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Out of School Factors Affecting Indigenous Girls' Educational Attainment: A Theory of Change for the Opening Opportunities Program in Rural Guatemala
Facteurs extrascolaires ayant une incidence sur le niveau de scolarité des jeunes filles indigènes : Théorie du changement pour le programme "Offre de possibilités" dans les régions rurales du Guatemala

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Abstract

Guatemalans have the lowest education rates in Latin America, and within Guatemala, Indigenous, rural, and poor girls have much lower education rates than their peers. The "Opening Opportunities" program attempts to invest in the poorest girls from rural Guatemala to build their personal, social, health, and economic assets. Realist evaluation attempts to understand the key mechanisms in complex social interventions, and is under-used in education research. Based on data from life history interviews from graduates, this paper presents a Theory of Change to understand the contexts, mechanisms, and outcomes of the "Opening Opportunities" program relating to educational attainment. The four mechanisms most discussed by program graduates are: leadership and participation create confidence; greater networks (models, mentors, peers); opportunities created to participate in novel paid work; and desire for later marriage and childbearing. This is the first Theory of Change that explains out of school factors affecting educational attainment.

Résumé

Les Guatémaltèques connaissent les taux d'éducation les plus bas d'Amérique Latine, et au Guatemala, les jeunes filles indigènes et pauvres venant des régions rurales ont des taux d'éducation bien plus faibles que leurs pairs. Le programme « d'offre de possibilités » tente d'investir dans les jeunes filles les plus pauvres des régions rurales du Guatemala pour bâtir leurs atouts personnels, sociaux, économiques et en matière de santé. Une évaluation réaliste s'efforce de comprendre les mécanismes clés lors des interventions sociales complexes, et elle est peu utilisée dans la recherche en éducation. S'appuyant sur des données qui proviennent d'entrevues avec les diplômées racontant leurs propres expériences, cet article présente une théorie du changement pour comprendre les contextes, les mécanismes et les résultats du programme « d'offre de possibilités » en rapport avec l'atteinte d'un niveau scolaire. Les quatre mécanismes dont les diplômées ont discuté le plus étant : le leadership et la participation engendrent la confiance; les réseaux élargis (modèles, mentors, pairs); la création de possibilités de participer à un travail rémunéré original; et le désir de se marier et d'avoir des enfants plus tard. Il s'agit de la première théorie du changement qui explique les facteurs extrascolaires ayant une incidence sur l'atteinte d'un niveau d'éducation.

Keywords: realist evaluation; theory of change; educational attainment; Indigenous; Guatemala

Mots clés: évaluation réaliste, théorie du changement; atteinte d'un niveau scolaire; indigène; Guatemala

Introduction

Goal four of the Sustainable Development Goals (SDGs) is to ensure inclusive and quality education for all and to promote lifelong learning (United Nations, 2015). Improvements have been made towards achieving gender equality in access to education at all levels over the last few decades. While great strides have been made in achieving gender parity in primary education, gender disparities become more conspicuous as children approach adolescence (UNICEF, 2016). One in 10 girls at the primary school age are out of school worldwide compared to one in 12 boys (UNESCO, 2016b). Of these children, 47% of the 32 million out of school girls are expected to never be enrolled compared to 35% of the 29 million out of school boys (UNESCO, 2016b).

The Guatemalan Context

Guatemala has the lowest average years of education (4.1) of any country in Latin America and the Caribbean (UNICEF, 2010). Significant education gaps can be seen in terms of gender, geography, and Indigenous status. The average years of education in Guatemala City is 8.3 compared to 2.5 in rural areas (UNICEF, 2012). Poverty, the largest determinant of education inequality (UNESCO, 2016a), plays an important role in Guatemala where nearly a quarter of the population lives on less than \$3.10 a day (The World Bank, 2016) and poverty rates for Indigenous peoples are 2.8 times higher than the rest of the population (United Nations, 2010). In 2011, the poorest females aged 20–24 had around three years of schooling compared to the richest girls who had over 10 years of schooling (UNESCO 2016a).

Indigenous females are the most disadvantaged in Guatemala as a result of these factors. At seven years old, 54% of Indigenous girls are enrolled in school compared to 71% of Indigenous boys and 75% of non-Indigenous girls (Hallman, Peracca, Catino, & Ruiz, 2007). A big drop off is seen during the transition from elementary to secondary education and by age 16 only 25% of Indigenous girls are enrolled in school compared to half of Indigenous boys and non-Indigenous counterparts (Hallman et al., 2007). The quarter of Indigenous girls who are classified as extremely poor have the worst educational outcomes. Half of these girls at the primary-school age are enrolled and less than 10% of them aged 13–24 who are enrolled complete primary school (Hallman et al., 2007). Moreover, only 14% continue to secondary education (Hallman et al., 2007).

The Abriendo Oportunidades Program

Abriendo Oportunidades, the “Opening Opportunities” program was launched in Guatemala in 2004 by The Population Council, an international non-profit organization headquartered in New York, to provide life-improving skills and support to adolescent girls in rural areas. The program was designed as an evidence-based solution to combat the risks and disadvantages rural Indigenous girls face in Guatemala. A main tenet of the program is that investing in the poorest girls (Indigenous girls) from the poorest communities (rural Guatemala) will not only benefit the girls but also result in progress on local, national, and international development goals. The program aims to encourage girls to stay in school and delay marriage and childbearing as they build personal, social, health, and economic assets. Information about their sexual and reproductive rights is provided in a holistic manner and they learn about community services they can access in order to be healthy and to stay safe. Young mentors, aged 18–25, and leaders from the community who speak the same languages as the participants, facilitate the program. The complex transitions occurring during adolescence and puberty are

addressed by the program across many domains of the girls' lives, such as family life. Mentors are taught how to discuss sensitive topics in an informal and culturally sensitive manner with the younger girls. These community girls' clubs provide safe spaces where Indigenous girls aged 8–19 can connect with role models, build leadership skills and increase their social support networks. Young mentors also complete paid internships with local organizations. The parents are encouraged to support the education and participation of their daughters.

