements in these four outcomes.

2.5. Mid-term outcomes

The stated impact goal relies on a combination of mid-term outcomes that must be achieved over time periods of months and years.

Figure 7. *Mid-term outcomes*



- Improve parent and caregiver alignment with programme objectives and trust in its leaders
- Improved parents' and caregivers' motivation to engage in learning
- Improved parents' and caregivers' application of learning
- Improvements in parents' and caregivers' achievements within relevant learning programme outcomes
- Increased positive reinforcement of parents' and caregivers' learning by stakeholders

All stakeholders spoke of how important it is to engender trust between the programme leaders and participating parents and caregivers. Also, the need for parents and caregivers to believe in the programme objectives, even if they are unsure of the path ahead, is vital. This is particularly important if the parents and caregivers have little experience of technology use and, therefore, no vision for how their increased understanding will support their children's education.

With trust engendered, it is more likely that parents and caregivers will have more motivation to learn — another mid-term outcome that many programmes will seek to evidence. One stakeholder reported, “I think motivation hasn’t been clearly or directly targeted through interventions”, with others commenting that they did not yet have methods to capture motivation levels, which would enable changes in motivation to be evidenced over time.

For most stakeholders, the mid-term outcome that relates to parents’ and caregivers’ applications of their learning (within situations that involve their children) was most difficult and expensive to capture. Currently, many programmes use community support workers and field workers to conduct home and community visits; however, where low-tech devices such as mobile phones are used, costs can be significantly reduced.

2.6. Impacts

The TOC has one widely understood impact goal, namely:

All parents and caregivers have the competencies, motivation, and opportunity to support all of their children (classes 1–12) to be fully engaged in high-quality learning enhanced by technology.

This resonates with both the Bangladesh Government's *Education Sector Plan (2020–21 to 2024–25)* and its *Vision 2041* plans, which both demand a highly educated population that is digitally literate. Hence, *the parents and caregivers* of the children who are in school right now are a significant group in championing this goal. The parents’ and caregivers’ learning needs, with respect to both their parenting and digital skills, are critical to ensuring that their children progress through the school system over the coming years. The careful monitoring and evaluation of parent and caregiver initiatives are crucial to supporting the system to be improved over time.

The TOC focuses on the processes through which parents and caregivers can enable *all of their children (and those in their immediate communities) in Classes 1–12* to engage fully in high-quality education through the digital resources being provided in Bangladesh. This relies on a broad and ongoing effort to decrease the technological and other barriers for both parents and learners that prevent both groups from learning from the current materials that are provided. Hence, the words *fully engaged in high-quality education* set a major goal, as these barriers *must* be addressed if a fully equitable education system is to be achieved.

2.7 Underlying assumptions and dependencies

The TOC is underpinned by a wide range of assumptions and dependencies.

For programme delivery, parents' and caregivers' access is dependent on the following conditions being met.

- a. Access to electricity and quality network coverage. [Low tech High tech]
- b. Access to a suitable device. [Low tech High tech]
- c. The internet being affordable. [Low tech High tech]
- d. The learning content being high-quality, appropriate, and sufficient for parents and caregivers. [No tech Low tech High tech]
- e. The learning modality being appropriate for parents and caregivers. [No tech Low tech High tech]
- f. Parents and caregivers having the confidence to participate. [No tech Low tech High tech]
- g. Parents and caregivers having time to engage with the educational modality. [No tech Low tech High tech]
- h. Learning content being adapted for local languages, where necessary. [No tech Low tech High tech]

For monitoring and evaluation, underlying assumptions are as follows.

- j. Data is accurate, valid, and triangulated, where possible.
- k. Parents' and caregivers' (and their children's) contextual and demographic data is known and disaggregated.
- l. Parent and caregiver populations are statistically significant.
- m. Parent and caregiver populations are representative of the target group.
- n. Countrywide data is accurate and up to date.

2.8 Significant evidence gaps (the yellow box)

Finally, the TOC includes a section, which is shown in yellow, that highlights some significant evidence gaps relating to a lack of accurate parent and caregiver level and child level data that is hampering opportunities to monitor and evaluate the longer-term impacts of parent- and caregiver-focused programmes and initiatives for specific groups of children (see [Figure 8](#)).

