An Exploration of Environmental Influences on Elementary School Attainment

in Rural Guatemala

by

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ABSTRACT

Increasing elementary school attainment globally remains a key focus for improving internationally child development (UNESCO, 2010), and for girls in particular (UNICEF, 2015). This dissertation was designed to test and explore specific areas to target to improve educational attainment for rural indigenous communities using a mixed-methods approach (i.e., quantitative survey of 264 mothers and qualitative interviews with 37 of those mothers 3.5 years later) with a Mayan community in Camanchaj, Guatemala. The first study was designed to examine the educational trajectories available to children in this community (e.g., dropping out, graduating 6th grade) by age, grade, and gender, and identified risks and vulnerabilities for educational attainment. The second study was a logistic regression to examine maternal factors that predict the likelihood of a child graduating from elementary school or dropping out in this community, above and beyond covariates of poverty and health and found that maternal education predicted educational attainment for both boys as girls as well as maternal beliefs about the importance of school for getting a job, which was particularly strong predictor for boys. The third study probed findings from Studies 1 and 2 using Experiential Thematic Analyses and Frequency Analyses to examine processes and cognitions involved in a child's graduating elementary school, dropping out, and community beliefs and attitudes regarding education and gender equality. Findings highlight the need for interventions that are contextually and culturally appropriate and that consider complex and interacting factors of poverty, health, and gender inequality as well as maternal and community-level attitudes and beliefs to promote elementary school attainment globally.

DEDICATION

This dissertation is dedicated to the babies that made this possible: To Maya who brought me her mama, to Jeannette who gave me a reason to return to this community time and time again, and finally to Lucy who slept on my chest while I wrote.

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Substantial international efforts have been devoted to improving educational attainment for children in developing countries. The International Impact for Aid Evaluation released a key report assessing the effectiveness of many interventions on increasing attendance in schools, sustaining children's attendance over time, and improving the quality of education and students' performance (Krishnarante, White & Carpenter, 2013). Seventy-five large-scale interventions were considered, focusing on reducing costs associated with education, providing school buildings and educational materials, improving the health and nutrition of children, and supporting teachers. Despite substantial focus on global health and the financial barriers to children's education, many efforts to improve educational attainment in developing countries remain relatively unsuccessful, with approximately 61 million primary school-aged children not enrolled in school globally (UNESCO, 2010). It is likely that there are additional influences in the environment affecting the educational attainment of children in these communities that have not yet been explored. Increasing understanding of these influences is essential to the success of future international development efforts.

This dissertation aimed to better understand how to promote educational attainment among children in an isolated rural village of a low-income developing country by considering additional influences in a child's environment that have been identified as promoting educational attainment in Western populations, but seem to be infrequently applied to interventions in developing countries. Previous research points to the effects of the importance of education in a child's environment, using a framework

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that asserts that attitudes and actions regarding the importance of education from many levels (e.g., parents, peers, the community) can contribute to the likelihood of a child's educational success. Thus, the purpose of this dissertation was to explore several different social aspects of the educational environment in a rural community in a developing country to better understand how to improve educational attainment for boys and girls.

This dissertation used a longitudinal mixed-methods approach with the purpose of understanding how these social influences in the environment might impact a child's educational attainment within a rural indigenous community in Guatemala. In addition, this dissertation maintained a focus on how these environmental influences may differ for boys and girls in the community and how these influences may differentially affect boys' and girls' educational attainment.

Importance of a Gender Socialization Lens

Specific initiatives have focused on gender inequality and the need to improve educational opportunities for girls in many developing countries. UNICEF released an important global literature review and policy recommendation (UNICEF, 2015) focused on the successful expansion and improvement of access to quality education for girls with a greater need to understand the role of cultural norms influencing educational attainment. Specifically, the report highlights the need to explore the under-researched social influences that prohibit a girl's ability to access education. It is sometimes the case where educational opportunities exist yet are not accessed due to gender-based social limitations (e.g., heightened risk of sexual assault on the walk to school (Leach & Sitaram, 2007; the expectation that young women should stay in the home for domestic work (Clemens, 2004)). This dissertation explored the possible influence of gender

development and socialization on girls' and boys' educational attainment in a country

identified as one of the poorest with regards to gender equality (UNDP, 2013).

Theoretical Support for the Influence of the Social Environment

Ecological Systems Theory supports the idea that development is context

dependent and that there are social as well as physical influences directly impacting the

psychology and development of the child (Bronfenbrenner, 1986; Bronfenbrenner, 1992).

A child's encountering of ecological systems in their environment is largely dependent on

cultural exposure, differences in family settings and other contextual variations (Paat,

2013). This process is considered valid for all children, regardless of their specific

culture (Paat, 2013). Ecological Systems Theory (Bronfebrenner, 1979, 1986, 1992)

conceptualizes the inter-related systems that influence the development of the child,

supporting the need to explore several interacting systems on the educational attainment

of the child - specifically the microsystem, mesosystem, exosystem, and macrosystem.

The microsystem involves the environment that most immediately surrounds the

developing child the majority of the time. This includes the home environment, the

classroom, and the daily activities and relationships that the child engages in. These are

identified as powerful sources of developmental influence, particularly with regard to

educational attainment. The mesosystem involves the broader systems that the

microsystems are a part of, as well as the links between the microsystems. A common

example is the relations between the home environment and the school environment. For

example, in this dissertation I examined maternal beliefs about education and maternal

involvement with the school. The influence of the exosystem and macrosystem are also

incorporated into the notion that a child's gender and the expectations for them

surrounding their gender may influence their educational attainment above and beyond the resources typically studied in their immediate environment (e.g., health, financial resources). The macrosystem is the culture in which a child lives and the macrosystem-level influence of poverty and gender socialization will be considered, although specific investigations will be explored as exosystem influences (i.e., the connections and interactions between the wider social systems that the child does not have an active role in and the child's immediate environment). For example, the community-level expectations for a child's educational attainment are explored, as reported by both the mother and child. In addition, these community-level expectations are compared to see how these differ by gender of the child. The description of the home environment (e.g, dirt floors vs. tile), health and nutrition of the family, and family level stressors (e.g., many children, alcoholism) will be considered theoretically as exosystem influences in that I explore them in relation to the child's educational attainment.

Social role theory suggests further support for the socialization effects of environmental influences (e.g., expectancies for educational attainment, beliefs about the importance of education) on a child's educational attainment, particularly as it relates to gender (Eagly, 1983). Social role theory asserts that daily actions are assumed within the confines of one's social role, or that each role a person assumes has a unique set of expectations, duties, obligations, and privileges afforded to them. Thus, behavior is guided by social norms, and development occurs parallel to the fulfillment of one's socially sanctioned role or position (Mead, 1934). This link becomes particularly prevalent for gendered roles and behaviors, where children are expected to fulfill the social and cultural expectations for boys and girls (Eagly, 2013). With regards to

educational attainment, this is further constrained by the career-related expectations for men and women. Thus, children in Guatemala are likely influenced by the prescribed social roles for men and women, particularly regarding beliefs about the importance of education and the expectations for a child's educational attainment (Eagly, Wood & Diekman, 2000; Eagly, 2013). Importantly, these socialization patterns come from many sources including the family, the school, the child's peers, the broader community, and the self or the child's own sense of expectations for behaviors within that environment (Blakemore, Berenbaum & Liben, 2009; Martin & Ruble, 2010).

Why Guatemala?

Many studies have documented the relation between increased socioeconomic disadvantage and decreased educational opportunities in the United States, leading to poorer earnings, health, and psychological adjustment outcomes (Gang & Zimmerman, 2000; Portes & Hao, 2004). However, there is important opportunity for cross-cultural comparison work for research on low- and middle income countries and school attainment (De Graaf, De Graaf & Kraaykamp, 2000; Solon, Page & Duncan, 2000). In lower-income countries, higher school attainment has been linked to better intergenerational outcomes such as better child health, lower fertility and higher earnings, but more research is needed (Barro & Lee, 2001; Boyden & James, 2014). Further identification and understanding of the factors that promote children's education despite very limiting social and economic circumstances is critical for informing policy and intervention to improve the educational opportunities for youth and the quality of life across generations globally.

Guatemala is the poorest country in Latin America with about 70% of the population living below the national poverty line (UNDP, 2013; WBG 2015). Many Guatemalan families are plagued by poor sanitation and limited access to clean water, electricity, health services, and schools (CIA, 2015; UNICEF, 2013). Consequently, opportunities for education are limited and school attainment is very low especially among the extremely poor, with only 28% of children completing primary school and 16% enrolling in secondary school (CIA, 2015). Indigenous Mayan girls in particular appear most at risk, with 21% completing primary school and 12% ever attending secondary school nationwide (UNICEF, 2013). Furthermore, despite being the largest economy in Central America, Guatemala has one of the highest levels of inequality in Latin America (UNDP, 2013). Although the Guatemalan government has recognized education as a critical pathway to achieving equality, spending on education remains low, as do rates of educational attainment (WBG, 2015). Thus, Guatemala provided an ideal opportunity to investigate barriers to educational attainment and potential interventions.

Guatemala provides a unique gendered lens useful for informing effective international education interventions. Guatemala is one of the least gender equitable countries (ranked 114th of 152 countries on the Gender Inequality Index, UNDP, 2013) that also allows child gender development research to be conducted within its borders (i.e., most countries with lower levels of gender equality are not as hospitable to this work). Gender-related conditions have been well documented in Guatemala. Guatemala does have laws against child marriage (i.e., the legal age for marriage is 14 for women with parental consent), femicide, and violence against women (Hausmann et al., 2009; Morrison, Raju & Sinha, 2007). Though domestic violence is illegal, 26% of women in

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Guatemala report domestic violence and access to police protection and the judicial system is restricted (CIA, 2015). Access to reproductive services is also limited and only 35% of women use a modern method of birth control (Guttmacher Institute, 2014). Many more men than women own their land and have access to bank loans, though there are not laws preventing these for women (WBG, 2015). The lives of rural, often indigenous women and families is very different than those who live in urban areas, where more than half live below the national poverty line, illiteracy rates can reach 80% for women, and 43% of children under five are chronically malnourished (CIA, 2015; UNDP 2013). Significantly more boys attend school than girls, and more girls participate in domestic labor than boys (Edwards, 2002; UNICEF 2013).

Guatemala has been identified as an ideal location for an in-depth study of the influences on educational attainment in a poor rural indigenous community (Edwards, 2002; Global Education Fund, 2015). Though it faces many disadvantages, there is something special about the scenery, the culture, and the children in Guatemala that have captured the hearts of many researchers and laypeople for decades. Thus, there has been significant sociological (e.g., Koonings & Krujit, 1999; Melville & Lykes, 1992) linguistic (e.g., Campbell & Kauffman, 1985; French, 2003; Mayers, 1966) and anthropological (e.g., Hale, 2002; McBryde & Steward, 1947; Wilson, 1999) work dedicated to understanding the indigenous Guatemalan communities and their changes over time, creating an important foundation of social science knowledge about the populations. This was fueled mostly through an interest in Mayan culture and in the existence of 23 unique languages and hundreds of relatively isolated communities in close proximity (CIA, 2015; French, 2003). In addition, the civil war crisis of Guatemala

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during the 1980s and 90s brought international attention and resources to the children of Guatemala (e.g., Chamarbagwala & Morán, 2011; Koonings & Krujit, 1999), including important child development research (Lykes, 1994; Melville & Lykes, 1992). Guatemala has also been a hot-bed of educational reform in the past few decades, with researchers continuing to study and learn about these populations (Cuxil, 2002; Edwards, 2002; Tawil & Harley, 2004). Lastly, significant changes and social revolutions have occurred, drawing researchers to these areas and resulting in a more nuanced understanding of the regions and populations than is common in many developing countries, particularly for isolated rural indigenous communities (Cuxil, 2002; Hale, 2002; Wilson, 1999).

Piecing together this varied information provided an invaluable foundation from which to build an understanding that helps to inform the current research conducted and the interpretation of results. Specifically, scientists have some understanding from previous research on children's education, health, and development in these indigenous communities in Guatemala and this extensive background information makes it an ideal location for these studies (Bogin, 1991; Bogin, Wall & MacVean, 1992; Chavajay & Rogoff, 2002; Correa-Chávez & Rogoff, 2009; Mata, 1978).

Community Context

A firm understanding of the cultural context is key when examining social and psychological processes to determine meaningful conclusions in child development, (Quintana et al., 2006). This is particularly relevant for indigenous cultures where experiences are likely very divergent from the majority cultures upon which most of the psychological and scientific knowledge is founded (Kim, Yang & Hwang, 2006). In

relation to this dissertation, several aspects of context are highlighted: regional context, family context, school context, and temporal context.

Camanchaj is an indigenous Mayan rural farm town that sits between two cities, Chichicastenango and Panajachel, among many other small indigenous communities. The local language is K'iche but 69% of the population report that they know some Spanish (Salanic Gomez, 2006). The village is divided into 14 different sectors spread out across many hills and valleys. Within the town, most of the houses can only be accessed by walking and are scattered among the agricultural fields, hills, and valleys. The village is accessible from city via public transportation and roads that are in reasonably good condition, however, most adults do not leave Camanchaj on a daily or weekly basis. The main economic production for men is small-scale agriculture (i.e., corn, apples, peaches, and beans) on owned or rented land, and for women, hand making textiles including blanket weaving with looms and elaborate embroidery work for traditional clothing which is commonly worn among the people and also sold at nearby markets in the cities. Many people have access to a cell phone though it is often shared and frequently does not have prepaid minutes. Internet access is quite limited for the people and computers are rare, mostly due to financial restrictions and the lack of electricity in some homes, but it was possible for the researchers to get internet through a portable satellite modem and most schools as well as the health clinic have reliable access for their staff.

In a local government survey conducted in 2002, the population was listed as 2500 people, with all identifying as indigenous Mayans except for 9 who identified as "Ladino", a mix between indigenous and Spanish. It is a fairly young population with

30% aged 5-14 years old, roughly half the population aged 15-49 years old, and under 10% over the age of 50 (Salanic Gomez, 2006). These 2,500 people live in 446 homes with an average of 5.6 people per home. In 2005, 100 of these homes had running water, 9 had a well, 84 had their own gas flow, and 81 had a built in bathroom (Salanic Gomez, 2006), though these numbers are questioned and thought to be generous (M. Morales Perez, personal communication, April 2015). The region is fairly religious, historically embracing religious traditions known as "La Costumbre" or a mix between 16th century Mayan beliefs and Catholicism, but citizens have embraced a recent shift towards Evangelical beliefs with very few identifying as Catholic currently (Salanic Gomez, 2006).

The family context is similar to other rural indigenous regions in the world (Kim, Yang & Hwang, 2006). From time spent in the community, the researchers became familiar with typical family structures. Multi-generational living is common and a family may own land with several houses built on it for the families of different sons or cousins. Extended families are often connected and neighbors function similarly to extended family. Children partner and marry as teenagers, typically between 14 and 18 years old, and are expected to do so before pregnancy. Upon partnership, either through a legal and religious marriage or, more commonly, a community-recognized union, the woman often leaves her family to live with her husband's family, though partly due to close proximity within the village, this separation is not always so robust (M. Morales Perez, personal communication, April 2015). Children in the community are respected and revered and parents often mention children's rights when discussing why children should not work or marry too young, but they also mention children's rights as a reason children should not

continue with school if they don't want to (L. Castro, personal communication, August 2014). Violence towards children and child labor are not tolerated in this community, but children are expected to contribute to the family with chores, cooking, sales of small goods, and upholding family obligations including caring for younger siblings (M. Morales Perez, personal communication, August 2014). Gendered messages in the lives of children are more prevalent through these social roles and family expectations rather than in gendered toys, clothes, and other material goods as is seen in higher income countries. Gender is a key influence on the careers of men and women. An important study of a subset of the population was completed in 2006 by a local doctor for his Master's Degree Thesis (Salanic Gomez, 2006); this is the only other known study on this specific population in recent years. In this study, there was only one occupation that was shared by men and women: being a commercial business person (10% of the interviewed population, of those, 86% male). Men listed working as an agricultural or day labourer (46% of men), a fireman (10%), a construction worker (7%) and a mechanic, teacher, or evangelical pastor (3 men each or 2.5% of men). Women listed working as a homemaker (88% of women), an artisan (8%), a secretary (2 women or 7%) and one woman as a nurse's assistant (Salanic Gomez, 2006).