Realist Evaluation

Realist evaluation is a framework developed in 1997 by sociologists Pawson and Tilley to examine complex social interventions and explore “how and why they work,” and thus explain “what works, for whom and in what circumstances” (Pawson, Greenhalgh, Harvey, & Walshe, 2004, p. iv; v). It is a theory-based explanatory model of interventions, which are understood to be embedded in social systems and consist of chains of processes that are often not linear (Pawson, Greenhalgh, Harvey, & Walshe, 2004). Mechanisms are the underlying processes or structures (Astbury & Leeuw, 2010) that operate within particular contexts to generate specific outcomes. Through realist evaluation, patterns uncovered during the implementation of an intervention establish links between context (C), mechanisms (M), and outcomes (O) (Ogrinc & Batalden, 2009). We use the working definitions of Jagosh et al. (2012, p. 317):

- **Context:** Context often pertains to the “backdrop” of programs and research... As these conditions change over time, the context may reflect aspects of those changes while the program is implemented. Examples of context include cultural norms and history of the community in which a program is implemented, the nature and scope of existing social networks, or built program infrastructure. They can also be trust-building processes, geographic location effects, funding sources, opportunities, or constraints. Context can be broadly understood as any condition that triggers and/or modifies the behavior of a mechanism.
- **Mechanism:** A mechanism is the generative force that leads to outcomes. It often but not always denotes the reasoning (cognitive or emotional) of the various actors in relation to the work, challenges, and successes of the... [program]. Mechanisms are linked to, but not synonymous with, the program's strategies (for example, a strategy may be a rational plan, but a mechanism involves the participants' display of responses to the availability of incentives or other resources). Identifying the mechanisms advances the synthesis beyond describing “what happened” to theorizing “why it happened, for whom, and under what circumstances.”
- **Outcomes:** Outcomes are either intended or unintended and can be proximal, intermediate, or final.

Realist evaluation has been applied broadly to the field of education (Befani & Mayne, 2014; Deschesnes, Drouin, Tessier, & Couturier, 2014; Duguid, Hawkey, & Pawson, 1996; Heimlich, 2010; Ogrinc et al., 2014; Ogrinc & Batalden, 2009; Onyura et al., 2016; Pawson & Tilley, 1997; Sorinola, Thistlethwaite, Davies, & Peile, 2014; Umble, Cervero, Yang, & Atkinson, 2000; Van Belle, Marchal, Dubourg, & Kegels, 2010; Verger, Bonal, & Zancajo, 2016; Williams, Burton, & Rycroft-Malone, 2013), but we found no examples in the literature of a fully-developed Theory of Change (ToC) for gender and education programs. Within this field, Befani and Mayne (2014) use the example of a teaching program to improve the school performance of girls; however, their ToC is developed based on a hypothetical program. Several ToCs for girls' education and empowerment interventions, not based in realist methods, have been developed (Baric et al., 2009; Care, 2015; Jones, Presler-Marshall, & Tran, 2015; Unterhalter et al., 2014). Unterhalter et al. (2014) developed a ToC relating to girls' education based on a comprehensive review of the literature; however, their ToC presents interventions, outputs, and outcomes rather than details about mechanisms as understood to

be critical in realist evaluation. In this article we present a ToC that specifies the mechanisms to improve educational attainment for a program reaching marginalized girls in Guatemala.

Realist approaches acknowledge the complexity that is characteristic of educational interventions (Ogrinc & Batalden, 2009; Wong, Greenhalgh, Westhorp, & Pawson, 2012). Educational interventions often have multiple mechanisms, some obvious and intended and others less obvious and potentially unanticipated, all of which are taken into account in realist research (Wong, Greenhalgh, Westhorp, & Pawson, 2012). Realist research can take advantage of rich qualitative data that might not lend itself to statistical analysis (Wong et al., 2012), such as the life history interviews used here.

Realist approaches have the potential to increase the effectiveness and efficiency of educational interventions through “unpack[ing] the ‘how’ and ‘why’ questions and illuminat[ing] the many, varied and interdependent mechanisms by which interventions may work (or fail to work) in different contexts” (Wong et al., 2012, p. 89). A realist evaluation doesn’t give a yes/no response to whether an intervention is effective, rather it focuses on exploring the reasons why an intervention is successful or not (Ogrinc & Batalden, 2009). By probing beyond implementation theory (that is, activities and intermediate outcomes often visually presented in a logical model), realist evaluation develops a program theory specifying the mechanisms of change for an intervention (Pawson & Tilley, 1997; Rogers, 2007). The program theory, also called a ToC, can then be used to develop testable hypotheses that illuminate if and how a program contributes to a specific outcome (Pawson & Tilley, 1997; Rogers, 2007). Thus, the realist evaluation method of developing a ToC is a useful tool to understand the key mechanisms for promoting educational attainment for girls. In this article we provide a ToC for the Opening Opportunities program, a program aimed at influencing out of school factors for adolescent girls in rural Guatemala and improving their educational attainment.