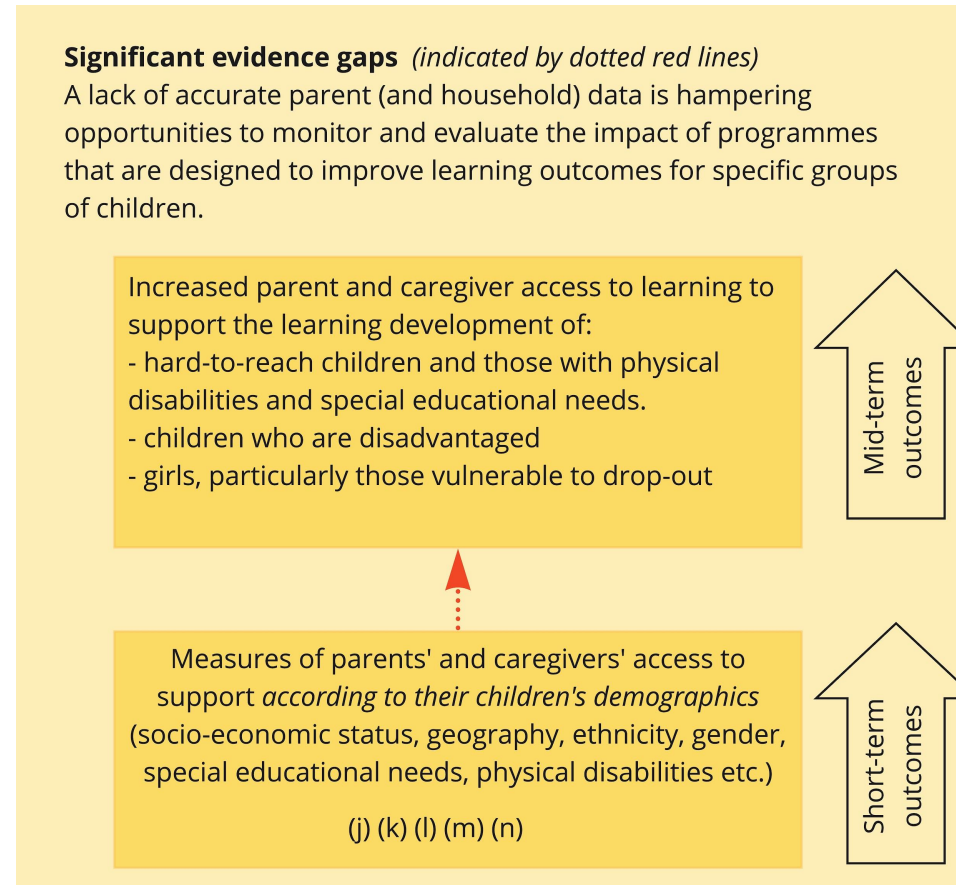
This is in common with the two earlier TOCs that focus on learners and teachers, respectively.

For interventions that involve parents and caregivers *and that target specific groups of children*, it will only be possible to gauge if parents and caregivers have achieved the stated medium-term outcomes on the TOC if the children's data is disaggregated *and* the programme design is sensitive to both the parents' and caregivers' and children's specific needs and context.

Hence, parent and caregiver level (and child level) measures will be needed, which are disaggregated by demographics (socio-economic status, geography, ethnicity, gender, special educational needs, physical disabilities etc.)

The following outcomes might then become evident:

- Increased parent and caregiver access to learning to support the development of:
 - hard-to-reach children and those with physical disabilities and special educational needs.
 - children who are disadvantaged.
 - girls, particularly those vulnerable to dropping out.

Figure 8. Significant evidence gaps within the Theory of Change

2.9 Inferring causal pathways from the TOC

The TOC components are connected by arrows that indicate hypothesised pathways that explain how multiple parental and caregiver engagements in the learning activities will lead to the outcomes over time to result in the desired impact. The causal pathways are inferred by tracing an educational modality upwards to indicate how the learning activities it has facilitated *should* enable parents and caregivers to achieve the mid- and long-term outcomes *providing* the

prerequisites have been satisfied, *and* the associated assumptions have been validated. For example, a parent's or caregiver's attendance at a synchronous community-led parenting session, while relatively easy to evidence, would only result in a *high-quality* impact if the parent or caregiver was *also* putting the ideas into practice with their child or children *and* engaging in dialogue with others to understand the impact of these activities on their child's development. Hence, the TOC provides a tool to help designers and providers of parent- and caregiver-focused programmes and initiatives to think through the causal pathway for *their particular intervention*.

3. Recommendations

The goal of a TOC is to provide a diagram that communicates how a programme design is intended to achieve its goals and to create a tool that can enable multiple stakeholders to rally their efforts. In particular, it communicates the critical links that need to be foregrounded in monitoring and evaluation activities. The overarching TOC supports this process at the level of the education system.