Family factors influence the school context as well. The school system in Camanchaj is structured similarly to other rural communities in Guatemala. Education may begin with preschool which is typically one year and children usually enter between 4 and 6 years old. Primaria (i.e., elementary school) follows for 6 years. In Guatemala, primaria is technically compulsory but there is almost no enforcement, particularly in rural communities. Children and families may elect to continue onto basico or middle

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school which is three years of education. There are public primaria and basico schools (elementary and middle school) but they have compulsory costs associated including uniforms, set costs for supplies, and fees for school celebrations that make it very difficult for some families to afford, and the costs increase as children progress through their education. School is typically structured in half days (either morning or afternoon) so that children may help the family or find work to pay for their education.

The study by Salanic Gomez (2006) reported that 33% of the adults in the community did not have any schooling (of those, 72% were female). Among those with some schooling, 9% had finished elementary school (of those, 60% were male), only 1 woman had gone on to finish junior high school (no men stopped their education at that level) and 9 men had completed high school (no women). In personal communications, I found that the majority of adults do not consider that they use education as a part of their jobs or daily lives (L. Castro, personal communication, February 2014). It is more common for a child's siblings to have experienced more education than their parents did, and families often decide whether to give all siblings the same education or to choose among children.

In recent decades, access to school has not been a major barrier as there have been public elementary and middle schools in the community. In Camanchaj, children who are of current school age have access to one public and one private preschool, two public primaria schools, and one public basico school. The public basico school opened sometime in the mid 1990's (exact dates are impossible to obtain, even in discussion with the current principal of the school and many community members), so some current young adults did not have access to a local public middle school when they were of age.

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However, there were public basico schools in the neighboring town, roughly 15 minutes away, and some local children currently attend all their schooling in neighboring towns using the relatively reliable and affordable transportation system. To attend high school currently or middle school several decades ago, students would have to get transportation to the nearest city. The nearest Carrera (similar to trade school), bachiller (similar to high school), and Universidad (college) are roughly 45 minutes, and it is fairly common for students who pursue those to live in the cities with extended family members or friends and work in the city to support their education.

There is some concern in the community that indigenous cultural values are lost with education and there has been a recent effort to incorporate indigenous teachers and staff, maintain curriculum with lessons in indigenous languages, and to celebrate indigenous holidays at school, but these efforts are fairly recent, within the last decade. Family-school partnerships have only recently been supported and there are current community-wide efforts for school outreach to support and promote parent involvement, such as incorporating parent volunteers at school and maintaining staff that communicate with parents in the indigenous language (M. Morales Perez, personal communication, April 2015).

The regional, family, and school-level contexts discussed are each temporally bound in a rapidly changing historical context in this village. Thus, the cohort of children studied in this dissertation likely had very different experiences regarding educational attainment than their parents did, and perhaps very different even than their older siblings. Indeed, there have been shifts in infrastructure that influence each of these contexts. For example, roughly two decades ago a medical clinic was introduced that

greatly expanded access to health care for this community (Salanic Gomez, 2006).

Transportation has improved so children are able to commute to school and children are more likely to have an older sibling who works in a major city in Guatemala (M. Morales Perez, personal communication, April 2015). This generation of children may be more exposed to the Spanish language, not only through education but through the proliferation of both children's media and corporate marketing. With the end of the Guatemalan civil war came an increase in tourism and access to the shifting economic opportunities and cultural exposure that comes with a more accessible and globalized world (Salanic Gomez, 2006). Thus, while education may not have served this cohort of children's parents or older siblings as their economic viability was in agriculture and local commerce and their exposure to educational opportunities quite limited, expectations for the impact of education for this current cohort may still be high. Thus this community presents a unique opportunity to study the environmental impact of various socialization factors on the educational attainment of a child within a unique and changing community context.

Lastly, the researchers' understanding of cultural context in this community was deepened due to long-standing connections to the community of Camanchaj and many friends working as "boots on the ground" within the community. These connections were established as members of the research team had lived or worked within the community for nearly a decade. The first wave of data was collected by the Principal Investigators of the research project, Carey Cooper and Aprile Benner. Dr. Cooper had lived in a neighboring community and worked as the director of a preschool in Camanchaj, Guatemala for two years. I visited Guatemala and conducted the second and third data

collections several years later (see Dissertation Data Collection for a complete

description), and spent a total of 4 months over the course of 2 years living and working

within the community and establishing connections with local organizations and people.

There are several active charity and mission organizations located near the community

that provided institutional support (i.e., Global Ministries, Mission Guatemala, Mayan

Families) and there is a wealth of local and international people we worked with who

have lived and worked there for decades and who were willing to aid this research.

Members of the research team were dedicated to prolonged periods of talking with these

organizations and with community members during and between data collections to

ensure that the research was valuable and was rooted in a deep understanding of the

communities. In addition, The Cocode (the local governing council) granted approval to

conduct the studies and access to the community was given to the researchers by the town

citizens and their guardians. Aside from the obvious benefits of facilitating many crucial

aspects of the studies (e.g., verifying that the questions made sense for the population,

gaining access to local interpreters and research assistants), connecting with these various

groups allowed me and the research team to gain a rich understanding of the population,

to ask important questions about the findings, to theorize deeply about influences on child

development, and ultimately to conduct meaningful, timely, and appropriate research.

Methodological Approach of the Dissertation

There are several key criticisms of global child development aimed at improving

educational attainment. The first regards the complexity of these questions and the need

for mixed-methods research. While there is important quantitative work on international

development, often focusing on effects of poverty and lack of medical and educational

infrastructure, there is a significant lack of in-depth qualitative research or longitudinal studies which deepen understanding, provide causal explanations, and are crucial to informing how successful interventions work (Maxwell, 2013). This call has recently been highlighted by UNESCO (2015), the World Bank (2010), and the WHO (2001), among many others (Walker et al., 2007). This is particularly problematic in that reports of successful human development interventions have been reported as programs (e.g., UNDP, UNICEF) continue to improve development globally and to measure those improvements, yet we have little idea about why or how they worked. This is further complicated by the lack of understanding of context in this research. In fact, one of the primary conclusions of the report on Girls' Education & Gender Equality (UNICEF, 2015) highlighted this. "The research reviewed in this report suggests that aspects of context can be critical to the development and impact of different forms of intervention. However, we also found that context is not given sufficient consideration in a number of research studies investigating interventions for girls' education." Creating an understanding of context requires substantial time and resources, yet is the only way we can truly address the causes and influences on poor educational attainment outcomes. Perhaps more importantly, understanding context allows us to carry a productive intervention from one region to another in a successful way. There are far too many examples of successful interventions that were replicated in countries with unsuccessful outcomes, only to find that a simple understanding of the basic social beliefs in that community would have prevented the misuse and loss of substantial resources (Hobbes, 2014).

Thus, I designed this dissertation to investigate questions of educational attainment among a small indigenous population in rural Guatemala and I intended to provide a rich understanding of context over several years. In addition, the study was designed to incorporate the benefits of both quantitative and qualitative approaches to the questions such that we may arrive at a true understanding of the influences at play among this population and may expand these in meaningful ways internationally. High quality international research is extremely difficult to conduct without prior research on the population and without the continued trust of the community (Kyale & Brinkmann, 2009). Though research on indigenous populations is quite sparse, we find pockets throughout the world that have managed to grab more attention over the years, including this community in Guatemala.

Dissertation Purpose

The overall goal of this dissertation was to understand how environmental influences related to education promote the likelihood of educational attainment in rural Guatemala. The first study in the dissertation was designed to map the educational landscape by identifying educational trajectories or possibilities that exist for children in the community (e.g., graduate from elementary school, drop out prior to completing elementary school, never start school, etc.), and to describe these trajectories according to the age, grade, and gender of the children in each group (e.g., among children who drop out of elementary school, are they more likely to leave at a certain grade and are they more likely to be female?). Mapping the educational landscape in the community informed understanding of what a child's peers have achieved educationally, outlining the educational possibilities and expectancies within the community and revealing the

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educational opportunities available to a child (e.g., Do most children in this community graduate elementary school or is that a rare occurrence? Is leaving school temporarily and then later returning common?) Particular attention was given to the differential experiences for boys and girls within the education system (e.g., Is it as common for girls to be enrolled in school as boys?).

The second study identified potential influences on a child's likelihood for graduating elementary school within the community. Processes of poverty and its influences on education in the developing world are widely studied (Clarke & Feeny, 2007; Symaco, 2014; Tierney, 2015), particularly as it relates to socio-economic status (Bornstein & Bradley, 2014). However, this study was designed to expand upon existing literature by considering understudied yet important influences on educational attainment – the influence of maternal factors including the mother's educational history, the mother's beliefs about the importance and utility of education and maternal involvement in a child's education, each above and beyond typically measured indicators of poverty. This study also explores how these influences may differ for boys and girls within the community. This approach allowed the identification of malleable processes that can be intervened upon – specifically, maternal level factors that may influence a child's likelihood to graduate from elementary school.

The third study was a qualitative analysis that was designed to explore the findings from studies 1 and 2 in more depth to enhance understanding of the environmental influences examined in this dissertation that affect a child's educational attainment in this community. This was an explanatory study that seeks to clarify some of the patterns and processes found in the previous dissertation studies and to gain further

insight into the meanings of the findings within the community. Specifically, this study used follow-up interviews from a selected group of mothers to inquire deeply about the influence of maternal, peer, and community expectancies on the child's education, beliefs about the utility of the education, and maternal involvement in education. Further explorations included how each of these influences differ for boys and girls in the community.

Dissertation Data Collection

This dissertation was based on a longitudinal study that maintained rigorous research standards over a five-year period. Two consecutive data collections (i.e., Waves 1 and 2) were conducted using mixed methods to follow families over time with interviews of mothers and their children. Dissertation studies 1 and 2 used data collected from Wave 1 (quantitative data collection from mothers), and dissertation study 3 used data collected from Wave 2 (qualitative data collection from mothers). A further description of each data collection follows.

Wave 1, conducted over four months (from November 2010 to February 2011), consisted of a quantitative assessment of a random sample of 30% of the mothers with school-aged children who lived in a rural indigenous Guatemalan village (N=178). The goal was to understand the level of poverty and disadvantage that families face, how mothers make decisions about their children's education, when and why children drop out of school, and whether this differs by the gender of the child. The data was collected to advance knowledge of academic risk among indigenous children in Guatemala, including a quantitative understanding of risks correlated with low academic attainment and academic achievement promoters or protective factors that buffer or moderate this

risk. In addition, the goal of Wave 1 data collection was to identify patterns in how these risks and protective factors may differ by gender or age of the child within the same family or among families in the same community, and how these risks may interact. Investigators were interested in multiplicative effects of risk (e.g., poverty or illness alone can be managed, but together cannot) and if there were certain promotive factors (e.g., maternal beliefs about the importance of education) that are particularly protective against certain risk (e.g., financial limitations).

For Wave 2, conducted in August 2014, researchers returned to the community of Camanchaj 3.5 years later to conduct in-depth qualitative follow-up interviews on a sample of 37 mothers of the original 178 from Wave 1. These mothers were identified using a stratified sample selection plan incorporating families that were randomly selected from each of 9 strata: families with all children in middle school only, high school only, or both, and concurrently, families with all children at-risk (i.e., children were not meeting education standards such as not passing classes or being enrolled in school below grade level), families with some children at-risk, or families with no children at-risk. These mothers were asked similar questions to Wave 1 to assess changes over time, as well as qualitative questions in an hour and a half long semi-structured interview. Mothers reported on why their children dropped out of school or were succeeding, what obstacles they faced in the past and present that influenced educational attainment, their involvement with their children's education, commonly held beliefs in the community regarding children's education and their educational beliefs and goals for each of their children separately.

Mixed Methods Approach

The simplest explanation for the use of mixed methods in this work is pragmatism (Elichaoff, Rodriguez, & Murphy, 2014; Yardley & Bishop, 2008), where methodological decisions are based on accessing the most appropriate means to answer the research question (Yardley & Bishop, 2015). I used a sequential explanatory mixed methods design, similar to that of McMahon (2007). This sequential strategy of quantitative and qualitative data collection and analyses allows for a deep understanding of population level indicators and individual level processes (Hesse-Biber, 2010). I used a quantitative study to aid in purposive sampling to identify a target population of mothers to interview (England, 1993; Torres, 2006), which is applauded for its ability to increase the representativeness of research findings, particularly in underrepresented populations (Hesse-Biber, 2010).

The data for this dissertation were collected using interviews designed with a nested framework (e.g., a quantitative study followed by a qualitative study, both quantitative response questions and open-ended qualitative questions within one interview), which promotes the collection of useful data concurrently while reducing participant burden and research costs (Hesse-Biber, 2010). This framework is the best way to permit within-subject confirmatory designs where quantitative data may be more fully explored using qualitative methods and vice versa (Lieberman, 2005). Further, this approach provided the researcher with a means to examine the construction and negotiation of meaning, and the quality and texture of experiences of participants (Willig & Stainton Rogers, 2008). This provides a complementary addition to the quantitative inquiry by operating at the micro-level (Howes, Benton, & Edwards, 2005), with an attempt to provide an understanding from a rich, detailed account of the specific

phenomena under consideration in conjunction with the more general exploration

(Turner, Barlow, & Ilbery, 2002) without predicting outcomes. This allowed the

researcher to place the participants as experts by experience (Smith, Flowers, & Larkin,

2009) through a bottom-up approach to data and analyses.

To review, a quantitative study was first administered to a very broad span (i.e.,

30%) of the population within a community, and then a follow-up qualitative study was

conducted with a carefully selected sub-sample of the original quantitative study. Thus,

both quantitative and qualitative methods were used when appropriate to best answer the

research questions. This co-existence of quantitative and qualitative research is widely

contested due to the opposing paradigms around the construction of knowledge and truth,

but its practical acceptance in research is gaining (Garcia Coll, 2005; Shinn &

Yoshikawa, 2008).

In addition to the quantitative work in this dissertation (i.e., wave 1 data

collection, studies 1 and 2) there are many instances of mixed methods within the

qualitative interview data as well (Ragin, 2008; Caracelli & Greene 1993; Sandelowski

2000; Onwuegbuzie, Johnson & Collins, 2009; Sandelowski, Coils & Knafl, 2009).

Specifically, frequencies were counted in the qualitative data (e.g., 10 of the 37 mothers

mentioned their child's gender as a reason for dropping out from elementary school). To

illustrate further, I first quantitatively explored how many girls versus boys were

dropping out of elementary school (study 1 and 2), and then I used the qualitative data to

explore how many mothers stated the fact that their child was a girl as a reason for her

dropping out (study 3). This data reduction technique is considered quantitative by many

scholars (Smith, Flowers & Larkin, 2009). However, this pragmatic approach allowed for

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the most streamlined and direct application of the data to the research questions, creating a synthesis of research studies that represent more than the sum of their parts (Hesse-Biber, 2010).