Materials and methods

In May and June, 2011, snowball sampling was used to successfully contact 36 of 43 graduates from the pilot Opening Opportunities program in 2004. Snowball sampling involves participants, or in our case potential participants, helping to identify other participants (“Research methodology: snowball sampling,” n.d.). This was facilitated in our study because graduates of the Opening Opportunities program had in some cases kept in touch, so were able to help us contact other previous graduates. These 36 young women were contacted by phone to ascertain general information: whether they lived in their original communities; their professions; their marital status; and number of children. This information was used to determine a purposive sample that maximized variation in terms of women’s experiences after graduating from the program. Life history interviews were conducted with 11 graduates in June and July, 2011. These interviews were part of an evaluation of the Opening Opportunities pilot. An open-ended interview guide was developed by Emma Richardson (ER) and the Opening Opportunities team that asked participants to describe their lives growing up, their participation in the Opening Opportunities program, as well as their life trajectories since participating. Interviews were conducted in Spanish by ER and a research assistant. During one interview, the research assistant translated from *K’iche*, the participant’s native Mayan language, to Spanish. Interviews lasted between 60 and 70 minutes, were audio-recorded and transcribed verbatim. Ethics approval was obtained from the University of Toronto (protocol # 26498).

For the purpose of applying the realist evaluation method to the pilot of the Opening Opportunities program, the team decided early in the analysis process to focus on outcomes relating to educational attainment. A working ToC was developed based on a scan of extant literature and existing program documents. Life history interview transcripts were analyzed by two team members (ER and Mary Phillips [MP]) using NVivo 11, a qualitative research software. During the pilot of the analysis process, each co-coder read through the first three interviews and coded for contexts, mechanisms, and outcomes relating to educational attainment. Codes were merged in NVivo 11 and consensus meetings held to harmonize working definitions of codes, define newly emerging codes, and resolve discrepancies. After the pilot was completed, the remaining eight interviews were coded by either MP or ER, and sent to the other co-coder to identify discrepancies. The final data dictionary incorporated all contexts, mechanisms, and outcomes (CMOs) identified during analysis. These CMOs were incorporated into the ToC and are presented in the results. We consulted with a gender and education expert to confirm the utility of our approach and triangulate our coding process. Our method of analyzing life history interviews, data from individual interviews, and feedback from the gender and education expert, is presented elsewhere (Richardson, Phillips, Colom, & Nichols, 2018). This article presents the resulting ToC for educational attainment for Indigenous girls from rural Guatemala who participated in the pilot of the Opening Opportunities program.

Results

Participants

Eleven Indigenous young women from five departments of Guatemala, all graduates of the Opening Opportunities pilot program, participated in life history interviews (Table 1).

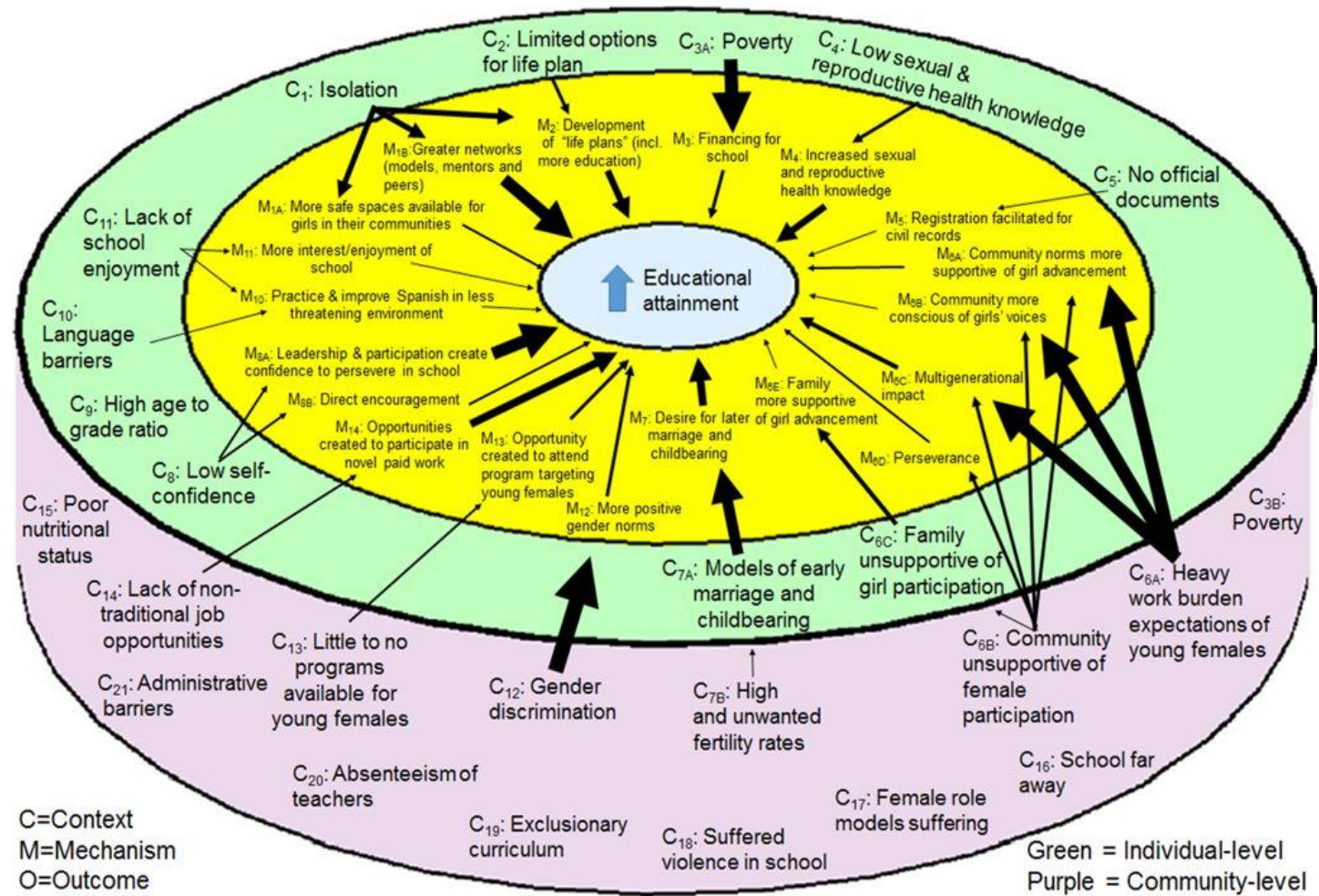
Table 1. Participant Characteristics

Characteristic	n	%
Age		
20	1	9%
21	2	18%
22	5	45%
23	1	9%
24	1	9%
26	1	9%
Age when participated in “Opening Opportunities”		
15	1	9%
16	2	18%
17	1	9%
18	4	36%
20	2	18%
21	1	9%
Number of children		
0	5	45%
1	5	45%