The TOC offered in this paper captures a theory for how parent- and caregiver-focused programmes and initiatives within a technology-enhanced education system might work in Bangladesh to support children's learning. It helps to identify gaps where more investigation / thinking is required for a better understanding of the way in which parent- and caregiver-focused interventions can support student learning in Bangladesh. The many dotted lines within the TOC are indicative of the lack of programmes and resources directed to this more explicit goal, as well as evidence of the impacts of programmes where they exist. Furthermore, the TOC allows the government and key stakeholders to see what data is needed on a national scale to support the individual programme teams to monitor and evaluate the outcomes and impacts of their own work.

Based on the rigorous data collection and analysis conducted to support this paper, we offer the following recommendations:

1. **Develop a research programme to generate more robust evidence and insights** on the impacts of programmes and initiatives that are aimed at parents and caregivers to develop their competencies, motivation, and opportunity to support children to learn within an increasingly technology-enhanced education system. Such a programme should aim to align the work of multiple government and stakeholder organisations to provide a clearer understanding of existing and future parent and caregiver needs.
2. **In alignment with the National Blended Education Masterplan, explore whether a more explicit strategy focused on the needs of parents and caregivers would accelerate efforts** towards a technology-enhanced education system in Bangladesh. This strategy should incorporate and align the work of government and other stakeholder organisations. It should also indicate how the provision of different types of programmes that align with the categories provided in [Section 1.2](#) will be developed and funded over time.

3. **Conduct further stakeholder workshops** — to familiarise government departments and stakeholders with the parent- and caregiver-centred TOC and support the creation of programme-specific versions that might enable more systematic monitoring and evaluation of programme outcomes over time. In common with the TOCs for learners and teachers, the act of bringing multiple stakeholders together to share information about the parent-focused programmes and resources that they have designed can be facilitated by framing the activity through the lens of refining the TOC. This should include identifying both additional inputs / activities that might not have been captured in this rapid exercise, as well as further refining the short- and mid-term outcomes and impacts identified and suggested. Furthermore, some programmes and initiatives are yet to exploit the evidence base on features of high-quality parent- and caregiver-focused programmes and initiatives. The TOC aims to make such features explicit and accessible to all. The respective TOCs might be used to discuss these different programmes and, in doing so, widen knowledge of existing monitoring and evaluation approaches and associated findings. Be mindful that newcomers will need time and support to make sense of the key terms and concepts of the TOC. [Annex 5](#) offers some guidance on how to facilitate activities that enable such ways of working.
4. **Discuss with the government and key digital providers how to ensure that relevant data is made available to programme teams** to enhance the quality of monitoring and evaluation activities for programmes and initiatives that are aimed at parents and caregivers. For example, data on the distribution of mobile phones in a particular region might inform where interventions should be targeted, or workforce data might indicate where programmes for parents and caregivers might be best situated.
5. **Identify gaps in data that represent valid ‘outputs’ for parental support programmes and initiatives** to provide better evidence that short- and medium-term outcomes have been achieved. The TOC lists a wide variety of data that might be considered as ‘outputs’ for parental (learning) activities (and potentially provide additional data to evidence the related learning outcomes for their children).
6. **Identify gaps in provision** by using teacher, learner, and parental demographic data to identify the harder-to-reach learners and inform the design of new programmes for parents and caregivers that aim to support these disenfranchised learners.

7. **Explore whether a TOC for national or district level administration teams working in education** focused on their professional learning needs might support the development of a technology-enhanced education system in Bangladesh.

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Annex 1. Stakeholder engagement

Annex 1 includes the list of stakeholders represented at the workshops according to their role designation and institutions.

The organisations involved in workshops are indicated with a cedilla (~) and those that were interviewed are indicated with an asterisk (*).

Organisation	Designation
Access to Information (A2i)	~Policy Specialist
	~Education Consultant
	~Junior Consultant
Agami Foundation	~Deputy Programme Manager
Alokito Hridoy Foundation	~Curriculum and Instruction Specialist
	~Teacher Trainer
Bangladesh Rural Advancement Committee (BRAC)	*~Professor
	*~Researcher
CholPori Educational Technology	~Communications Manager
	~Project Manager
Innovation for Wellbeing	*~Founder and Executive Director
Government Laboratory High School, Dhaka	~Teacher, Secondary
Tripolly Government Primary School, Faridpur	~Teacher, Primary
Teach for Bangladesh	*~Programme Director
Monash University	*~Professor
	*~Researcher
Shoishob Foundation	~Founder
Light of Hope	*~Co- Founder
United Nations Children's Fund (UNICEF)	*~Education Officer, Chattogram