Broader Impacts

This dissertation was designed to explore influences on elementary school educational attainment among a population of rural indigenous Guatemalan children over time. Both quantitative and qualitative rigor were maintained to meet current standards for high quality international research and to inform the design of future international child development interventions to increase educational attainment for indigenous children globally, with a specific focus on the effects of social gender inequality. Though the studies presented aimed to examine a small community at a deep level, this dissertation used child development theories and specific measures designed to be applicable globally. The questions used in the interviews were kept broad and open-ended without relying on assumptions about the community. In addition, specific variables were measured in relation to the community and in very broad terms rather than using predetermined values. For example, questions about poverty asked if they had enough food or warm clothes to meet their needs, rather than asking for an income value. Questions about mental health asked how often they were sad and why, rather than using a classic depression inventory which may not be culturally appropriate. These considerations will be discussed as appropriate for each variable.

This study aimed to enhance understanding about how to improve educational attainment for children in developing countries broadly, including the family processes at play in response to the education system and how multiple systems of influence interact

in the life of the child. By improving our understanding of educational attainment behaviors and the motivations behind these behaviors we can better inform future interventions to change these behaviors. By understanding the socialization patterns and beliefs from the family and the community, we can learn specific areas to target for successful intervention to improve educational attainment within this community and more broadly within other rural indigenous communities globally. This is particularly powerful as motivations for behavior within the community are more malleable and adaptive than typically cited barriers to education such as poverty or health, and this dissertation highlights key ways to improve child development through addressing socialized beliefs and behaviors. Therefore, there is the possibility for direct application and comparison of this high quality research to other important international work and to give important insight into matters of global child development, specifically regarding gender development and educational attainment.

Dissertation Studies

Study 1: An Examination of the Educational Trajectories that Exist in Rural Guatemala: Age, Grade, and Gender Patterns in the Community

The purpose of the first study was to describe the educational landscape in the community. It is important to understand the educational landscape as it can influence the expectations for children in the community. Further, it informs following studies in the dissertation to enhance understanding of the educational environment that influences the educational attainment of the child.

Guatemala has very poor educational outcomes, with 28% of children completing primary school and 16% enrolling in secondary school, on average (CIA, 2015).

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However, these experiences vary widely within communities. For example, Indigenous Mayan girls are at higher risk, with 21% completing primary school and 12% ever attending secondary school (UNICEF, 2013). It is important to understand the educational environment within the community to better understand the influences on educational attainment and how to best improve attainment. By describing the educational landscape within the community, this study identified the educational trajectories available to children (e.g., graduating elementary school, dropping out of elementary school, never starting school) and examined those trajectories for differences in gender as well as any key ages and grades where these patterns emerge or trajectories occur (e.g., Are girls dropping out at younger ages or earlier grades than boys?). This study exposed areas of vulnerability in educational trajectories (e.g., Are girls more likely to never start school?) to identify possible areas of intervention useful for improving educational attainment outcomes in this community for both boys and girls.

Research question 1. The first goal was to identify the common educational trajectories for students in this community and to describe the age, gender, and grade of the children in each profile. Descriptive profiles of the educational trajectories that exist in the community were identified and children (7-18yrs old) were grouped according to their educational experience: those who have dropped out of school prior to completing elementary school, graduated from elementary school, dropped out but returned to school later, never began school, were currently in school but behind in grade for age, and those children who were currently in school and on track for age.

In research on educational attainment in many developed countries, all children attend school and the majority of children graduate elementary and middle school. Thus,

research is either focused on academic success in elementary, middle, or high school or on graduation from high school, but rarely on graduation from elementary school. For this reason, the first step to understanding educational attainment in this community was to identify the most common educational trajectories in this community. This allowed an examination of both classroom and community level factors.

Findings focus on typical parameters in educational research, specifically: the age of children, the grade or level of education, and gender. Each educational trajectory was examined for the gender, grade, and age of each child within that trajectory. It is important to understand the population according to each of these parameters that is then examined using quantitative and qualitative analyses in study 2 and 3 so that I can better understand how to most accurately interpret findings. Both classroom-level and community-level factors were considered and important descriptive findings were analyzed.

As this research question is exploratory, specific hypotheses do not exist. However, explorations were guided by past research. One expectation was that, by examining each grade individually, we may find that there is more gender equality in younger grades, but fewer girls in older grades. Therefore, as girls advance in grade, they may find that they are increasingly a minority in the classroom. This would be an important classroom level factor to consider. I expected to find that the classrooms are very diverse with regard to age and grade (i.e., that there are both young children and adolescents in many grades in elementary school), due to the likelihood that some children fall behind in school and others return to school after dropping out. I also expected that the community would be diverse with regard to educational trajectory (i.e.,

that each of the educational trajectories is populated). It is important to consider how rare or common it is for a child to never begin school or to drop out prior to graduating elementary school.

Mapping the educational landscape can also provide community-level context. For example, if dropping out prior to elementary school is common, children in the community may be more likely to perceive dropping out as a viable option. I explored at what age and what grade dropping out was more likely to happen. I also explored each educational trajectory (e.g., falling behind in school, dropping out and then returning to school, etc.) for age, grade, and gender-related patterns. Because little is known about these educational trajectories, this descriptive research question was exploratory.

Research question 2. The second goal of the study was to identify vulnerabilities within the population with regard to educational trajectories. For example, it may be that among children who drop out of school, the most common grade to leave is 1st grade when they just begin their education, and then 3rd grade, roughly half way through their elementary education, but it may be that if they get to 4th and 5th grade they are far more likely to graduate than to drop out. Thus 1st and 3rd grade would be sensitive periods which would benefit from further examination in subsequent studies.

Gender differences represent another important vulnerability examined for informing further studies in this dissertation. It is important to note if membership in these educational trajectories differs by gender, and to consider what might influence or explain these differences. It may be that vulnerabilities exist for girls and boys at different grade levels or in different trajectories. There is reason to suspect that more boys complete education than girls (Edwards, 2002), however, it is not known at what

age or grade girls are more susceptible to leaving school. In addition, trajectory level differences are unknown and are exploratory. For example, fewer girls may be graduating elementary school because fewer girls may start school to begin with (i.e., there may be more girls in the "never started school" trajectory), or perhaps girls are more likely to fall behind in school, or more girls than boys may be found in the group of children who dropped out, or it may be that boys and girls are found in equal numbers in the trajectory of dropping out of elementary school but there are more boys found in the educational trajectory of dropped out and later returned. Thus, while gender differences were expected, the specific vulnerabilities were unknown and were explored within each educational trajectory.

Method

Participants. Within the community of Camanchaj, fifty percent of homes within each of the 15 neighborhood sectors (N = 264) were randomly selected. Because of a focus on school attainment, 37 homes without school-aged children (4 to 18 years of age) were excluded as well as an additional 17 homes deemed too dangerous for visitation, leaving 210 potential homes. In addition, all mothers who had children in our partner preschool in the community, Salud Y Paz, were interviewed to provide data for our important community partner. Of these eligible homes, interviews were conducted with 179 Mayan mothers (85% response rate). These 179 mothers had 541 school-aged children. Each family had an average of 4.9(1.89) children under the age of 18 living in the home, with a range of 1-9 children.

Of the 541 children that were the subject of interviews, 9 children were dropped for partial missing information about their school history. There were 6 boys and 3 girls

in this group and the majority were 13-17 years old with only one child younger at 7 years old. Thus, the final sample was 532 children, 266 boys and 269 girls, who ranged in age from 7 to 18 (mean age = 11.91 years, SD age =3.20) and ranged in last grade attended from 1st to 9th grade with 1 participant completing 12th grade.

Study procedure. To begin, the researchers held focus groups with staff and volunteers at Salud Y Paz, a local preschool that served as a crucial partner in this research with important ties to the community, as well as one-on-one conversation with community members. These focus groups and conversations were necessary to help develop research ideas and later to provide feedback on final questions to ensure that the research is valuable to the community, rooted in the community's needs and reflective of their understanding of the problems and possibilities for solutions. The final survey assessed socioeconomic disadvantage, household composition, and parental beliefs surrounding youth education. Data were collected over a four month period from November 2010 to February 2011.

In consultation with community members, the interviews were designed to be roughly one hour long and to take place in the mothers' homes at a time when they were least likely to be preparing meals or walking children to and from school. Though conducting interviews in the community is far more difficult than asking families to come into a lab, it is important to ensure that participation was not skewed due to transportation barriers or an inability to contact mothers by phone. Local health workers, "Amigas", were used to help locate families and guide the interviewers around the community. The paid interviewers were carefully selected: they needed to be women (so that mothers would feel comfortable talking to them), to have an education so that they were able to be

trained on the RedCap interview software and operate the laptop, to have Spanish and K'iche fluency, and to not be from the community such that mothers would reveal their thoughts and feelings without concern about the interviewers knowing them or their families. These interviewers were then trained on research techniques according to Human Subjects training for IRB and were trained in how to operate the RedCap qualitative interview software, as well as proper qualitative interview techniques (see Kyale & Brinkmann, 2009; Roulston, 2010 for a review). In addition, they were trained in the overall goals of the study so that they may be effective interviewers while being blind to researcher hypotheses.

The research team for the Wave 1 data collection included the community guide, one of two paid interviewers from the community and at least one of the two principal investigators on the study grant, Carey Cooper or Aprile Benner. The team visited the mother's house and made two additional return visits if she was not there before excluding her from the study. Consent forms were completed and any personal information for follow-up contact (including names and phone numbers) were kept in a separate password protected file. Though conducted in the home, the privacy of the mother and her responses were of key concern, though occasionally other family members were present and this was noted when it occurred. The interview lasted approximately one hour and consisted of a series of guided quantitative questions administered in an interview format. The skip patterns and appropriate follow-up questions were pre-programmed into the RedCap software used during administration. Upon completion, a participant thank you gift of ½ pounds of beans per family member was given after the interview in recognition for their time. The participants did not know

about the gift prior to completing the interview so as not to incentivize, and this gift was deemed appropriate by the Cocode.

Measures. Mothers were asked about each child separately, including the child's gender and their current age. To understand educational trajectories, mothers were first asked if their child would be attending school next year, and if not, if they had been in school before. The interview did not ask about the current school year because children were on break between school years. If the mother's child was attending school next year, she was asked: "What grade was your child in last year?" to establish the current grade of the child. If the mother's child was not going to attend school next year, she was asked: "In what grade did your child stop going to school?"

Results

Research Question 1

The first research question aimed to identify the common educational trajectories for students in this community and to describe the age, gender, and educational grade of the children in each trajectory. Descriptive analyses and cross tab explorations of educational trajectories are presented for groupings of children with shared educational experiences. Figure 1 presents a flow chart representing the various educational trajectories a child might experience. Children were initially divided into groups based on if they had ever attended school, and if not, on their intentions to begin their education. If they had attended school, they were divided based on if they had graduated elementary school. Those who had not yet graduated elementary were grouped according to if they had dropped their education or were still pursuing education. Those who had graduated were grouped similarly. Next, children were divided based on their intentions to resume

schooling or not next year. Each group was numbered on the educational trajectories flow chart and this corresponds to the presentation of the results for each group by age, grade, and gender. In interpreting these results it is important to consider that despite having a sample of over 500 children, examining membership in any group by age or grade, particularly when split by gender, yields small cell sizes and should be interpreted with caution. Nonetheless, some patterns are apparent and necessitate further examination.

Figure 2 illustrates the full sample by age and gender, demonstrating that there are relatively equal numbers of children at each age and a relatively even distribution by gender. Care should be noted for interpreting patterns for 15 and 18 year old children (i.e., a dip in the number of children attending school at those ages) as there are fewer numbers of children of these ages in this sample. Figure 3 illustrates the frequencies for each educational trajectory group by gender, showing that gender is evenly distributed across groups and highlighting the number of children in each group relative to others.

Never Attended School

Group 1 represents all children who have never gone to school. N = 23 with 9 boys and 14 girls (4.3% of the full sample of children, age range 7-17 years, Mean = 9.78 years, SD = 3.55 years). Figure 4 shows the frequency by age and gender, which is relatively evenly distributed. Of these 23 children, mother reported plans to begin school varied. There were 12 children who had not been to school and would not be attending school next year (group 1A). 58% of those children were 7 or 8 years old and it is likely that those students will be late to start but this may not be particularly problematic. It is important to note that 86% of those students are female suggesting that young girls may be more vulnerable for late start dates or not starting at all. The remaining children from

group 1A who had never gone to school and will not go were 14-17 years old, 2 girls and 3 boys, and these children are likely to never attend school. The mothers of 8 of the 23 children in group 1 stated an intention to start school the following year (group 1B), with an even split by gender. Those children range from 7 years old (50% of the children in this group) to 11 years old. Lastly, in group 1 there were 3 children whose mothers were undecided about whether they would be starting school the following year.

In summary, only 4.3% of the sample has never attended school, suggesting the great majority of children in Camanchaj experience some time in the educational system. Of those who have not attended school, over half of those children are likely to be late starters as the mothers state they do intend to start school next year. The majority of those late starters (86%) are female, illustrating that some educational decisions do seem to relate to gender.

Dropped School Before 6th Grade

Group 2A represents all children who have dropped out of school prior to graduating 6th grade. N = 64 with 33 boys and 31 girls (12% of the full sample of children, age range 7-18 years, Mean = 14.94 years, SD = 2.32 years).

Figure 5 shows the grade by gender distribution for the last grade each child attended. Children dropped out of school with the highest frequency in 2nd and 3rd grade, at slightly higher rates for boys than girls. Dropping out in 1st and 4th grade was slightly less frequent, though it is clear that children drop out fairly consistently from 1st through 4th grade with relatively similar rates for both boys and girls. In contrast, 5th and 6th grade have very low rates of dropping out.

Figure 6 shows the current age by gender distribution for children who have dropped out of school. Due to the formatting of the questionnaire, mothers were asked their child's current age and if they had dropped out of school but not their age when they dropped out. Thus, children are more likely to have dropped out by the time they reach early adolescence, with a steep incline approaching 14 years old. Dropout is relatively rare prior to 12 years old, and there do not seem to be clear gender patterns.

Figure 7 shows the current age of all the children in the group as well as the ages of those who dropped out of school last year. There were 11 children who dropped out of school last year and their current age is also the age when they left school. This illustrates a very diverse group of students with unique educational experiences. Closer inspection of the data show that there is a 12 year old who dropped from 1st grade and another who dropped from 4th grade, 2 17 year olds who dropped from 3rd grade and one who dropped from 4th. This range of ages for grades is quite interesting and illustrates that there is indeed diversity in the age of students within each grade when they drop out, and in the grades that they are dropping from.

There are 6 children (4 boys and 2 girls) whose mothers have stated their intention to return to school next year (group 2Aii). The other 58 (29 boys and 29 girls) intend to remain out of school for at least the next year (group 2Ai). It is important to note when comparing groups 2Ai and 2Aii, that the interview only asked about the intention for the child to go to school next year and this is not necessarily indicative of actualized plans for education.

When we examine the full sample of children who have dropped out of school in Figure 7, only 17% of the sample are 13 or younger, but among the 11 who have dropped

last year, 45% of them were 12 or under, suggesting that there may be a phenomenon where younger kids who dropped out of school are eventually returning, but older kids who have reached adolescence and dropped out of school are not returning.

In summary, 12% of our sample of children dropped out of school prior to graduating 6th grade, with 2nd and 3rd grade presenting the highest risk for this occurring, and at slightly higher rates for boys. In contrast, 5th and 6th grade represent the lowest risk for dropout prior to graduating. Children who are 14 years and older show a higher risk for dropping out prior to completing 6th grade. The vast majority of children who drop out do intend to stay out of school for the next year, with 91% of these children not planning to return.