2	1	9%
Marital status		
Single	6	55%
Married	5	45%
Highest educational level obtained		
6th grade or less	1	9%
Some middle school	2	18%
Middle school	2	18%
Technical studies (following middle school)	4	36%
At least some tertiary education	2	18%
Total n	11	100%

The ToC explains how the Opening Opportunities program promotes educational attainment for Indigenous adolescent girls from rural Guatemala. The ToC incorporated 25 contexts and 17 mechanisms, all relating to the outcome of greater educational achievement (Figure 1). The final ToC comes accompanied by definitions for each context, mechanism, and outcome (Table 2). As can be appreciated in the visual ToC, some contexts were identified to affect participants at the individual level, while others were at the structural or social level (with the social level contexts forming part of the 3-dimensional part of the circle). The mechanisms of the Opening Opportunities program are typically joined by arrows from the context they relate to; however, there are some elements to the context, such as in-school factors, that the program does not aim to influence directly, and therefore do not have accompanying mechanisms within the ToC. The width of the arrows proportionally represents the frequency with which we coded data in the life history interviews to support this context or mechanism.

Figure 1. Theory of Change



The following table defines the shorter labels that are incorporated into the Theory of Change. The logic of realist evaluation means that different young women may be affected by the same program in different ways, due to their different initial starting points or contexts. For example, using context and mechanism 5 as a simpler example, some girls in Guatemala cannot attend school because they lack the official documents required for registration. The Opening Opportunities program works through girls' groups to ensure they acquire their official documents and can register for school.

Table 2. Definition of Contexts, Mechanisms, and Outcomes in the Theory of Change

C, M, or O	Short label	Definition
Context ₁	Isolation	Girls often have few opportunities to interact with peers or anyone outside their family. Almost all their time is spent inside the home
Context ₂	Limited options for life plan	Inability to see life paths as deliberate choices rather than inertia
Context _{3A}	Poverty—Individual level	High percentages of families in rural Guatemala live in poverty or extreme poverty
Context _{3B}	Poverty—Community level	Community context of poverty
Context ₄	Low sexual and reproductive health knowledge	Girls know little about their bodies and sexual and reproductive health
Context ₅	No official documents	Girls in rural areas often lack identity documents such as birth certificates. Such documents are often required for school registration, etc.
Context _{6A}	Heavy work burden expectations of young females	Many parents and family members expect young females to significantly contribute to the household through domestic labour
Context _{6B}	Unsupportive community	Community unsupportive of girl/female participation—Girls are not given opportunities to participate in community activities or their own development outside the home
Context _{6C}	Unsupportive family	Family unsupportive of girl participation
Context _{7A}	Models & envisioning of early marriage and childbearing	Most girls have as models older girls who have married and begun childbearing early. This relates to why it is difficult to envision a different life path
Context _{7B}	High and unwanted fertility rates	Adolescent pregnancy in rural Guatemala is highest in the region
Context ₈	Low confidence	Girls generally have low confidence to try and persevere with new things
Context ₉	High age to grade ratio	Due to interruptions of various types in girls' educational trajectories, they are often older for their grade than average

Context ₁₀	Language barriers	Spanish is language of instruction in schools, whereas most girls speak a Mayan language as their mother tongue
Context ₁₁	Lack of school enjoyment	Not enjoying school is commonly cited reason mentioned by girls for dropping out
Context ₁₂	Gender discrimination	This is expressed in many ways, such as opting to send sons rather than daughters to school
Context ₁₃	Little to no programs available for young females	Few programs for adolescents and youth in general, and those that exist are dominated by boys and young men
Context ₁₄	Lack of non-traditional job opportunities	Few paid opportunities exist for girls other than child-minding or as day labourers in the fields
Context ₁₅	Poor nutritional status	Extremely high rates of malnutrition in Guatemala, compounded by sometimes worse food provision for girls compared to boys
Context ₁₆	Far from school	Distance to school from home is prohibitive
Context ₁₇	Female role models of suffering	Female role models of suffering—Many females in girls’ lives, either through example or direct messaging, model for girls that life is full of suffering
Context ₁₈	Suffered violence in school	School environment includes violence, either from peers or teachers
Context ₁₉	Exclusionary curriculum	Curriculum more appropriate and familiar for Spanish-speaking mainstream and not minority Mayan students
Context ₂₀	Absenteeism of teachers	Teachers don’t show up to school because of job action or other reasons
Context ₂₁	Administrative barriers	Bureaucracy (such as diplomas not being processed) prevents girl from gaining recognition of schooling or continuing in school
Mechanism _{1A}	More safe spaces available for girls in their communities	The girls groups provide an alternate safe space where girls can meet safely outside their homes
Mechanism _{1B}	Greater networks (models, mentors, peers)	Girls develop networks of peers and role models through participation and interaction with other girls from inside and outside girls’ community
Mechanism ₂	Development of “life plans” (including more education)	Girls receive instruction and guidance on developing their own “life plans”
Mechanism ₃	Financing for school	Girls receive financial support to pay for tuition and school-related costs
Mechanism ₄	Increased sexual and reproductive health knowledge	Girls learn about sexual and reproductive health issues, including family planning