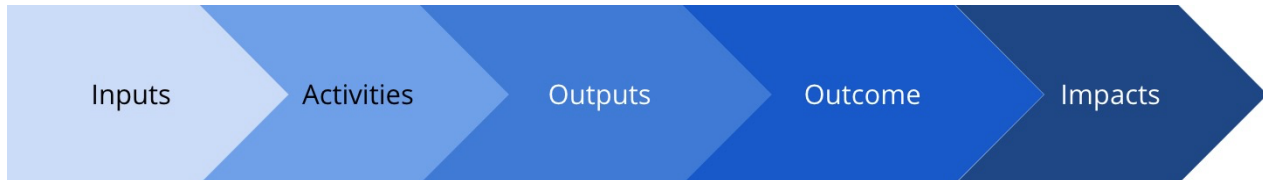
Annex 2. The initial stakeholder workshop

We adopted a similar approach to that used for the development of the TOC for learners ([↑Clark-Wilson et al., 2021](#)). As we were aware of some of the parent- and caregiver-focused programmes and initiatives that multiple stakeholders in Bangladesh have devised, we began by inviting stakeholders to describe their own programmes in smaller breakout groups. As with the previous TOC projects, we introduced and encouraged the terminology of a *logic model* to support a shared understanding of the emerging impact stories. We adapted the Kellogg Foundation’s TOC approach, which has been used extensively in numerous programme evaluations worldwide ([↑Kellogg Foundation, 2004](#)). Although we did not eventually adopt this structure for the final TOC, this more simplified format was a helpful starting point.

We briefly describe the process below to highlight the iterative nature of TOC creation.

A TOC needs to be focused on the main recipients of the programme — which, in our case, are parents and caregivers — and the resources and activities through which the desired impacts on them will be achieved.

Figure 9. *The chain of reasoning that underpins a Theory of Change*



A brief description of the components of a TOC follows — starting with the desired impacts and working from right to left.

Impacts

Impacts are organisational, community, and / or system level changes expected to result from the programmes provided. More generally, these might include improved conditions, increased capacity, and changes in the policy arena. In other words, impacts are the overarching goals that implemented programmes intend to achieve. These can be expressed as short-term impacts (weeks), mid-term impacts (months) and long-term impacts (years).

Outcomes

Outcomes are specific changes in attitudes, behaviours, knowledge, skills, status, or level of functioning expected to result from programme activities

and which are most often expressed at an individual or cohort level. These outcomes should be measurable through a change in the value of an output measure. Outcomes can be expressed as an increase, a decrease, or a constant value. For example, in the case of a programme aimed at parents and caregivers to support them in helping their children to learn to read, a desirable outcome would be an increase in parents' and caregivers' own confidence to read alongside their children in a way that aligns with the programme designers' TOC. In this case, as the end goal is to improve the quality of primary school learners' reading, additional research would be needed to involve the children themselves (and possibly their teachers). However, if the parent and caregiver interventions were the programme's main focus, it would be necessary to first establish the programme's impacts on the parents and caregivers prior to researching the resulting impacts on learners' reading.

Outputs

Outputs are the metrics or measures collected as participants engage with a programme or intervention. The programme monitoring and evaluation plans should detail each measure, what each represents, the methods for collection and subsequent analysis. The information gathered will indicate whether the programme has been delivered to the intended audiences at the intended levels.

In the Bangladesh context, the outputs need to relate to the parents and caregivers who have engaged with relevant programmes. For example, the number of activities a parent or caregiver has engaged in, the length of time, the frequency of engagement, the number of related activities completed, the quality of their engagement with the programme, etc.

Activities

Activities are the processes, techniques, tools, events, and actions that take place within the planned programmes. In the case of technology-enhanced and blended learning programmes, multiple activities needed by programme implementers contribute to a successful programme. Our parent- and caregiver-centred approach has emphasised the description of the parents' and caregivers' *learning activities*, as created by the programme designers / implementers, as these drive the desired outputs, outcomes, and ultimately impacts.

It is helpful to use 'action verbs' to describe parents' and caregivers' learning activities that form part of the theory for how the programme works to achieve the desired impacts over time. The cumulative impacts of many

occurrences over time for many parents and caregivers, which may take place across different modalities, dictate the scale of the impacts in the longer term.

Inputs or resources

Inputs are the resources such as the human, financial, organisational, and community resources a programme directs towards the work. A 'parent and caregiver-centred' focus means that these inputs should describe everything that needs to be put in place to enable the parents and caregivers to carry out the desired professional learning activities. The different educational modalities — grouped by **No tech** **Low tech** **High tech** — each have very different sets of input. Before parents and caregivers can access the resources (and, if needed, before their children access technology as well) many preconditions need to be in place and these are detailed in the TOC.