Continuing Before Graduating 6th Grade

Group 2B represents all children who are in school still and have not yet graduated 6th grade. N = 316, with 152 boys and 164 girls (59.4% of the full sample of children, age range 7-18 years, Mean = 10.15 years, SD = 2.14 years). It is important to note that this group includes both those who have never dropped out of school and those who have dropped out of school and returned in the past. It includes those who have never lost a grade and those who have repeated grades, and does not differentiate among these groups. The cross tab analyses illustrate that students in this group have diverse trajectories as there are many deviations from a set age-for-grade pattern. Thus, understanding the histories for children in this group may highlight resiliencies in this community in that these children are still in school despite educational obstacles faced in the past.

Figure 8 shows the current age for children in this group. It is clear that for both boys and girls, school attendance declines at 14 and remains low in adolescence. This is due in part to the fact that many children at this age have graduated, but many earlier graphs show that many children in this age range have not graduated and this graph shows that they are less likely to their elementary education after 14 years of age. Figure 8 also shows an interesting pattern where boys school attendance peaks 3 years earlier than girls, which may correspond to more girls starting their education later. Figure 5 also shows that boys may leave school in 2nd and 3rd grade with slightly higher frequency. By age 13 and for every year thereafter, boys and girls have similar attendance rates.

Figure 9 shows that among those in school, most are in first and second grade and attendance decreases steadily thereafter, though not as steeply as might be expected. For those in school, third, fourth, and 5th grade have relatively similar attendance rates. This graph also shows that preschool is not commonly attended in this community. Figure 10 shows a very interesting pattern. It demonstrates the same attendance pattern as figure 9 but shows how diverse the ages are within each grade. We do see a natural age-for-year progression where first grade has the highest frequency of 8 year olds, 2nd grade has the highest frequency of 9 year olds, 3rd grade has the highest frequency of 10 year olds, and so on. However, a three year age spread on either side of the most frequent age is common, with almost every grade showing a seven year age span. For each grade, well over half of the children fall within a three year age span, one year above and below the highest frequency age. Though children aged 4-18 were included in the interview, no students under age 7 were in preschool, demonstrating that this is the earliest age at

which children begin school. It is important to note that there are several 9 year olds in preschool.

In summary, at the time of testing, roughly 60% of the full sample of children in this community were in elementary school and had not graduated, showing that pursuing an elementary school education is the main task for children in this community, spanning an age range from 7-18 years old. However, school attendance declined significantly for 14 to 18 year olds, illustrating significant risk in adolescence. The majority of these students in elementary school are in 1st and 2nd grade with attendance in subsequent grades steadily declining. Though there is significant diversity regarding ages represented in each grade, the majority of children in each grade fall within a three-year age span and there is an expected age-for-year progression where the peak age increases by 1 year for each subsequent grade.

Graduating 6th Grade

Group 3 represents all children who have graduated 6th grade, regardless of their educational choices post-graduation. N = 132, with 72 boys and 60 girls, (24.8% of the full sample of children, age range 12-18 years, Mean = 15.11 years, SD = 1.78 years). The various educational trajectories for children who have graduated 6th grade are explored below in groups 7, 8, and 11.

Dropped After Graduating 6th Grade. Group 3A represents all children who have graduated 6th grade and then have dropped from school at some point in their education following graduation. N = 53 with 24 boys and 29 girls, (9.96% of the full sample of children, age range 12-18 years, Mean = 15.78 years, SD = 1.67 years). For the majority of these children (67%), we do not have reported how long it has been since they dropped

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from school or what age they were when they dropped; we only have data for the last grade they were in when they dropped from school and their current age. However, we do have accurate age and grade data for the 18 kids who dropped from school in the last year and those results are presented.

Figure 11 illustrates that the majority of students who drop out of school are dropping after 6th grade, and patterns are the same for girls and boys though slightly more girls drop out after 6th grade than boys. There is also a slight increase after 9th grade which corresponds to graduation from middle school. Figure 12 shows that there is a steady incline in age among all the children who have dropped out after graduation. The decrease at 15 may be due to slightly few 15 year olds in the overall sample. There are consistently more girls than boys at every age except 17, though this is only a difference of 2-3 children at each age. Figure 13 shows this similar pattern for the whole sample where there is an increase in the risk of dropout by age, and shows an interesting peak at 14 years old among kids who have dropped out last year, likely corresponding to the completion of 6th grade. However, it is likely that the 15, 16 and 17 year olds represented in the new drop group (i.e., students who dropped last year) also dropped out after completing 6th grade. This is further illustrated by figure 14 which shows the diversity of ages among those students who dropped out last year after completing 6th grade.

Among this group of 53 children who graduated from 6th grade and later dropped from school, there are no children who have the intention of returning to school next year; all intend to remain out of school for at least the next year (group 3Ai), suggesting that once a child leaves education after graduating primary school, the likelihood of their returning to education is low.

Among the 132 children who graduated 6th grade, 40% of those children drop after graduating and the remaining are either in school or the mother stated that they intend to continue after 6th grade. Of those who graduate 6th grade and then drop at some point, many of those students drop immediately after 6th grade and do not attempt middle school. Additionally, the risk for dropping after graduation increases as children are older. Among this sample of children who have dropped after graduating, none have intentions to return to school next year.

Continued Schooling After Graduating 6th Grade

Group 3B represents all children who have graduated 6th grade at some point in the past and are intending to continue with their education next year. N = 76 with 46 boys and 30 girls (14.3% of the full sample of children, age range 12-18 years, Mean = 14.63 years, SD = 1.73 years). It is important to note that 26% of this sample (N=20) stated that they completed 6th grade last year and are planning to continue with school next year. This might be a particularly vulnerable group as the interview asks for the mother's report of intention to attend school, not actual enrollment in school. However, the remaining 56 children, or 10% of the total sample of this study, did pursue school beyond 6th grade.

Figure 15 shows the last grade completed for those intending to go to school next year; the 6th graders completed 6th grade last year and are continuing on to 7th grade the following year. There is a steady decline that begins after 7th grade for the girls and after 8th grade for the boys. 9th grade is the graduation from middle school, and it is interesting to note that even though students start middle school, they do not necessarily finish. Similarly, all who start 10th grade do not seem to graduate high school as there are fewer in 11th than 10th grade. Figure 16 is perhaps misleading as there are fewer 15 and 18 year

olds in the sample. It is clear that there are more boys than girls across all ages who have graduated and are still in school, and it seems that if children graduate from elementary school and do not drop out around 14, they are likely to remain for several years later as there are as many 16 year olds and 14 year olds. However, there is an undeniable decrease by 17 and 18 years old for both genders. Table 1 shows that while there is a diversity of ages in 6th, 7th, and 8th grade, as students continue the diversity reduces and by 10th and 11th grade there are just two ages represented. There are only 16 and 17 year olds in 10th grade and 17 and 18 year olds in 11th grade. Thus, it takes students a minimum of 17 years of age to reach 10th grade in this community.

In summary, 60% of children who graduate 6th grade continue with their education into middle school or further, with 14% of the full sample of children in this community choosing that educational trajectory. The risk for dropping out at age 14 is not as strong among these children who have graduated 6th grade and elect to continue, thus implying that children who reach this milestone are likely to remain for several more years with as many 16 year olds in this sample as 14 year olds. Additionally, there is evidence that most of the children who reach this milestone are likely on track with their education and experienced minimal interruptions to their education throughout childhood (e.g., There are only 16 and 17 year olds in 10th grade, particularly as the common starting age for 1st grade is 7 or 8 years old in this community.)

Research question 2

The second goal of the study is to identify vulnerabilities within the population with regard to educational trajectories.

Educational Trajectory Related Risk. Figure 1 shows the educational trajectory for each group of children in this study, including arrows which illustrate the most common paths children take at each juncture. These descriptive analyses show that if a child is in school, they more commonly continue attending rather than dropping out, but if they have dropped out of school they more commonly opt to not return than to return. Thus, keeping children in school is very important and dropping out is not inconsequential for their future likelihood of continuing their education. Interestingly, no children resumed school after dropping out if they had graduated primary school. Therefore, getting children to go directly into middle school is important; these patterns suggest that if they do not go directly into middle school directly after graduating, they are highly unlikely to go back to school. However, there are many children currently in school who are not considered on track (i.e., at the correct grade for age on age) but are still pursuing elementary school education (See Figure 10). In this community it seems that there is far less risk associated with falling behind in grade for a child's educational trajectory than dropping education completely.

Figure 21 shows that among those in school, there is an incredibly diverse range of ages in each grade, suggesting a very different classroom environment than is typical or expected in many developed countries. This pattern is clear even at the earliest grades of elementary school, and has significant repercussions for the framing of age and grade related interventions. It is not unusual for a single grade to have an age range spanning 7 years in the classroom. However, there is a pattern where the most common age progresses by one year with each grade, suggesting that there is some normative or expected age for each grade. Despite the diversity, the most frequently occurring age for

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first grade is 8 years old, the most common age for second grade is 9 years old, third

grade is 11 years old, fourth and fifth grade is 12 years old, sixth grade and seventh grade

is 13 years old, and eighth grade is 14 years old. When each grade is examined within a

three year age span, 65-88% of the total children in that grade are represented in that

window, with a mean across grades of 79.7%. The patterns increase incrementally: most

first graders are 7-9 years old, most second graders are 8-10 years old, most third graders

are 9-11 years old, etc.

Age Related Risk. Figure 17 illustrates the age patterns for membership in the key

educational trajectory groups. Among those who have never started school (Group 1),

most children are in the youngest age group of 7-9 years old. Among those who have

dropped elementary school prior to graduating (Group 2A), the majority are either 13-15

or 16-18 years old, whereas the majority who are still in school but haven't yet graduated

(Group 2B) are 7-9 or 10-12 years old. For those who have graduated elementary school,

the oldest group of 16-18 year olds are most likely to have dropped afterwards (Group

3A), whereas the 13-15 year olds represent the highest age group to continue education

after graduating (Group 3B).

Figure 18 shows attendance last year by age and highlights several key points.

The majority of children under 14 years old were in school last year. There were many

students who had not gone to school at age 7 and some who had not yet started at 8 years

old. There were also a few students at 7 and 8 years old who had started school but

dropped out. However, the data show that it is likely that these students who struggled

with school at the beginning eventually found there way into school as almost every 9-11

year old was in school. There is an increase in the number of children who were not in

school last year but had gone before (i.e., dropped out from education) at 12 years old and with the exception of 13, that risk increases over time. Nearly half of 14 and 15 year olds were not in school, and over half of children in later adolescence had dropped.

Figure 19 illustrates intention for attending the next year. There are more children aged 9-13 years old who state that they will not go to school next year than the data show who actually did not attend last year in this age range (Figure 18), suggesting that many children likely do return to school regardless of their intention to leave. There are similar patterns at every age where more children intend to drop out than to seem to actually not attend school. Thus, intention is not the only influence on educational attainment and the other influences seem to be promoting educational attainment, at least for some children. However, it is clear that intention to go to school is drastically reduced beginning at 14 and continuing throughout adolescence.   By examining figure 5 for those students who have dropped, it is clear that age 14-18 has the highest rate of children who are not in school. However, children drop earlier than 14 and thus at least some must be returning to school (See Figure 7).

Grade Related Risk. Figure 20 shows the number of students who dropped after completing a grade versus those who continued after completing that grade. There are relatively equal numbers of children who dropped after completing 1st-4th grade, with slightly more children dropping after completing 3rd or 4th. However, very few children drop after completing 5th grade. It seems that if children complete 5th grade they are very likely to continue to 6th grade. Clearly the most dropouts occur after 6th grade suggesting that elementary school graduation is a key educational milestone in this community and the likelihood of continuing after is very low. Interestingly, among those who do

continue after elementary school, their rates of dropping out are far lower and they are likely to continue and graduate middle school in 9th grade, where there is another increase among those who drop after completing that grade.

Among those who have graduated elementary school and are still attending school, 90% of the students are in middle school and only 10% are in high school (Figure 15). Interestingly, rates remain relatively the same for those in 6th, 7th, and 8th grade, so there is not much dropout occurring in middle school, and this pattern is confirmed in figure 10. In both figures there is a slight increase in students dropping after 9th grade (i.e., graduating middle school), or decrease in student attendance at 9th grade. Very few students in this community attend high school.

Gender Related Risk. A key exploration for this study was the gender related risks associated with educational trajectories in this community. There were few gender differences found in these results – membership in each educational trajectory does not differ by substantially by gender in meaningfully patterned ways. Figure 4 demonstrates that girls are slightly more likely to have not attended school, particularly at younger ages; families may be more likely to delay their daughters' start of education. Among those who have left school prior to elementary graduation, figure 5 shows that boys may be leaving school earlier but figure 6 shows that there are not clear age patterns by gender for dropping from school at any age. However, figures 11 and 12 show that after elementary graduation, there are more girls than boys who leave school after 6th grade and do not continue, and this pattern exists across almost all ages. Among those children currently in school, figures 8 and 9 show that there are relatively similar patterns for boys and girls attending elementary school, and surprisingly there is not much variation across

all ages from 7-18 years old or across grade. For those who have graduated 6th grade and are continuing, figures 15 and 16 show that there are more boys than girls across all grades and ages. Thus, this study demonstrates that there are not gender differences in elementary school attendance and dropout rates, nor are there substantial differences in the rate of graduation from 6th grade (see figure 3, group 3). There is evidence of some risk for girls after graduating from 6th grade in that they may be more likely to drop out of school and not continue with their education.

Results Summary

The first research question aimed to describe the educational trajectories in this community and their age, grade, and gender-related patterns. Even though this sample is substantial with 541 school-aged children in the community, many of the educational trajectories have a relatively small number of children, particularly when split by gender. This represents an interesting diversity in the educational trajectories afforded to children in this community. Examination across groups revealed very few gender differences, particularly for those in elementary school or under age 14. Further, most children are in school in this community (Group 2B and 3B, N=392). There are some children who never start schooling (Group 1) and some who are late to begin their education (Group 1B), but most children in this sample are attending elementary school (Group 2B, N=316) and the majority are under 14 years old (See Figure 8).

The second research question aimed to identify vulnerabilities in these educational trajectories within this community. Patterns across groups suggest interesting implications for the classroom and for the associated risks to a child's education. There is a significant risk for dropping from education across all grades, and

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this risk heightens significantly for adolescents, seemingly regardless of grade. Though many children are attending school, the classrooms are very diverse in that there are many ages represented in each grade. Thus it seems that many children are either dropping out and later returning to school or falling behind and repeating grades without having left. It is clear that graduating 6th grade is a milestone and a consequential marker for children in this community. Many children stay in school regardless of age until they reach this milestone, after which many children end their education. However, there are some notable exceptions who continue their education into middle school and beyond, despite the obstacles and the deviation from the educational norm.

Findings for research questions 1 and 2 revealed some key patterns in mapping the educational trajectories available to children in this community. Explanations and implications of important findings will be discussed, as well as how these findings inform our understanding of context within this community regarding the educational environment and the opportunities children experience.

Discussion

The purpose of this study was to better understand the educational landscape in this community to contextualize the educational options and experiences afforded to children and to identify possible vulnerabilities in these trajectories. Mapping the educational options allows for an understanding of the various social influences a child may have as they embark on their educational path and the expectations that may be held by their peers, parents, and siblings, both positive and negative. In addition, it allows for examining if there is evidence of broader social influences such as gender inequality on the educational lives of children in this community. In the discussion I will review the

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research questions and findings. Research question 1 was designed to address the educational trajectories in the community. The findings revealed the diversity of educational trajectories in this community, suggested some of the risks, and provided insights into why some children have not started school and why others experienced educational interruptions. Research question 2 revealed several important vulnerabilities regarding children's education in this community, including age-related risk, grade-related risk, and gender-related risk. Lastly, I will discuss the key contributions of the study, as well as limitations and future directions.