Mechanism ₅	Registration facilitated for civil records	Program provides guidance and accompaniment in obtaining key identity documents, often a prerequisite for school registration, etc.
Mechanism _{6A}	Community norms more supportive of girl advancement	The community develops a higher tolerance and appreciation for the public participation and achievement of girls and young women
Mechanism _{6B}	Community more conscious of girls' voices	Girls become stronger advocates of their own needs and wants
Mechanism _{6C}	Multigenerational impacts	Mothers or daughters of participants likely to be influenced with regards to their education. For example, a participant in program says she hopes to educate her own daughters
Mechanism ₇	Desire for later marriage and childbearing	Girls often state their desired age for marriage and childbearing to be later than had they not participated in the program. They anticipate accomplishing other life goals before starting families of their own
Mechanism _{8A}	Leadership and participation create confidence	Girls develop confidence and tacit skills to improve negotiating and overcoming difficult moments
Mechanism _{8B}	Direct Encouragement	Girls receive verbal encouragement about their participation
Mechanism ₁₀	Practice & improve Spanish in less threatening environments	The girls groups and training sessions provide less threatening peers (other Indigenous girls and leaders) with whom to practice and learn Spanish, leading to better Spanish language skills
Mechanism ₁₁	More interest/enjoyment of school	By having support and role models who have done so before them, as well as more skills and more successful experiences, girls start to enjoy school more
Mechanism ₁₂	More positive gender norms	Communities become more accepting of wider roles for females; less inequality between males and females
Mechanism ₁₃	Opportunity created to attend program targeting young females	The existence of the Abriendo Oportunidades program in a community creates a visible, accessible opportunity for girls' participation which might be otherwise lacking altogether
Mechanism ₁₄	Opportunities created to participate in novel paid work	The internships girl leaders complete expose them to new areas of work and possible career paths with local NGOs that are normally not available
Outcome	Greater Educational Attainment	Girls start school, stay in school longer and pass with greater success from one grade to the next

The four mechanisms with the thickest arrows in the ToC correspond to having most support from the life history interviews in terms of numbers of quotes (Table 3).

Table 3. Mechanisms with highest quote counts in life history interview data

Mechanism	# of quotes	Illustrative Quote
Mechanism 8A - Leadership and participation create confidence to persevere in school	49	“Thanks be to God, I have lost some of the fear. Yes, well, thanks to the [program] lessons too. They help one change. As I told you, before, I would say, ‘Well, am I saying it right? Is it good? Should I say it or should I not say it? Should I raise my hand or not?’ But the mentors told me, ‘Say what you feel, we’re here to help you.’”
Mechanism 1B - Greater networks (models, mentors, and peers)	47	“Of course [the program made me think differently about myself]. There I had friends that said to me, you must know yourself, one friend who said to me that education is the most important thing, that in spite of everything that had happened to her, that her parents never supported her, she didn’t let it bother her because she was in university; she was going to graduate. In spite of everything, she persevered and she encouraged us not to fall behind, that we could keep fighting.”
Mechanism 14 - Opportunities created to participate in novel paid work	32	“My mother wasn’t convinced [about me participating in Opening Opportunities] but in the end she was convinced and everyone agreed and was happy because I was learning the lessons and, in the end, everyone was happy because I could complete an internship where I learned a lot of new things.”
Mechanism 7 - Desire for later marriage and childbearing	32	“Do you think there’s a right age at which to get married?” (interviewer) “28” (participant) “Why?” (interviewer) “Because I want to keep studying first. First my studies and then marriage because when you’re married, you don’t get permission. What comes first is feeding the babies; the babies first because after that you leave your studies behind and they don’t give you the opportunity to study. First it’s better to study, get a good job and then marry” (participant).

Discussion

Using realist evaluation, which embraces complexity and specifies underlying mechanisms that make programs work, we developed a program theory for how the Opening Opportunities program leads to increased educational attainment within the context of rural Guatemala for Indigenous girls. Our findings are in keeping with conclusions from Unterhalter et al. (2014)’s review of interventions targeting girls’ education and gender equality, which found that several

out of school factors had an impact on the participation, learning, and empowerment of girls.

The interdisciplinary strategies, embedded in the Opening Opportunities program and highlighted in the ToC, answer the call for the increased collaboration and linkages between the education, reproductive health, and economic development sectors, as traditionally the education sector has focused interventions in the formal school setting while the population and reproductive health sector has focused on non-formal education strategies (Warner, Malhotra, & McGonagle, 2012). Indeed, women's empowerment must take place along economic, sociocultural, interpersonal, legal, political, and psychological dimensions (Malhotra, Schuler, & Boender, 2002). A multi-pronged approach was supported in a review of 23 child marriage interventions in low-income countries, which suggested effective programs are those that attempt to empower girls and provide incentives, such as financial incentives to girls and their families (Lee-Rife, Malhotra, Warner, & McGonagle Gliniski, 2012). More research is needed about how these programs achieve their objectives (Lee-Rife et al., 2012). We show that realist evaluation is well-suited for this task as the ToC includes in-school and out-of-school factors, their complex interplay, and how both need to be addressed in order to achieve educational outcomes for girls.

The thickest arrows in the ToC represent the strongest links between CMOs as supported by the life history data. This does not mean that the other postulated mechanisms were not important, only that they did not receive as much support in terms of direct quotes from life history interviews. We discuss in turn each of the most prevalently supported mechanisms in our ToC.

Mechanism 8A: Leadership and Participation Create Confidence

One of the most significant mechanisms identified through the life history interviews was how program participation led girls to develop confidence and tacit skills to improve negotiating and overcoming difficult moments, such as unforeseen obstacles and everyday challenges that arise through school participation. Participants described an increased ability to speak up, participate, and demand rights and respect in a wide variety of contexts, including school. Participants repeatedly identified that, while before they were timid and uncertain about speaking, they now had the confidence to speak their minds in front of others.