Assumptions

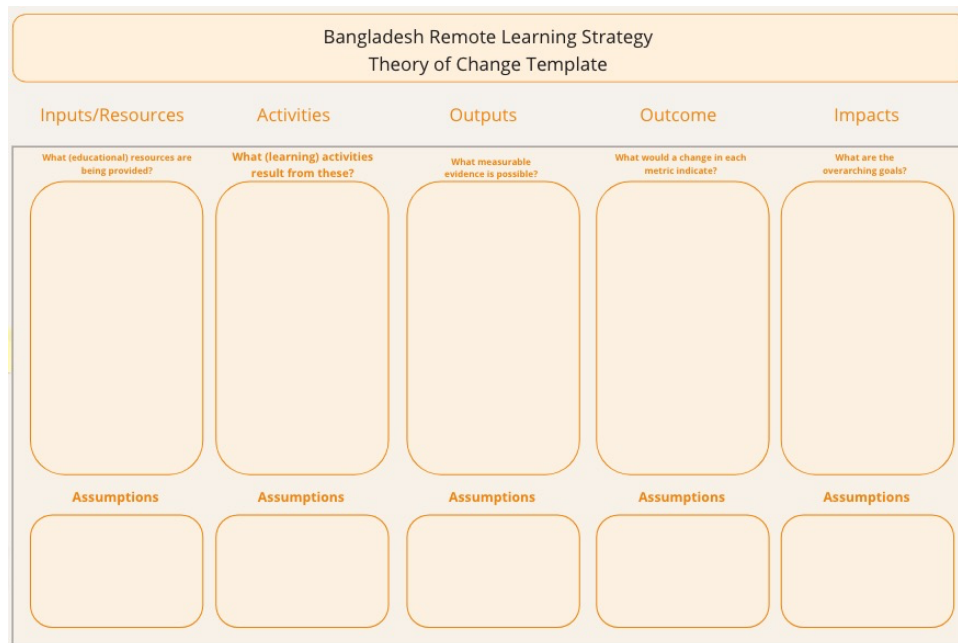
Assumptions are the list of conditions that are highly desirable for a successful programme. Many programmes are based on assumptions which need to be documented as part of the TOC. Some of these assumptions relate to preconditions that must be implemented for programmes to have the potential to achieve their outputs / outcomes / impacts.

For example, we already know that parent and caregiver programmes might require:

- Connectivity, for example, using TV, radio, mobile signal.
- Access to devices (e.g., a TV, a radio, a smartphone).
- Access to support from a community leader / another parent or caregiver / the school, etc.

In many cases, early programme monitoring gathers data to support the evaluation of whether preconditions have been met, and indeed to check if assumptions are correct.

In our initial approach, we used the TOC template in [Figure 10](#) to work with the providers of parent- and caregiver-focused programmes to create individual TOCs for their particular programme or resource. These in turn contributed to the creation of the 'final for now' TOC.

Figure 10. *Theory of Change templates*

One provider had developed a telementoring programme that provided phone support to parents and caregivers during the Covid-19-related school closures. The participants were mothers of children from Classes 1–4 who had been provided with structured curricula and received text message support and a weekly call from a university student (who was trained and supported). The intervention took place over 13 weeks, and the output metrics included assessments of the mothers’ attitudes and behaviours alongside in-person assessments of the children’s foundational literacy and numeracy skills. Findings from this study have been published in [Hassan et al. \(2021\)](#).

A second provider had developed a programme of support for parents and caregivers that address a range of topics, including digital skills, financial literacy, health and nutrition, which are conducted in “yard meetings” at the children’s school.

For both providers, the process of developing their initial TOC resulted in deep discussions of the teachers’ learning activities, which revealed multiple opportunities to collect more insightful data for monitoring and evaluation. It was clear that many programme level assumptions needed to be tested more rigorously by the programme teams.

The groups then either worked backwards from the desired impacts — or forward from the designed activities to decide on the most appropriate data that might need to be gathered. This data is needed to:

- validate or refute assumptions that have been made in constructing the theory;

- support the development of the theory by highlighting gaps where more or better data is needed.

Gathering information

We recommended that the groups work with sticky notes (or virtual sticky notes, such as [Miro](#) to list the ideas for each element of the TOC. By writing each contribution on a single sticky note, it is possible to move the ideas around. It is very common to ‘over assume’ the impacts of programmes without realising that we might lack evidence to support this aspiration. In all cases, it is necessary to think deeply about the activities that parents and caregivers undertake — and the data generated through these activities.