Diversity in Educational Trajectories

One of the most interesting findings concerns the many educational trajectory options used in this community, as illustrated in Figure 1. The educational experience of children in this community is very heterogeneous – though we begin with a fairly large sample of 541 children, the sample size of individual trajectories was in some cases quite small, particularly when split by boys and girls. One unexpected finding revealed through mapping the educational trajectories was that children in this community appear to be doing better than national averages (CIA, 2015; UNICEF, 2013). Only 4% of children have not been to school and most intend to go, whereas the vast majority (N=448) are currently attending elementary school (Group 2B) or have graduated (Group 3).

The diversity of trajectories suggest that this is a dynamic and complex educational environment. Dropping out is clearly a risk, both before and after graduation, and returning to education at some point appears to be a viable option for children in this community. In addition to preventing drop out, interventions can support children who

have dropped out in returning to resuming their education. This and other interruptions to education (e.g., repeating a grade) are made apparent in this study and implications of these will be discussed further. Lastly, the most obvious finding from mapping the educational context is also the most important – graduating elementary school seems to be the landmark milestone for children in this community. It is crucial to understand predictors for graduating from 6th grade as these students would be considered a success in this community.

Never Attended School or Late Starters

There are interesting implications identified in examining those students who have never gone to school. For roughly half the children in this group, the mothers reported that they will be starting school next year, making these children likely to be late starters rather than children who never attend school. As only 4% of children have never attended school, there are likely many factors that coalesce to encourage students to go to school in this community. Prior literature on rural low income communities suggests that there must be an availability and accessibility of schools (e.g., schools are geographically near; transportation options exist) that are relatively affordable (Little, 2010; Mehrotra, 2006). In addition, there may be a community norm that children generally are to be in school and specifically that young children should start school (Israel, Beaulieu & Hartless, 2001; Engle et al., 2011)

Among those who have never started school, it is important to understand these influences. Are these very rural isolated families (Israel, Beaulieu & Hartless, 2001), families delaying due to financial ability or other concerns related to limited resources (Little, 2010) such as child labor (Basu & Tzannatos, 2003) or is there an implication of

parental neglect (Isreal, Beaulieu & Hartless, 2001) or cognitive disability or delay for the child (Christianson, et al., 2002); these explanations would lead to very different intervention approaches. Nevertheless, it is critical in this community to ensure that the 7 and 8 year olds who are identified as likely to be late starters (i.e., their mothers stated that they intend to begin school next year) actually do enroll in school next year and thus reduce their risk of falling behind in education.   There seem to be some gender patterns in which girls are more at risk for a delayed start to their education, and investigating the patterns and processes that lead to children experiencing this educational trajectory is important to enhance our understanding of this community.

Interruptions to Education

Perhaps the strongest risk for children pursuing education in this community is the influence of the viability of dropping out of education, either temporarily or permanently. Though this study cannot fully probe that distinction, there is evidence in these trajectories of children who return to school after dropping out. I draw this conclusion tentatively, however, because the questions asked in the study only assessed if children are planning to return next year, not if they have left and returned previously. However, given the age-for-grade diversity (see Figures 10, 17, and 21) which will be discussed in depth in later sections, it is clear that many children are either being held back and repeating grades or dropping out from education and returning, either way posing an interruption to their education and to a smooth and steady path towards elementary school graduation. For those students who are still in school despite interruptions, they may possess a unique resiliency that allows them to overcome these barriers, and these resiliencies should be investigated in future research.

It is important to understand processes and explanations that influence a child's likelihood for dropping out of education, both before (Group 2A) and after (Group 3A) graduating elementary school. Prior research also suggests that there may be a gender component in low-income countries where boys feel pressure to earn money, thus leaving education to pursue work (Basu & Tzannatos, 2003), and girls feel more pressure to engage in child care or domestic work, thus leaving education to help their family with these obligations or to pursue marriage and child bearing (Engle et al., 2011; UNICEF, 2015). It is also important to understand community perceptions and reactions to this pattern. For example, if a child leaves education, do parents or other community members generally expect that they will return? Or is this rare and generally unsupported? Lastly, it is important to understand the influences on a child's likelihood to return to education after dropping out prior to graduating elementary school (Group 2Ai). Interestingly, no children intend to return to school after dropping out if they have already graduated elementary school, suggesting that graduating elementary school is significant milestone and a marker of success, and that there may be limited pressure to continue education after graduating in this community. One unexpected finding is represented in figures 18 and 19; it appears that the ratio of children who went to school last year versus did not go to school last year is larger than the ratio of children who plan to go next year versus plan to not go next year – that is, it appears that more children intend to drop out than actually do drop out. It is important to note that this data is reported by moms and thus moms are answering the question "Will your child attend school next year?" This illustrates that there is some community norm or general encouragement that children attend school rather than dropping out, despite stated

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intentions or plans that they might drop out. It may be that there are children who want

to attend school and are able to influence their parents' plans for their education or it may

be that even though children may want to drop out, they are ultimately prevented from

doing so. Further exploring this potential phenomenon would provide valuable

information for understanding the processes that affect interruptions to a child's

education.

Age- and Grade-Related Risk

I hypothesized that the classrooms would be very diverse with regard to age and

grade and this was confirmed. There are many ages represented in each grade and there

are both young children and adolescents in many grades in elementary school. Given

this, there is still an age-for-year progression pattern where over half the children fall

within a three-year age span in each grade and this pattern progresses such that the peak

age is one year older for each grade. Thus, it may be that there is some community

standard or expectation that children are in a particular grade around a certain age, though

this is certainly less rigid than in many high-income countries with developed educational

systems (Pagani, et al., 2001).

The findings suggest that age patterns are loosely associated with grades in this

community. Most children in school are under 14 years old in this community, and most

adolescents in this community are not in school. As children approach adolescence, the

risk for dropping out increases. There may be lower community expectations that

adolescents continue with their education and these adolescents may also experience

shifting norms where fewer of their peers are in school. This speaks to different

intervention needs depending on age; when young children drop out of education,

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interventions may support their returning with little violation of community norms, whereas this may not be the case for adolescents, particularly if they are returning to elementary school.

The findings provide insights into how risks are associated with particular grade levels. Children appear to be at equal risk for dropping out in 1st through 4th grade, and efforts should be devoted to retaining children across each of these grades with relatively equal fervor. It is important to consider that though the risk is present across all four grades, reasons for dropout and patterns contributing to dropout may differ for each of these grades. For example, prior research has shown that for some parents, being able to read and write is the primary goal of education (Boyden & James 2014; Anderson & Minke, 2007) and once this is achieved, parents may allow children to drop out of education. Thus, it is possible that this may influence dropout around third and fourth grade but dropouts in 1st or 2nd grade may be more influenced by other factors such as finances or health, among others (Engle et al., 2011). Once a student in this community reaches 5th or 6th grade, their risk of dropping out becomes less and they are more likely to graduate elementary school (see Figure 5). Even though costs must be relatively the same for the latter grades as they are the former, there appears to be more perceived value or commitment to continuing education to completion once students are approaching graduation. This is a topic worth of future exploration.

Lastly, there are clear interconnections between age and grade risk that are important to consider. While the majority of children in each grade fall within a certain age range, it may be that children who fall outside of that age range are at particular risk for experiencing educational interruptions. The diversity of ages in the classroom

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presents interesting implications, both positive and negative. There is a pattern of resiliency in this community where if a child is late to start or experiences an educational interruption, they can likely resume their education without violating community norms or feeling out of place. This is a substantially different experience than that of children who repeat a grade in high-income countries with very tight age-for-grade expectancies (Pagani et al, 2001).

However, this diversity does introduce a complexity within the classroom. Teachers must adapt to children frequently entering and leaving the educational system and they must educate many ages in one grade, leading to complications for physical and intellectual ability, maintaining attention spans and interest for young children and adolescents on the same educational topic, and classroom management and behavior of a wide range of ages. One interesting manifestation of this may be that parents are more likely to delay their young children's start of education if they know that many older children will also be in first grade, posing more physical risk to their children. Though these implications are simply speculation, it is clearly important to further understand how the age and grade risks as well as the interconnection of these influence a child's educational trajectory in this community.

Gender-Related Risk

I hypothesized that there may be significant gender differences in the educational trajectories of children in this community, given that Guatemala is known to struggle with issues of gender inequality (UNDP, 2015) and that the educational rates for indigenous girls in Guatemala show particular risk compared to children in urban areas in Guatemala and to their indigenous male peers (UNICEF, 2013). Further, I suggested that

there may be more gender equality in younger grades and less so in later grades given that girls graduate from elementary school at lower rates than boys both in Guatemala and worldwide (UNICEF, 2015).   However, this gender-risk was not illustrated in this community at the levels that prior research would suggest. Boys and girls were found to be represented with relatively equivalent frequencies across educational trajectories prior to and including elementary school graduation. However, after 6th grade, there are slightly more girls than boys who leave school and more boys who continue their education.

Thus it is crucial to understand the community-specific influences that are enabling girls to be unaffected by expected barriers to their education – either these barriers do not exist in this community (e.g., gender inequality is not the problem here as in other places in Guatemala) or there are resiliencies specific to this community that prevent these barriers (e.g., existing beliefs about gender inequality) from influencing the elementary school education of their girls. It is important to consider that though the final outcomes may be similar in that boys and girls are both graduating elementary school, the processes influencing their likelihood for dropping out and/or continuing education may be different, and this may affect the quality of interventions. For example, if pressures such as pursuing work to contribute financially to the family causes drop out among boys, whereas pressures to help with child care and domestic work causes drop out among girls (Basu & Tzannatos, 2003; Edwards, 2002), addressing each of these is important to promote educational attainment in the community, despite the fact that boys and girls drop out at relatively equal rates. Further, the importance of education may be valued differently for boys and girls. Do parents value education for the same reasons

when considering their male and female children? Parents' perceptions of the importance of elementary school education for pursuing a job has been shown, though it may be that this is less important to parents of girls who may not have that goal for their daughter – that she develop the ability to earn an income to support the family. If this is true, what are parents' perceived values of an elementary school education for their daughters in this community? Future research should examine how the importance of education differs for parents of boys and girls and if this is reflected in their goals for their children's education as well as parents' goals for their daughters and sons more broadly (e.g., what they hope for their future work and future family and how education might support that).

In summary, it is very encouraging to see that there are not gender differences in the elementary school educational trajectories in this community. However, the absence of differences by gender does not negate the importance of exploring gender-specific processes and influences that may impact the educational attainment of elementary school for children. In addition, these processes may be particularly important after elementary school where differences in educational attainment for boys and girls begin to become apparent in this community.

Key Contributions

This study provides an important community-level investigation of educational attainment, particularly compared to the expectations for educational attainment of rural Guatemalan children as found in larger international studies (CIA, 2015; UNICEF, 2013). Findings highlight the importance of mapping the educational context within a community as these differ from more global predictions (e.g., children are attending elementary school at higher rates than expected in this community; gender differences

were not found as expected), and the necessity of conducting this detailed level of context-based community research prior to introducing interventions that attempt to improve educational attainment. For example, it is crucial to understand that, for children in this community, graduating 6th grade is a key milestone and a marker of success; in fact, it may be the main goal parents have when they consider the educational future of their children. As many interventions aimed at improving international child development are criticized for their lack of community and contextual applicability, this study advances a detailed approach to understanding the educational trajectories afforded to children in this community and highlights areas that must be explored further.

Limitations

Though this study makes important contributions, it is not without limitations. One key concern is that it does not highlight past interruptions. Given the age-for-grade diversity, it is clear that many children have experienced either dropping out and returning to education or being held back and repeating a grade. While the study asks about intentions to return the following year for those who have dropped out, it does not incorporate prior history in the current trajectories – specifically, all children who are currently in elementary school are represented in one group (Group 2B) and there is no distinction between those who are on-track for age and have never left or repeated a grade and those who have experienced these interruptions and show particular resilience in their pursuit of elementary education.

Similarly, it is important to consider the standards for progressing to the next grade and for graduating elementary school. This study does not account for the idea that progressing may simply be attending without rigorous examination of skills achieved,

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and indeed graduating may be a culmination of the ability to pay for and attend school for six years, as has been suspected some communities (Barro & Lee, 2001). In addition, it important to consider that this is only one point in time in a historically rich and complex changing environment with regard to educational opportunities, and thus our understanding of the educational trajectories available to children as well as the processes that promote or inhibit educational attainment are quite contextually bound.

Future Directions

In the future, researchers should seek to understand the specific influences that account for membership in each of these educational trajectories in this community. What are the causes that lead students to fall into each educational group and how are these processes occurring in the lives of children? What are the causes of drop out and what enables children to resume their education? What predicts successfully graduating from elementary school and what are the barriers these children are resilient against? Surely children transition between these groups, possibly several times over the course of their education. What are the effects of these interruptions and how do families negotiate these transitions?

The influences on children's educational trajectories occur within a complex and changing community context. As discussed in the dissertation introduction, Guatemala has experienced substantial social, economic, and political change as well as educational reform in the past several decades (Cuxil, 2002; Edwards, 2002). Future research should investigate the effects of these changing historical contexts on the educational attainment of children in this community. For example, the group of measured in this study likely has very different outcomes and experiences compared to their parents' generation.

Mothers in this community have relatively low educational attainment (Salanic Gomez, 2006) and the purpose of attending education was typically to learn to read and write; thus most mothers left elementary school after basic literacy was established in 3rd grade (M. Morales Perez, personal communication, April 2015). However, it seems that the purpose of elementary school education has shifted for this group of children beyond basic literacy, but the meaning and importance given to graduating 6th grade must be examined. There may be perceived benefit to receiving a diploma that is useful for pursuing employment, or it instead may still be based on the achievement of a basic skill set as it has been for previous generations.

This study provides a mapping of the educational trajectories in a community in rural Guatemala in order to begin to understand the context affecting children's educational attainment, with a particular focus on patterns in elementary school. This and future work must consider the specific community context within a broader understanding of factors that impact educational attainment for children in rural communities in low income countries such that international development efforts will promote effective interventions that successfully improve children's educational attainment globally.