Building and developing self-confidence is an important aspect of girls' empowerment programs (Baric et al., 2009), which our ToC emphasizes is key for girls' education programs in contexts where girls generally have low self-confidence. Other programs have used complementary learning spaces (for example, girls' clubs) and extracurricular activities to successfully help girls develop confidence and challenge gender norms regarding access to education (Unterhalter et al., 2014). Education research has consistently shown the relationship between academic performance and self-efficacy (Pajares, 1996). Confidence may be an even better predictor of academic achievement than self-efficacy and self-confidence (Stankov, Lee, Luo, & Hogan, 2012).

Mechanism 1B: Greater Networks (Models, Mentors, Peers)

The development of greater networks of peers, role models, and mentors, through participation and interaction with other girls from both inside and outside of the girls' community, was an important program mechanism. Indigenous girls in Guatemala tend to be socially isolated, spending significant time engaged in domestic chores, with church groups as their sole form of interaction in the community (Colom et al., 2004). The Opening Opportunities program engages girls in the community, increases their social interaction, and widens their social

networks. Social networks of peers, mentors, and role models from the program can increase participants' social support. Participants identified the importance of new role models and peers who also prioritized educational attainment and reinforced their decisions to return to or stay in school.

Social networks and social support affect individual coping resources, health behaviours, and community resources (Heaney & Israel, 2008). Social capital indicators are positively associated with educational attainment, educational achievement, and psychosocial factors such as educational aspirations (Dika & Singh, 2002). Improving women's participation in social networks outside the family and in the community is a commonly used dimension of empowerment in the sociocultural domain (Malhotra et al., 2002) and, based on our ToC, should also be an important element of educational programs in contexts where girls are found to be in isolation.

Mechanism 14: Opportunities Created to Participate in Novel Paid Work

Another important mechanism was the opportunity created by the program for girls to participate in novel paid work. The internships girl leaders completed exposed them to new areas of work and possible career paths with local NGOs that were not normally available to them. Internship opportunities were valued by both girls and their parents. The opportunity to earn money while participating in a program that offered additional skill-building allowed some girls to leave domestic or agricultural labour and return to school.

The ability to participate in paid work is important given the heavy domestic work burden expectation of young females in the developing world. Girls between the ages of 5 and 9 spend 30% more time on unpaid domestic labour compared to their male counterparts (UNICEF, 2016). This disproportionate burden increases further with age, as girls aged 10 to 14 spend 50% more time on household work than their male counterparts (UNICEF, 2016). Girls who engage in high levels of unpaid care work have lower levels of education (Marphatia & Moussié, 2013) and as the hours spent on domestic chores increase, school attendance for girls decreases much more rapidly than for boys (International Labour Office, 2009).

In economic downturns or contexts of poverty, the education of girls is more at risk (UNGEI, 2010). Several interventions that focus on empowering girls and reducing child marriage provide financial incentives. These include cash incentives, scholarships, microfinancing, and other training to assist with income generation (Lee-Rife et al., 2012). Our work further supports the importance of financial incentives in programs that seek to increase educational attainment. The exposure to new areas of work and possible career paths potentially extends past the advantages of a simple cash incentive, as the limited life view girls may have for themselves can be expanded.

Mechanism 7: Desire for Later Marriage and Childbearing

The desire for later marriage and childbearing emerged as a significant mechanism. Participants often stated their desired age for marriage and childbearing to be later than had they not participated in the program, as they wanted to accomplish other life goals before starting families. In a context where having children is highly incompatible with staying in school and early childbearing is common (Figueroa, Lopez, Remez, Prada, & Drescher, 2006), this mechanism of delaying the age of desired marriage and childbearing can be key for increasing educational attainment.

While significant progress has been made to decrease child marriage worldwide, progress is concentrated in the richest, while high levels of child marriage persist for the poorest

(UNICEF, 2016). Many interventions for girls' empowerment target early marriage and childbirth, indicators of gender discrimination. Participants in an intervention for women in Bangladesh expressed higher ideal ages of marriage for their children and an evaluation of a girls' club in Vietnam found that girls had a desire to delay marriage, challenged their ideas of the acceptable age for marriage and became more committed to staying in school (Feldman-Jacobs, 2005; Jones et al., 2015).

Limitations

Our study has several limitations. The ToC presented is a draft based on the methods of some (but not an exhaustive) consultation of the literature, experts, and mostly refinement or CMO generation from the narrative histories themselves. We attempted to minimize this limitation by triangulating our work with multiple information sources, but our ToC may overemphasize or underemphasize important mechanisms. Moreover, we have not tested the hypothesized CMOs.

Conclusion

The ToC presented here highlights the out-of-school mechanisms found to be important to increasing educational attainment for Indigenous girls in rural Guatemala. These should be taken into account in intervention research that confirms their relative weights and salience, both in Guatemala and elsewhere. Many education promotion programs provide scholarships for attending school, but overlook other aspects of context that present significant ongoing barriers. Globally, with girls who are similarly marginalized, the overlapping dimensions of discrimination and obstacles to continued education are likely to be similar to those found in this study. In the same vein, the multiple pathways through which longer educational trajectories may be enabled are likely to be similar in other countries. The contexts and mechanisms presented here should therefore inform existing interventions that target either in or out-of-school factors, in order to try and fuel complementary mechanisms for greater school attainment. Furthermore, we hope to spur others in the gender and education field to consider realist evaluation for elucidating effective mechanisms for promoting girls' education.