Deciding what data is a good proxy for the impact that is being sought will normally involve a number of conversations, especially in relation to learning outcomes.

In addition, an accompanying narrative is necessary to explain the components in depth so that multiple stakeholders can easily access and understand the information that the TOC is trying to provide.

The best results will be achieved if there is an intentional and critical approach in which participants question each other supportively about their ‘theory’ and the evidence, as well as assumptions underlying those theories.

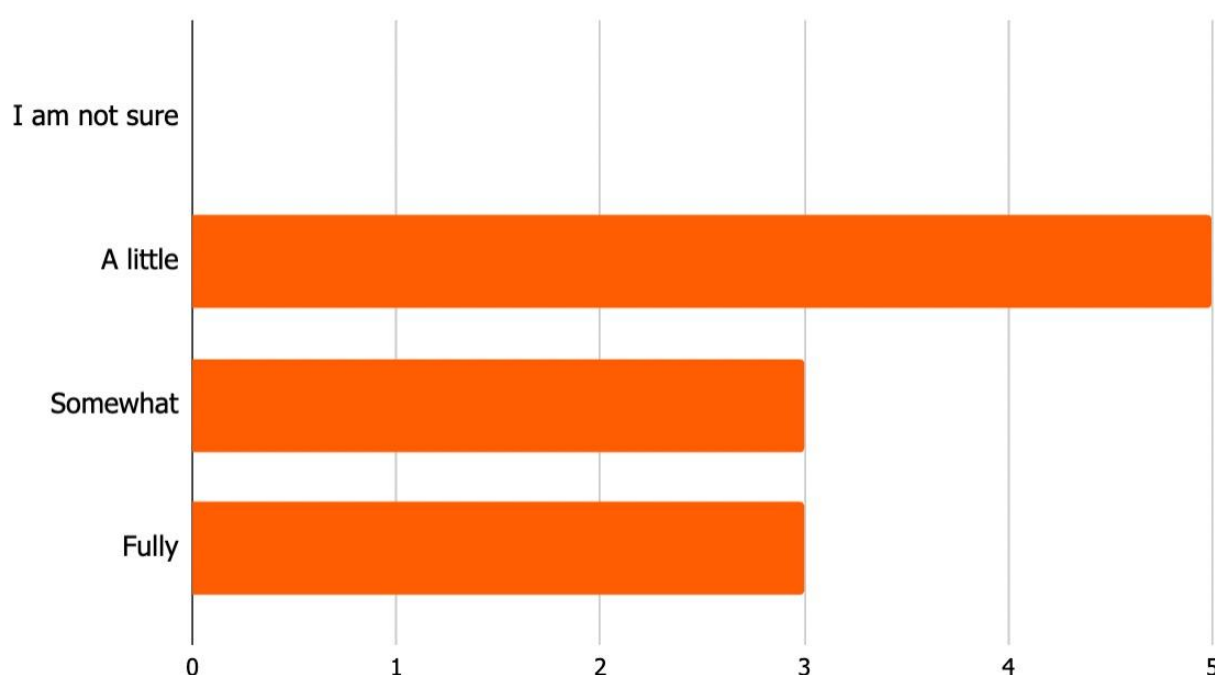
Annex 3. Stakeholder validation process

The interviews and validation meeting at which an earlier version of the TOC was modelled and discussed (with accompanying feedback processes) resulted in the following overall outcomes.

Alignment with the overarching goal for the TOC and its mid-term outcomes

The in-meeting poll evidenced that the stakeholders present were variably aligned with the overarching goal for the TOC (see [Figure 11](#)). Further questioning revealed that for many of their current programmes, the content was not yet focused towards children’s longer-term educational outcomes. However, there was an acknowledgement that, as the programmes mature, this might be something that could be made more explicit.