Figure 1. Map of Educational Trajectories
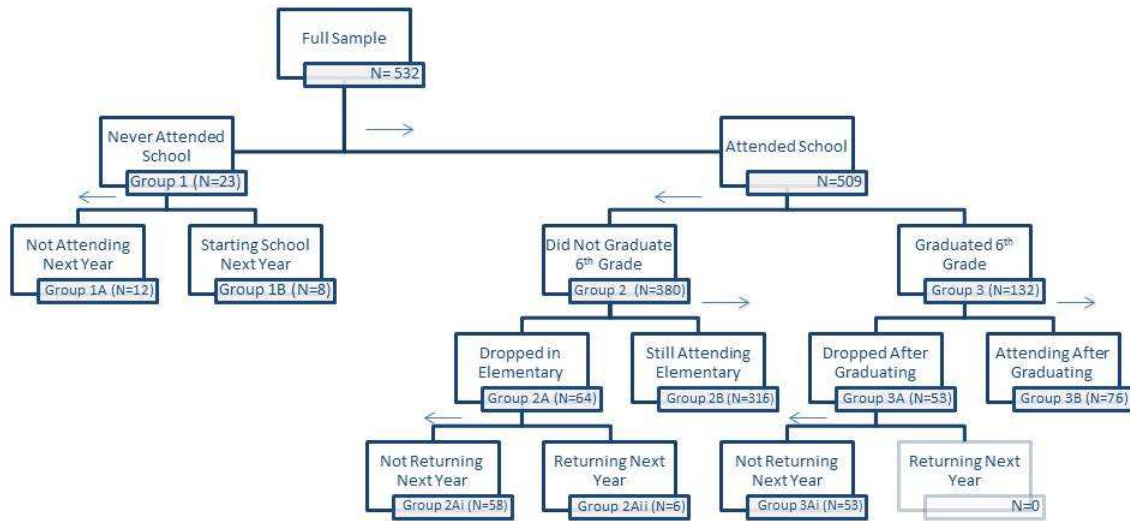
Figure 2. Frequencies for age across the full sample, by gender.
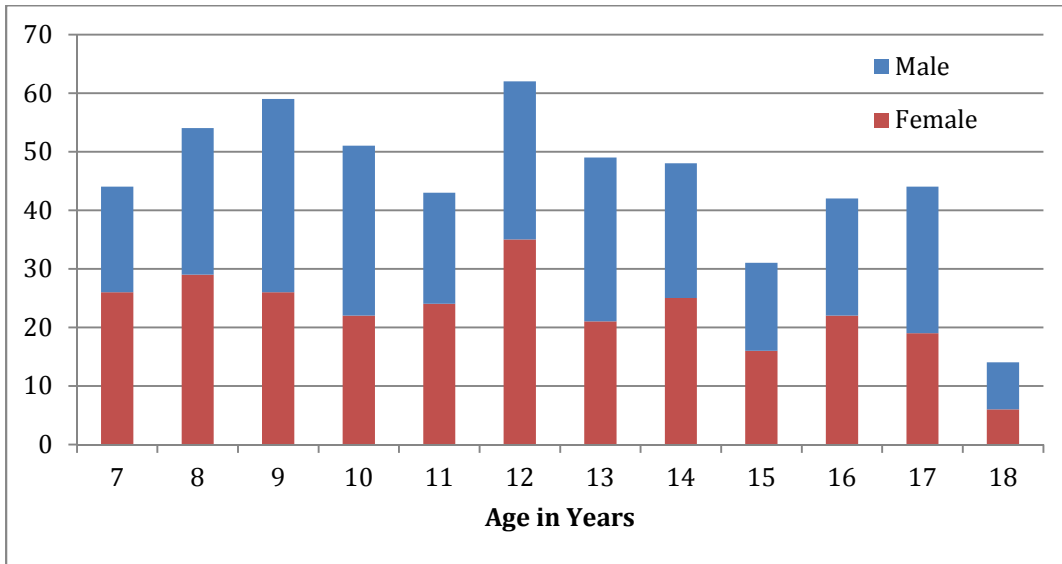
Figure 3. Frequencies for each educational trajectory group, by gender.
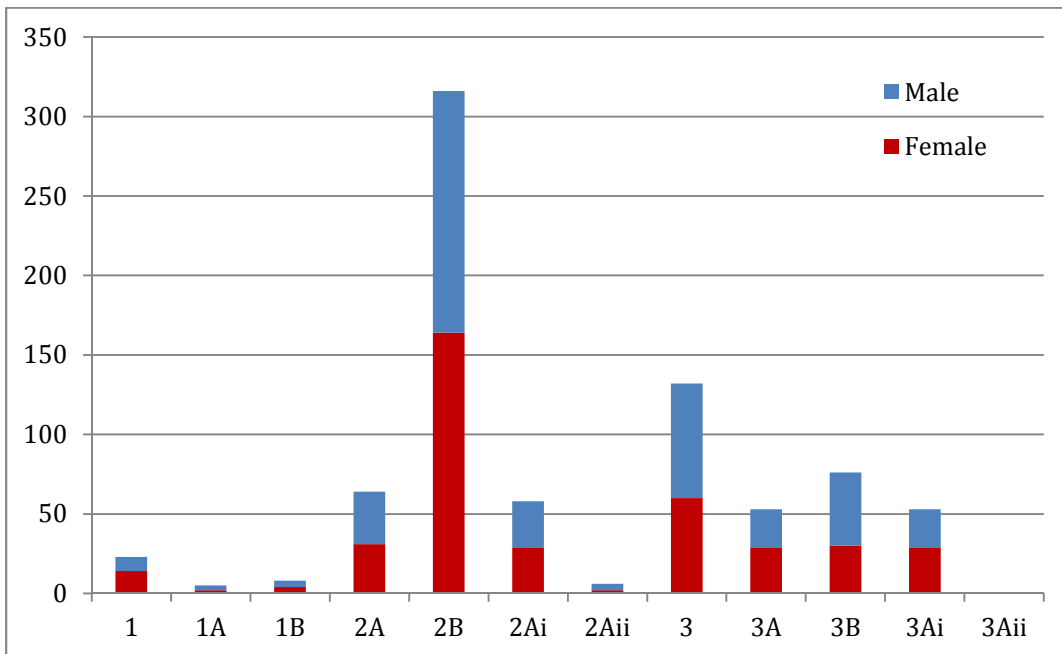
Figure 4. Group 1: Frequencies for children who have never attended school, by gender.
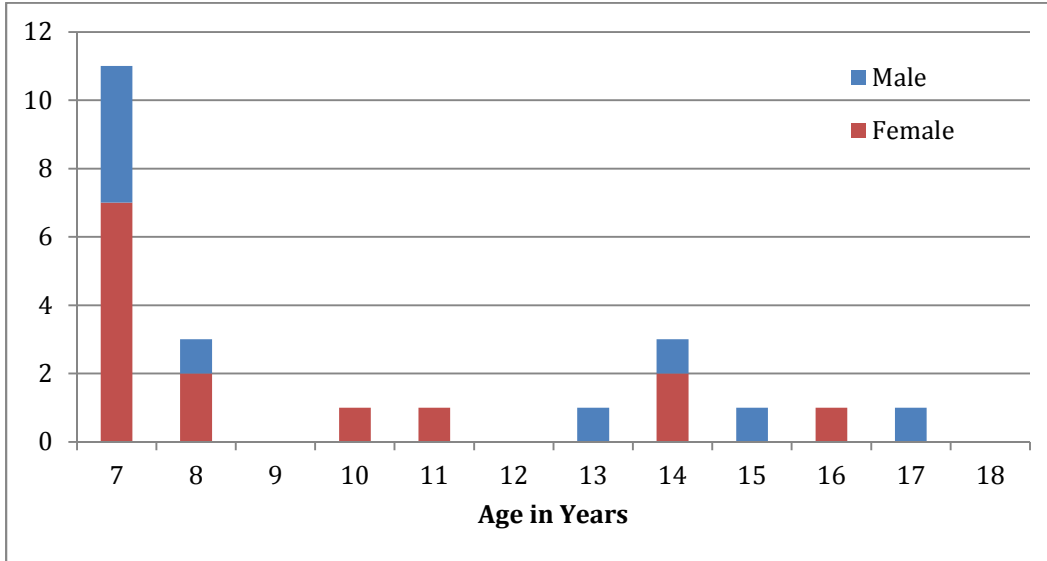
Figure 5. Group 2A: Among children who dropped out of school prior to graduating 6th grade, frequencies for the final grade they attended and left during, by gender.
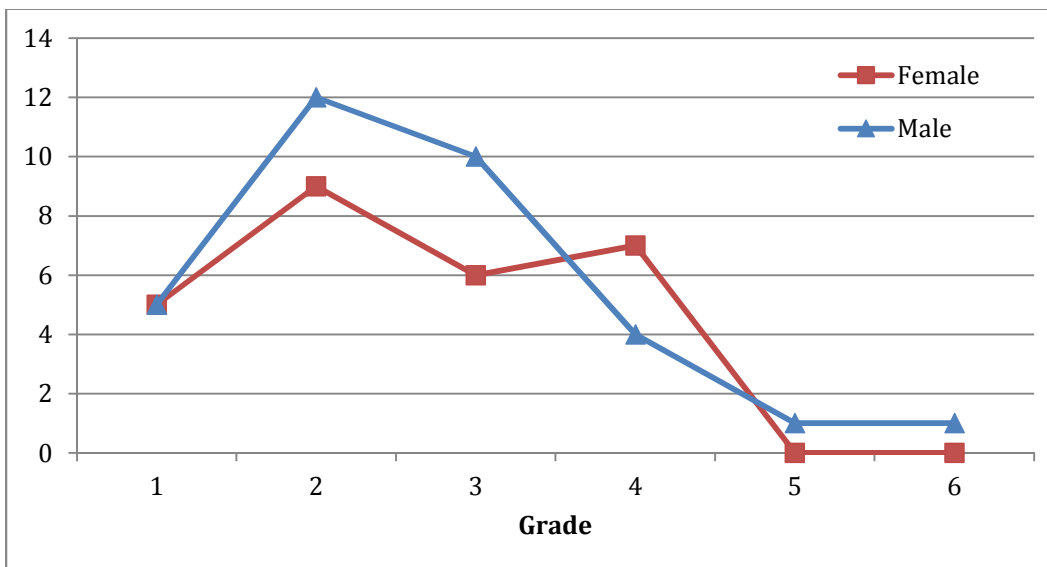
Figure 6. Group 2A: Current age among children who dropped out of school prior to graduating 6th grade, by gender.
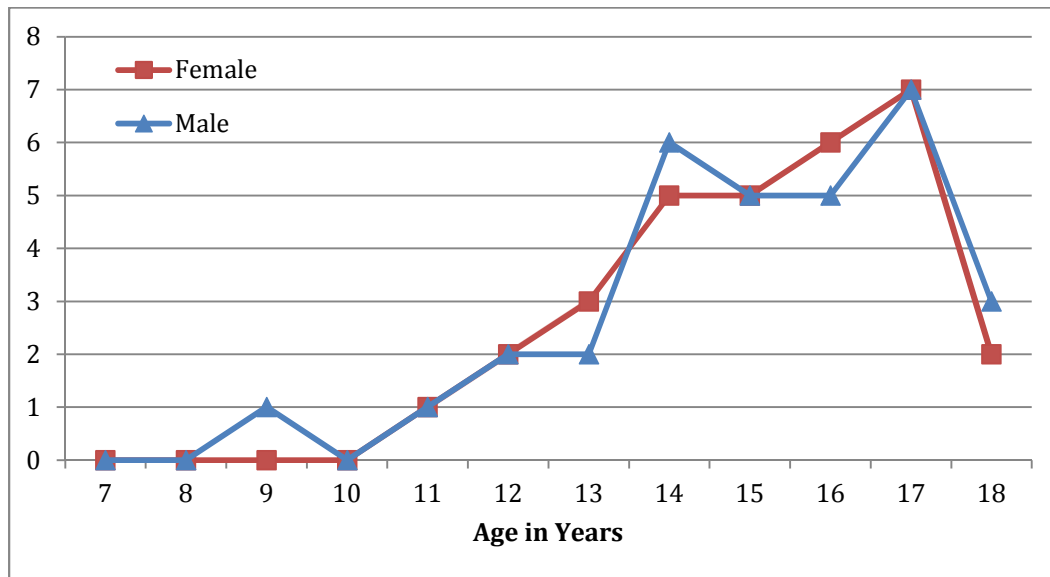
Figure 7. Group 2A: Current age among children who dropped out of school prior to graduating 6th grade.
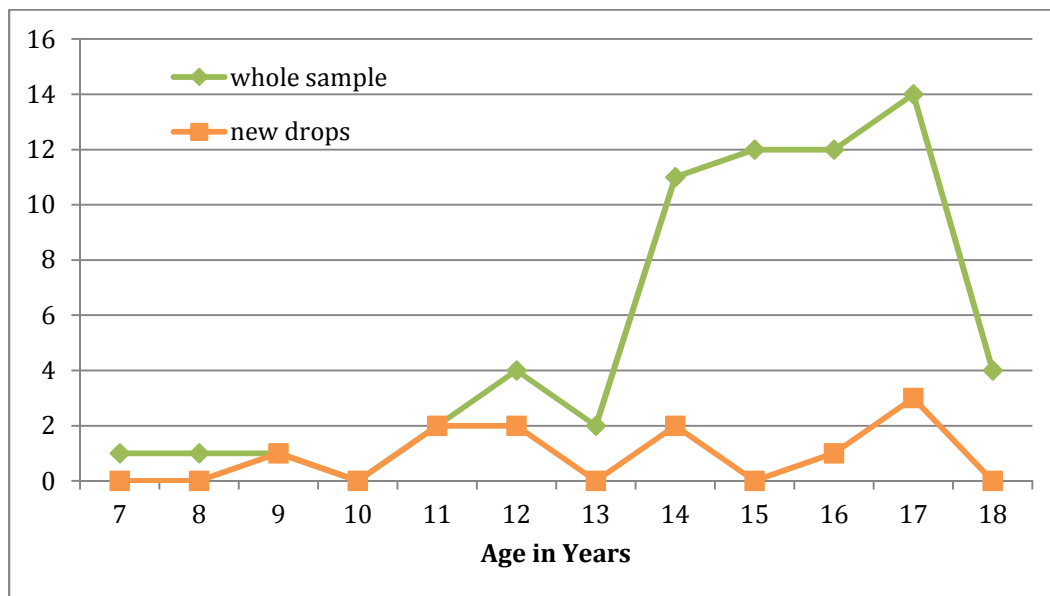
Note that the Whole Sample line reflects the current age for children in this trajectory, not necessarily the age they were when they dropped out of school. The New Drops line is the current age of students who dropped last year, thus we can interpret their age when leaving.