References

- Astbury, B., & Leeuw, F. L. (2010). Unpacking Black Boxes: Mechanisms and Theory Building in Evaluation. *American Journal of Evaluation, 31*(3), 363–381. <http://doi.org/10.1177/1098214010371972>
- Baric, S., Bouchie, S., Cronin, P., Heinzen, A., Menon, G., & Prather, C. (2009). The power to lead: A leadership model for adolescent girls. *Care*. Atlanta, GA. Retrieved from https://www.care.org/sites/default/files/documents/GE-2009-PW_Leadership.pdf
- Befani, B., & Mayne, J. (2014). Process tracing and contribution analysis: A combined approach to generative causal inference for impact evaluation. *Institute of Development Studies Bulletin, 45*(6), 17–36. <http://doi.org/10.1111/1759-5436.12110>
- Care. (2015). *Girls' education and empowerment consultative workshop*. Atlanta, GA. Retrieved from [http://www.care.org/sites/default/files/documents/CARE Girls Education Empowerment Workshop Report_January 2015.pdf](http://www.care.org/sites/default/files/documents/CARE%20Girls%20Education%20Empowerment%20Workshop%20Report_January%202015.pdf)
- Colom, A., Ruiz, M. J., Catino, J., Hallman, K., Peracca, S., & Shellenberg, K. M. (2004). *Voices of vulnerable and underserved adolescents in Guatemala—A summary of the qualitative study: Understanding the lives of indigenous young people in Guatemala*. New York.
- Deschesnes, M., Drouin, N., Tessier, C., & Couturier, Y. (2014). Schools' capacity to absorb a "healthy school" approach into their operations: Insights from a realist evaluation. *Health Education, 114*(3), 208–224. <http://doi.org/10.1108/HE-10-2013-0054>
- Dika, S. L., & Singh, K. (2002). Applications of social capital in educational literature: A critical synthesis. *Review of Educational Research, 72*(1), 31–60. <http://doi.org/10.3102/00346543072001031>

- Duguid, S., Hawkey, C., & Pawson, R. (1996). Using recidivism to evaluate effectiveness in prison education programs. *Journal of Correctional Education*, 47(2), 74–85.
- Feldman-Jacobs, C. (2005). *Do empowered mothers foster gender equity and better reproductive health in the next generation? A qualitative analysis from rural Bangladesh*. Washington, DC. Retrieved from http://www.prb.org/igwg_media/DoEmpoweredMothers.pdf
- Figueroa, W., Lopez, F., Remez, L., Prada, E., & Dresher, J. (2006). Early childbearing in Guatemala: a continuing challenge. *In Brief*, 5(1), 1–30.
- Hallman, K., Peracca, S., Catino, J., & Ruiz, M. J. (2007). *Assessing the multiple disadvantages of Mayan girls: The effects of gender, ethnicity, poverty, and residence on education in Guatemala*. New York. Retrieved from http://www.popcouncil.org/uploads/pdfs/TABriefs/PGY_Brief16_Guatemala.pdf
- Heaney, C. A., & Israel, B. A. (2008). Social networks and social support. In K. Glanz, B. K. Rimer, & K. Viswanath (Eds.), *Health behavior and health education: Theory research & practice* (4th ed., pp. 189–210). San Francisco: John Wiley & Sons, Inc. [http://doi.org/10.1016/S0033-3506\(49\)81524-1](http://doi.org/10.1016/S0033-3506(49)81524-1)
- Heimlich, J. E. (2010). Environmental education evaluation: Reinterpreting education as a strategy for meeting mission. *Evaluation and Program Planning*, 33(2), 180–185. <http://doi.org/10.1016/j.evalprogplan.2009.07.009>
- International Labour Office. (2009). Gender equality at the heart of decent work. In *International Labour Conference*. Geneva: International Labour Office.
- Jagosh, J., MacAulay, A. C., Pluye, P., Salsberg, J., Bush, P. L., Henderson, J., ... Greenhalgh, T. (2012). Uncovering the benefits of participatory research: Implications of a realist review for health research and practice. *Milbank Quarterly*, 90(2), 311–346. <http://doi.org/10.1111/j.1468-0009.2012.00665.x>
- Jones, N., Presler-Marshall, E., & Tran, V. A. T. (2015). “You must be bold enough to tell your own story”: *Programming to empower Viet Nam’s Hmong girls*. London. Retrieved from <https://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/9888.pdf>
- Lee-Rife, S., Malhotra, A., Warner, A., & McGonagle Glinski, A. (2012). What works to prevent child marriage: A review of the evidence. *Studies in Family Planning*, 43(4), 287–303. Retrieved from [http://library.pcw.gov.ph/sites/default/files/what works to prevent child marriage.pdf](http://library.pcw.gov.ph/sites/default/files/what%20works%20to%20prevent%20child%20marriage.pdf)
- Malhotra, A., Schuler, S. R., & Boender, C. (2002). *Women’s empowerment as a variable in international development. Background paper prepared for the World Bank workshop on poverty and gender: New perspectives*. Washington, DC. <http://doi.org/10.1596/0-8213-6057-4>
- Marphatia, A. A., & Moussié, R. (2013). A question of gender justice: Exploring the linkages between women’s unpaid care work, education, and gender equality. *International Journal of Educational Development*, 33(6), 585–594. <http://doi.org/10.1016/j.ijedudev.2013.05.005>
- Ogrinc, G., & Batalden, P. (2009). Realist evaluation as a framework for the assessment of teaching about the improvement of care. *The Journal of Nursing Education*, 48(12), 661–667. <http://doi.org/10.3928/01484834-20091113-08>
- Ogrinc, G., Ercolano, E., Cohen, E. S., Harwood, B., Baum, K., van Aalst, R., ... Davies, L. (2014). Educational system factors that engage resident physicians in an integrated quality improvement curriculum at a VA hospital: A realist evaluation. *Academic Medicine: Journal of the Association of American Medical Colleges*, 89(10), 1380–1385. <http://doi.org/10.1097/ACM.0000000000000389>
- Onyura, B., Ng, S. L., Baker, L. R., Lieff, S., Millar, B. A., & Mori, B. (2016). A mandala of faculty development: using theory-based evaluation to explore contexts, mechanisms and outcomes. *Advances in Health Sciences Education*, 22(1), 165–186. <http://doi.org/10.1007/s10459-016-9690-9>
- Pajares, F. (1996). Self-efficacy beliefs in academic settings. *Review of Educational Research*, 66(4), 543–578.
- Pawson, R., Greenhalgh, T., Harvey, G., & Walshe, K. (2004). *Realist synthesis—an introduction*. ESRC Research Methods Programme. Manchester. Retrieved from <http://discovery.ucl.ac.uk/180102/>
- Pawson, R., & Tilley, N. (1997). *Realistic evaluation*. London: SAGE Publications Ltd.
- Research methodology: snowball sampling. (n.d.). Retrieved from <https://research-methodology.net/sampling-in-primary-data-collection/snowball-sampling/>
- Richardson, E. Z. L., Phillips, M., Colom, A., & Nichols, J. (2018). Honoring lived experience: Life histories as a realist evaluation method. *American Journal of Evaluation*. <http://doi.org/10.1177/1098214018796319>
- Rogers, P. (2007). Theory-based evaluation: Reflections ten years on. *New Directions for Evaluation*, 114, 63–81. <http://doi.org/10.1002/ev>
- Sorinola, O. O., Thistlethwaite, J., Davies, D., & Peile, E. (2014). Faculty development for educators: a realist evaluation. *Advances in Health Sciences Education*, 20(2), 385–401. <http://doi.org/10.1007/s10459-014-9534-4>
- Stankov, L., Lee, J., Luo, W., & Hogan, D. J. (2012). Confidence: A better predictor of academic achievement