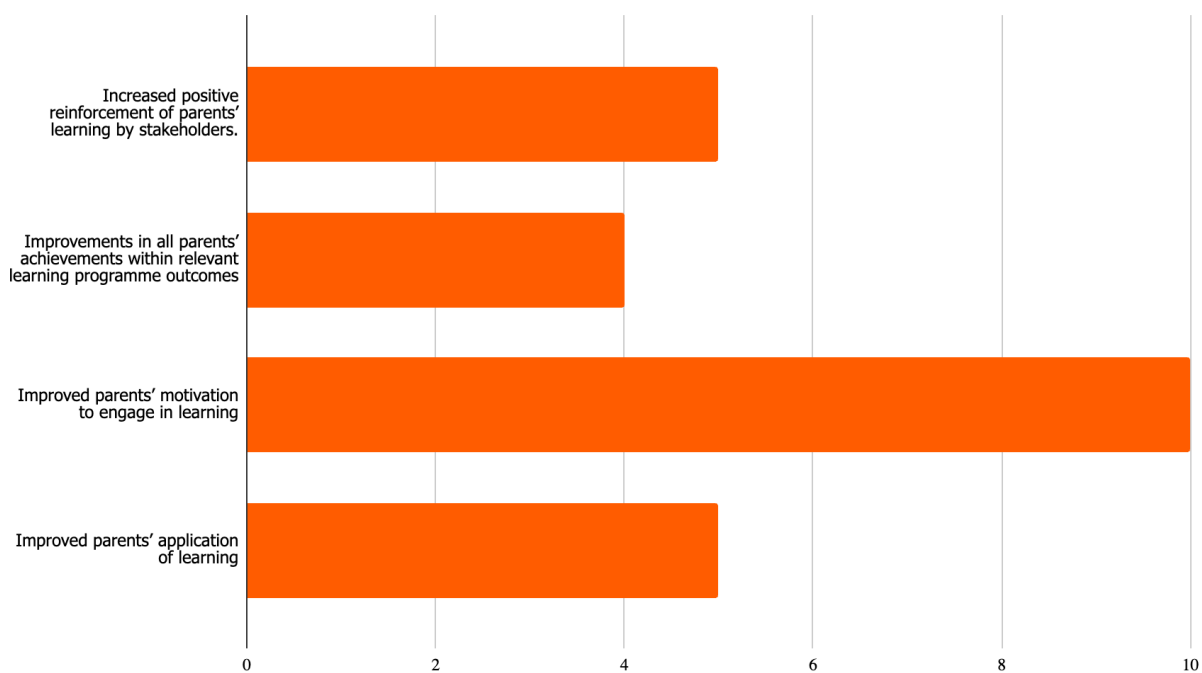
Figure 11. *Overarching goal. Response to poll question “How does your work align with the overall impact goal: All parents and caregivers have the competencies, motivation, and opportunity to support all of their children (Classes 1–12) to be fully engaged in high-quality learning enhanced by technology?” (n=11)*



The stakeholders reported alignment with the mid-term outcomes, with all stakeholders selecting each one of those proposed in the TOC. The follow-up discussions did focus on the almost universal alignment with the mid-term outcome “improved parents’ and caregivers’ motivation to engage in learning”. Stakeholders reported that an important precursor to this was

establishing a culture of trust between parents and caregivers and their programme leaders. If parents and caregivers shared the programme goals, they were more likely to trust the programme leaders to support them in achieving these goals; even if they lacked confidence or associated competencies at the beginning of the programme.

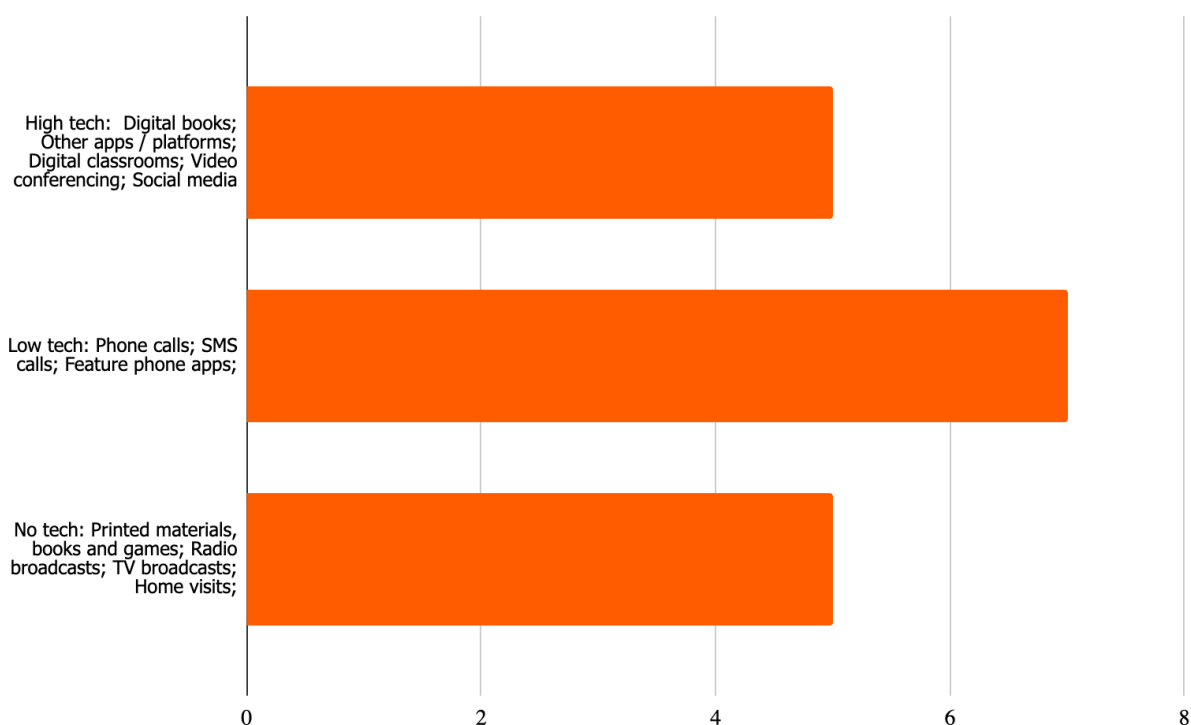
Figure 12. *Mid-term outcomes. Responses to poll question “Which of the mid-term outcomes do your programmes aim to achieve? (Select all that apply)” (n=11).*