Figure 8. Group 2B: Current age among children in school but not yet graduated from 6th grade.
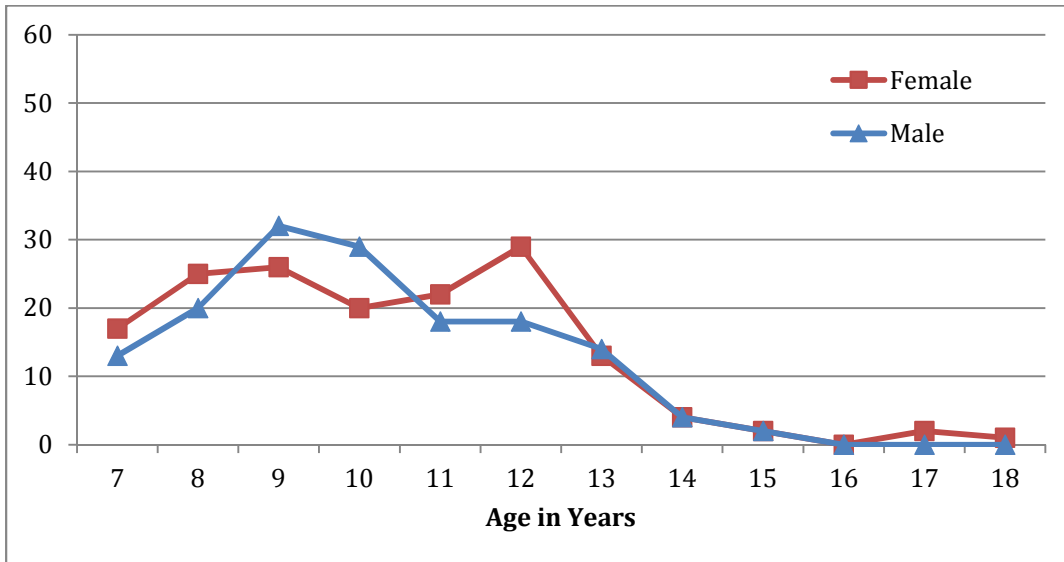
Figure 9. Group 2B: Last grade completed among children in school and not yet graduated.
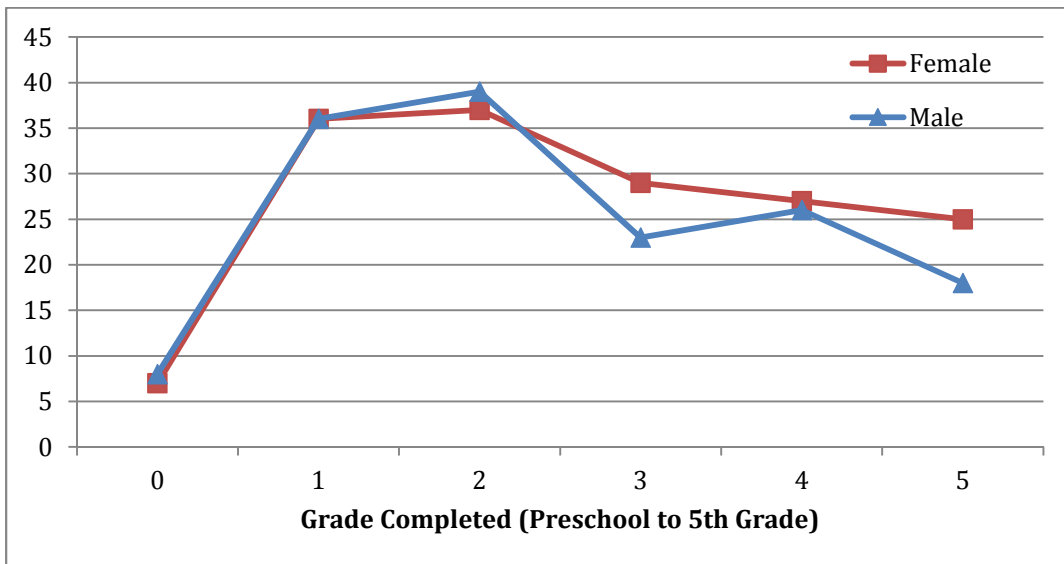
Figure 10. Group 2B: Current age and last grade completed among children currently in school.
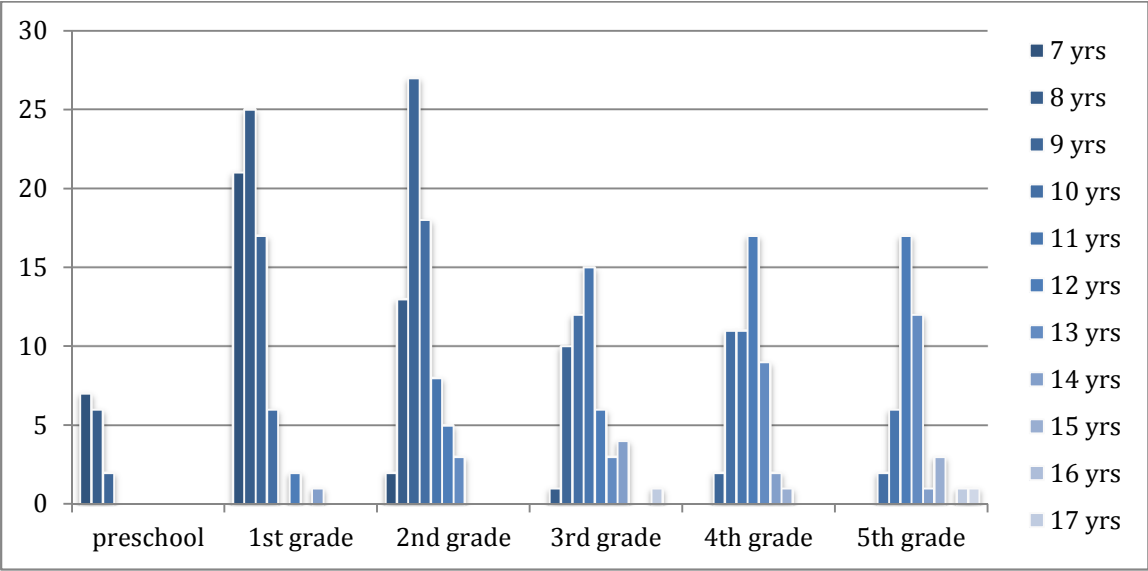
Figure 11. Group 3A: Last grade completed prior to dropping after graduation, by gender.
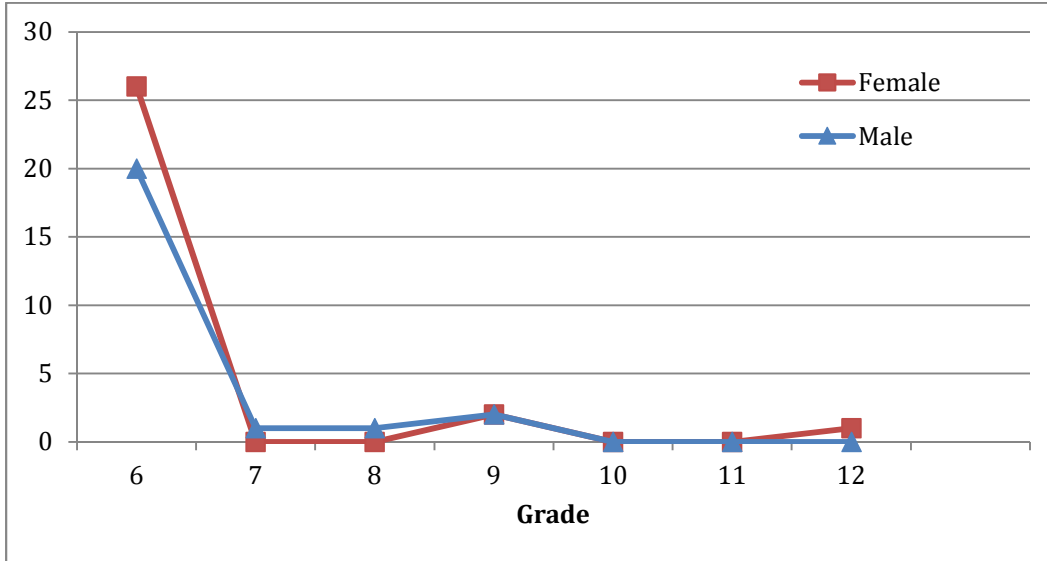
Figure 12. Group 3A: Current age of those who dropped after graduation, by gender.
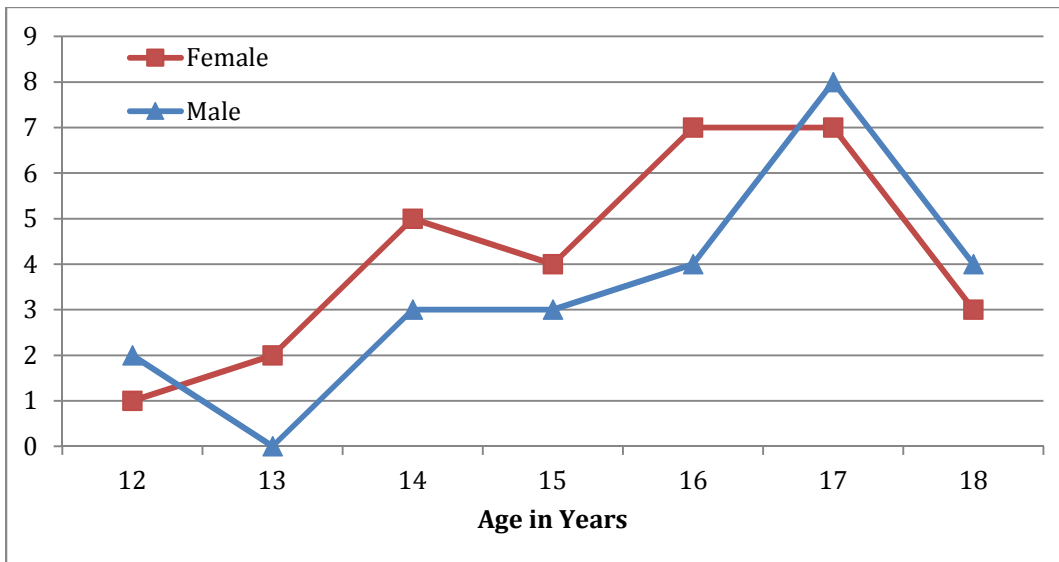
Figure 13. Group 3A: Current age of those who dropped sometime after graduating 6th grade.
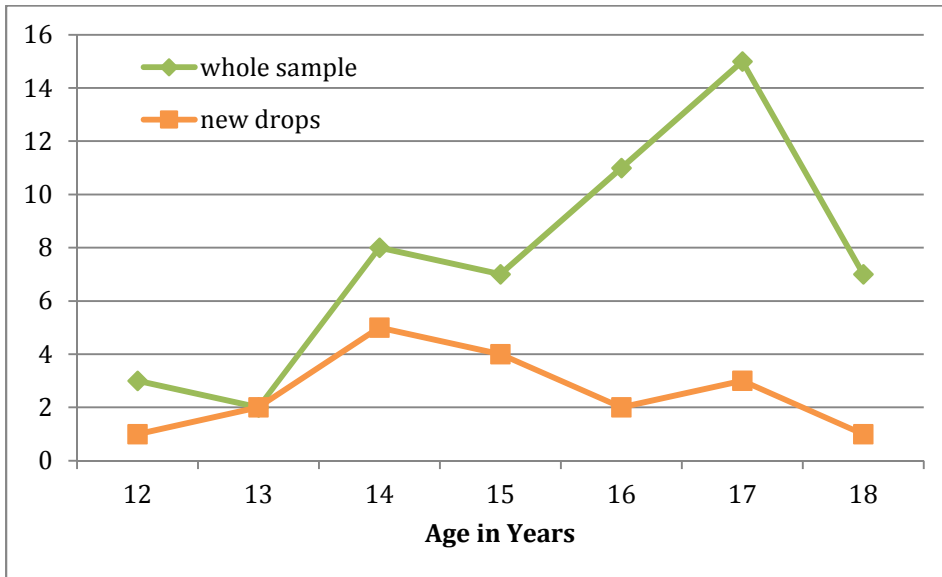
Note that the Whole Sample line reflects the current age for children in this trajectory, not necessarily the age they were when they dropped out of school. The New Drops line is the current age of students who dropped last year, thus we can interpret their age when leaving.

Figure 14. Group 3A: The age and grade of those who graduated but dropped last year.
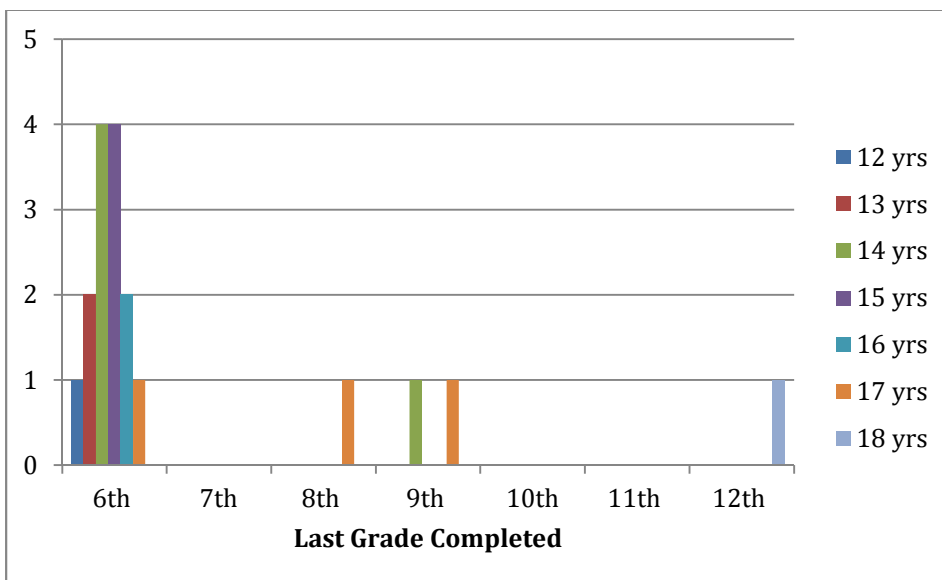
Note that we can interpret that this was the age when they dropped that grade.

Figure 15. Group 3B: Last grade completed for those graduated and currently in school, by gender.
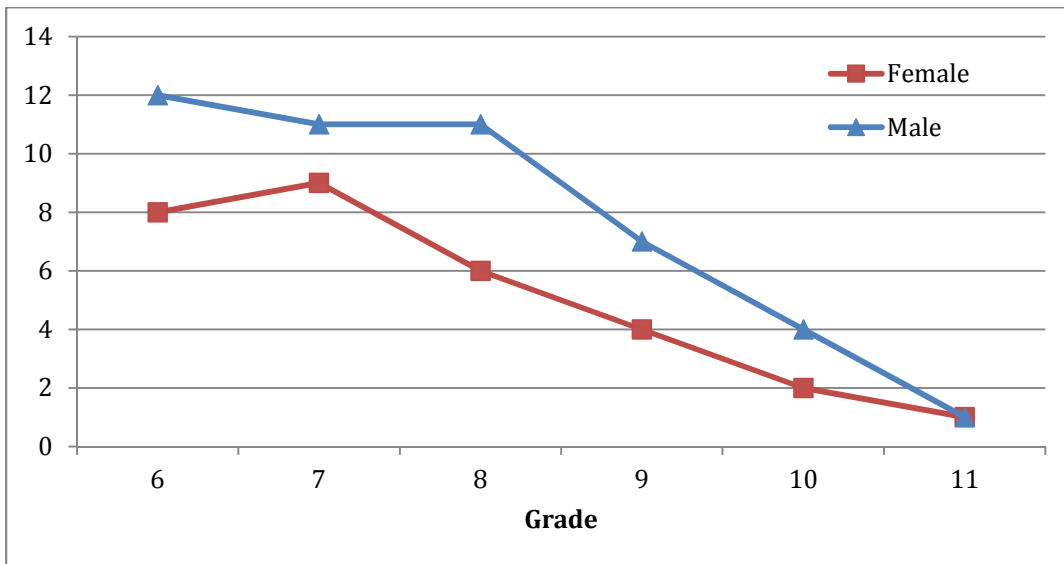
Figure 16. Group 3B: Current age for those graduated and currently in school, by gender.
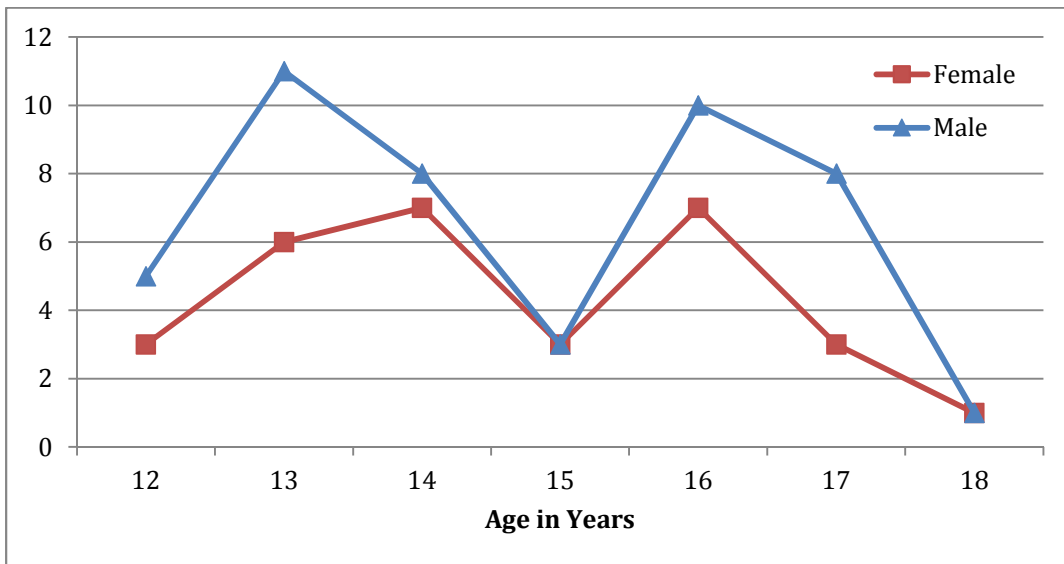
Note there are fewer 15 and 18 year olds in the sample as a whole.