- than self-efficacy, self-concept and anxiety? *Learning and Individual Differences*, 22(6), 747–758. <http://doi.org/10.1016/j.lindif.2012.05.013>
- The World Bank. (2016). *World development indicators 2016*. Washington, DC. <http://doi.org/10.1596/978-1-4648-0683-4>
- Umble, K. E., Cervero, R. M., Yang, B., & Atkinson, W. L. (2000). Effects of traditional classroom and distance continuing education: A theory-driven evaluation of a vaccine-preventable diseases course. *American Journal of Public Health*, 90(8), 1218–1224. <http://doi.org/10.2105/AJPH.90.8.1218>
- UNESCO. (2016a). *Global education monitoring report—Education for people and planet: creating sustainable futures for all*. Paris. Retrieved from <http://en.unesco.org/about-us/introducing-unesco>
- UNESCO. (2016b). *Global education monitoring report—Gender Review: Creating sustainable futures for all*. Paris. Retrieved from <http://unesdoc.unesco.org/images/0024/002460/246045e.pdf>
- UNGEI. (2010). *UNGEI at 10: A journey to gender equality in education*. New York. Retrieved from https://www.unicef.org/publications/files/UNGEI_at_10_EN_062110.pdf
- UNICEF. (2010). *UNICEF annual report for Guatemala*. New York. Retrieved from http://www.unicef.org/about/annualreport/files/Guatemala_COAR_2012.pdf
- UNICEF. (2012). *UNICEF annual report 2012 for Guatemala , TACRO*. New York. Retrieved from http://www.unicef.org/about/annualreport/files/Guatemala_COAR_2012.pdf
- UNICEF. (2016). *Harnessing the power of data for girls: Taking stock and looking ahead to 2030*. New York. Retrieved from <https://www.unicef.org/gender/files/Harnessing-the-Power-of-Data-for-Girls-Brochure-2016-1-1.pdf>
- United Nations. (2010). *State of the world's Indigenous Peoples—Regional facts and figures Latin America*. New York. Retrieved from http://www.un.org/esa/socdev/unpfi/documents/SOWIP/regional_highlights/latin_america/sowip-regionals_facts-latin_america-en.pdf
- United Nations. (2015). *Transforming our world: the 2030 agenda for sustainable development*. New York. Retrieved from https://sustainabledevelopment.un.org/content/documents/21252030_Agenda_for_Sustainable_Development_web.pdf
- Unterhalter, E., North, A., Arnot, M., Lloyd, C., Moletsane, L., Murphy-graham, E., Parkes, J., Saito, M. (2014). *Interventions to enhance girls' education and gender equality*. Education Rigorous Literature Review. Department for International Development.
- Van Belle, S. B., Marchal, B., Dubourg, D., & Kegels, G. (2010). How to develop a theory-driven evaluation design? Lessons learned from an adolescent sexual and reproductive health programme in West Africa. *BMC Public Health*, 10(1), 741. <http://doi.org/10.1186/1471-2458-10-741>
- Verger, A., Bonal, X., & Zancajo, A. (2016). What are the role and impact of public-private partnerships in education? A realist evaluation of the Chilean education quasi-market. *Comparative Education Review*, 60(2), 223–248.
- Warner, A., Malhotra, A., & McGonagle, A. (2012). *Girls' education, empowerment, and transitions to adulthood: The case for a shared agenda*. Washington, DC. Retrieved from <https://www.icrw.org/wp-content/uploads/2016/10/Girls-Education-Empowerment-Transitions-Adulthood.pdf>
- Williams, L., Burton, C., & Rycroft-Malone, J. (2013). What works: A realist evaluation case study of intermediaries in infection control practice. *Journal of Advanced Nursing*, 69(4), 915–926. <http://doi.org/10.1111/j.1365-2648.2012.06084.x>
- Wong, G., Greenhalgh, T., Westhorp, G., & Pawson, R. (2012). Realist methods in medical education research: what are they and what can they contribute? *Medical Education*, 46, 89–96. <http://doi.org/10.1111/j.1365-2923.2011.04045.x>

Note: The Editors have chosen not to publish the authors' appendix describing in detail the interview protocol and guide in the interests of space. Please contact the authors directly to inquire about this and other details of the study.

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