Breadth of educational modalities on offer in Bangladesh

The stakeholders present in the workshop are offering programmes to parents and caregivers that include no-, low-, and high-tech modalities.

Figure 13. Educational modalities. Responses to poll question “Which of the following educational modalities do your programmes include?” (n=11)



Summary of changes made to the TOC as a result of the stakeholder validation process

The process of stakeholder validation led to several common questions being asked about the TOC and its relationship to parent and caregiver support initiatives that had been designed for particular content areas or contexts. Hence, we offer a set of Frequently Asked Questions (FAQs) in [Annex 4](#).

One major change made to the TOC was to include an additional short-term outcome that addressed the need for parents and caregivers to trust programme leaders such that they were willing to engage in the programme objectives. Several stakeholders reported activities for parents and caregivers within their programmes that are explicitly designed to develop shared understandings of programme goals and activities (building trust). The TOC was, therefore, amended to accommodate this vital activity.

A second important theme that emerged from the workshop concerned the need to ensure that good mental health and well-being are integrated into the education system for everyone — learners, teachers, parents and caregivers. This goal would impact the design and content of programmes that teach *about* mental health and well-being. It also impacts the policies and programmes developed by the government and CSOs, which will need to ensure that the mental health and well-being of all participants are carefully

considered to avoid the known negative impacts of increased access to and use of technology in this respect.

Annex 4. Frequently asked questions

Educational activities

What parent and caregiver activities does the Theory of Change focus on?

The parent and caregiver activities captured by the TOC take a holistic approach, which leverages educational technology in three ways. The first is *learning about technology* to enhance parents' and caregivers' digital literacy and become a resource for their children's learning. The second is parents and caregivers *learning about technology* — about the kind of technology that supports (their) children's learning outcomes. The third is *learning with technology* to support parenting practices to improve parents' and caregivers' own (and their children's) well-being and holistic development.

Educational modalities

How do we classify different forms of EdTech by their modalities?

This is always very difficult — particularly as many technologies work and share data together — i.e., they are 'interoperable'. The primary purpose for classifying educational technologies is so that we can have some common understandings of how a parent or caregiver will interact with each modality and what data is automatically captured as a result of their interactions. However, without the collaboration of researchers and technologists, valuable data about parental learning as a support system for their children would be hard to extrapolate from the vast amounts of data collected through digital systems. For the purposes of the TOC, this paper has tried to classify modalities distinguishing between 'no', 'low' and 'high' technology to take into account the different contexts of parents and caregivers living in Bangladesh.

Educational impact

What is the overall impact goal for parents and caregivers?

The overall impact goal of the parents' and caregivers' TOC is to make visible how parent and caregiver education programmes can enable support for high-quality education for all learners by using the medium of different types of technology. This is complementary to what the overall impact was for teachers and learners according to the previous TOCs ([↑Clark-Wilson et al., 2021](#)). This TOC focuses on documenting the pathway with parents and caregivers at the centre through which this overarching goal can be achieved.

Annex 5. Validating and critiquing a theory of change

Having created an initial draft within a programme or stakeholder team, the following questions support a critical approach towards a more robust next draft.

- Are the educational modalities and resulting activities for parents and caregivers clear? Can you picture what a parent or caregiver might be doing if you had a 'bird's eye view' of them engaging with the programme resources?
- Do the outcome measures make sense? How will data be captured? How will you check the data is valid and correct? Do you believe or trust the results?
- Do you have enough information to feel confident that the TOC is correct?

Use the TOC to pose questions for the programme (or initiative) design and implementation teams to support and strengthen the theory.