Figure 17. Group 3B: Current age and grade for those graduated and still in school.
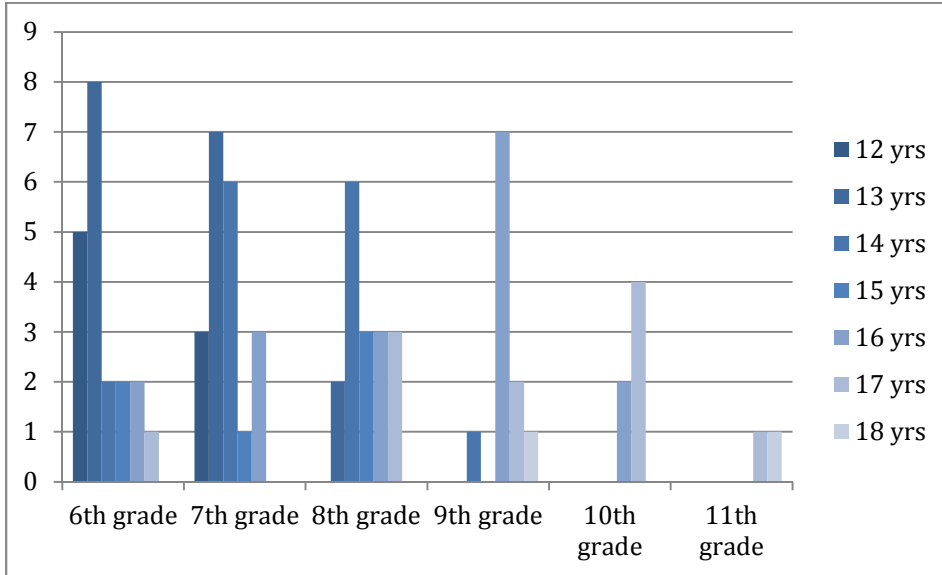
Table 1. Age-Related Risk: Frequency by Age for Group

Age-related Risk: Frequency by Age for Group

	7-9 year olds	10-12 year olds	13-15 year olds	16-18 year olds
Groups				
1	14	2	5	2
2A	1	6	26	30
2B	133	136	39	3
3A	0	3	17	33
3B	0	8	38	30

Figure 18. Age Related Risk: Attendance last year by age.
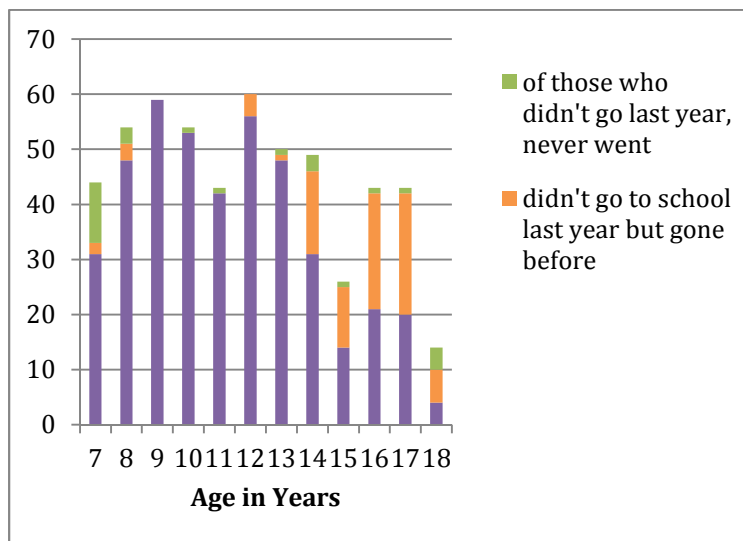
Figure 19. Age Related Risk: Intention to attend school next year by age.
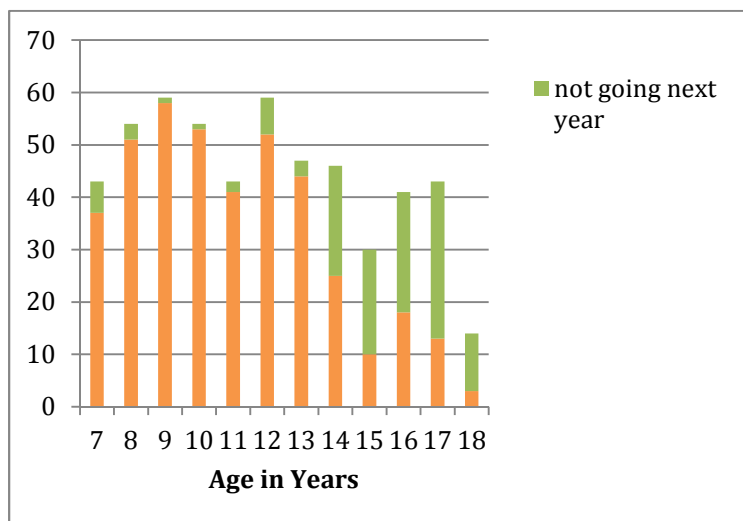
Figure 20. Grade Related Risk: Frequency of educational outcome by grade.
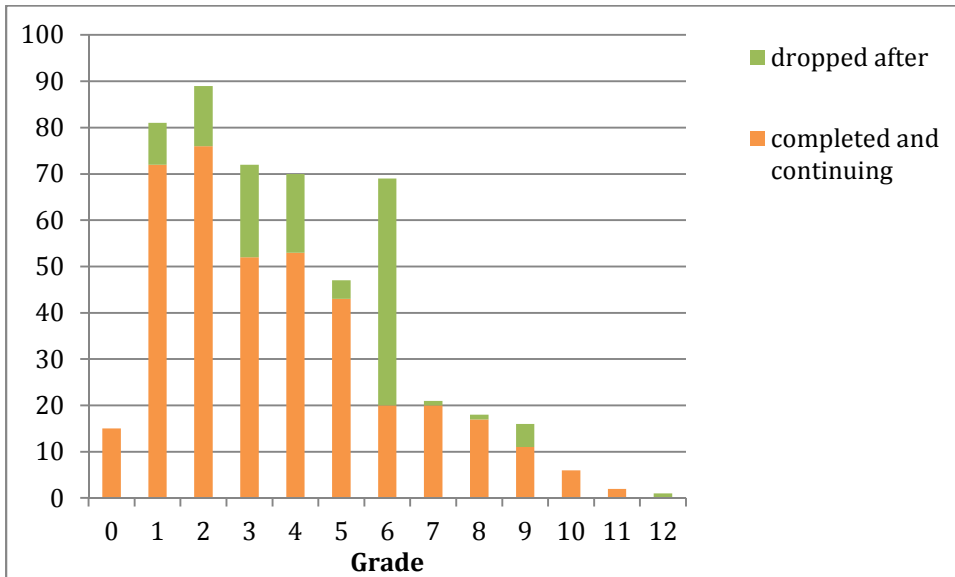
Figure 21. Grade Related Risk: Diversity of ages in the classroom among those in school.
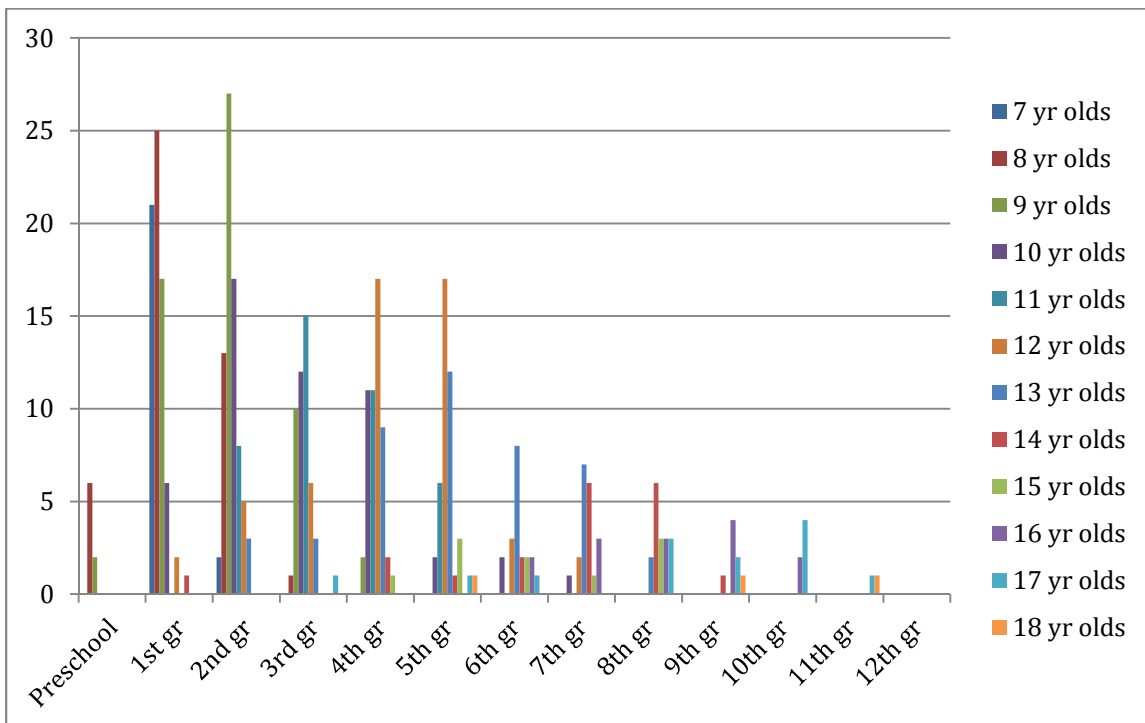
Study 2: The Influence of Maternal Factors on a Child's Likelihood of Graduating Elementary School in Rural Guatemala

The second study was designed to examine the influence of maternal factors on children's elementary school educational attainment. Processes of poverty and its influences on education in the developing world are widely studied and fairly understood (Edwards, 2002; UNDP, 2013). However, the goal here is in understanding the maternal factors that may influence elementary school attainment in a poor rural village in Guatemala, above and beyond typically measured indicators of poverty. This approach allowed us to identify malleable processes that can be more easily intervened upon – the maternal level factors that may influence a child's likelihood to graduate from elementary school.

The research questions in this study were selected based on findings from the first study as well as previous literature. This study expands on the previous study by considering another influence on the child's environment, the educational beliefs of the mother. One preliminary finding from study 1 is the importance of graduating elementary school for this sample. Many children drop out prior to graduating elementary school, and thus it is pertinent to understand predictors that influence the likelihood of dropping out versus graduating from elementary school. Furthermore, in study 1, I found that boys and girls in this community graduate or drop out of elementary education at relatively equal rates, though gender development literature suggests that the processes and mechanisms of influence may differ for boys and girls in the community.

By understanding the maternal level factors or proximal processes that influence a child's likelihood of dropping out of school before completing elementary school compared to children who do successfully graduate, I can better inform future work to improve educational attainment. Both maternal involvement in education and maternal beliefs about the utility of education can be areas where focused efforts can be targeted. These maternal factors are potentially more malleable than distal influences such as socioeconomic status. This model highlights the predictive utility of these maternal factors above and beyond poverty and health indicators and may be useful for identifying areas of possible intervention. In addition, understanding how these influences may differ for boys and girls is of utmost importance, particularly in a country that struggles with gender inequality. If we are to improve education for all children we must understand how these influences are delivered through a gender development lens, as maternal influences on education may be very different for boys and girls.

Theories of maternal influence. The importance of maternal influences on a child's development are highlighted in Bronfenbrenner's Bioecological Model (Bronfenbrenner, 1986; 2006). Development occurs through proximal processes of interactions between the individual and the environment, and socialization from parents was particularly relevant to the developing child. Bronfenbrenner's processes have also been explored with regard to low socioeconomic status and poverty (Hoff, Laursen & Tardiff, 2002; Bornstein & Bradley, 2014) suggesting that maternal factors and family processes are particularly important to understand in at-risk populations. Ecological systems perspectives have been widely applied to educational attainment both in the United States

(Biblarz & Raftery, 2010; Ginther & Pollak, 2004) and internationally (Duncan, Brooks-Gunn & Klebanov, 1994; Gakidou, Rowling, Lozano & Murray, 2010).

Eccles (1983) Expectancy-Value Theory proposes clear pathways for maternal influence on a child's academic outcomes. It proposes that the cultural milieu, including gender role stereotypes and cultural stereotypes, influences educational choices (Wigfield, Tonks & Eccles, 2004). This model also suggests that parent's beliefs, expectations for their child, and behaviors directly influence their child's achievement-related choices (Eccles, 1983; Eccles & Wigfield, 2002). Although Eccles' model strongly supports the child's own interpretations of their parents' beliefs and actions, as well as the child's own attributions and abilities, this paper focuses on the specific influences of the mother's educational history, her beliefs and her behaviors on a child's educational achievement.

Maternal influences on education. Examining the influence of maternal factors may be key in understanding a child's educational environment and how that may affect their educational attainment. This study considered five maternal influences that have been well discussed in the literature, particularly as they relate to a child's educational attainment both in the United States and internationally. An increase in each of these five influences listed below has been found to relate to an increase in a child's educational attainment: maternal education (Bradley & Corwyn, 2002; Boyle et al., 2006; Magnuson, Sexton, Davis-Kean & Huston, 2009; Suizzo & Stapleton, 2007), maternal literacy (DeWalt, Berkman, Sheridan, S., Lohr, & Pignone, 2004; Sénéchal & LeFevre, 2002), maternal belief about the importance of education (Berger & Riojas-Cortez, 2000; Goodman & Gregg, 2010; Hoover-Dempsey & Sander, 1995) maternal beliefs about

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expectancies for the child's education (Chrispeels & Rivero, 2001; Garcia Coll, et al., 2002; Grolnick, 2016), and maternal involvement in a child's education (Anderson & Minke, 2007; Davis-Kean, 2005; Dearin, McCartney, Weiss, Kreider & Simpkins, 2004; Hara & Burke, 1998).

The Influence of Child Gender on Maternal Beliefs and Interactions

Mothers have been identified as influential socializers of gender development (Blakemore, Berenbaum & Liben, 2009; Leaper, 2005; Martin & Ruble, 2010; Raley & Bianchi, 2006). Research suggests that mothers hold different expectations for their boy and girl children (Bleeker & Jacobs, 2004), talk about academics differently depending on the gender of their child (Crowley, Callanan, Tenenbaum & Allen, 2001; Tenenbaum & Leaper, 2003), and have differing levels of educational involvement (Wigfield, Eccles, Schiefele, Roeser & Davis‐Kean, 2007). These patterns may be further heightened in countries that are considered less gender equitable (Fuwa, 2004). For example, if the societal norm does not allow for higher education and work force involvement for females, but expects work force involvement for males, it is reasonable to assume that mothers may have differing expectations for their child's education based on their child's gender (Cunningham, 2001; Seguino, 2000). Further, there is evidence that many gendered messages and social norms are discussed, supported, or negotiated by parents within the home (Fagot, 1995; Fagot, Rogers & Leinbach, 2000). Thus, exploring maternal influences on a child's education may lend particular insight into the gender disparities in educational attainment for rural children in a developing country.

Covarying factors on child's educational attainment. Past research suggests two categories of covarying factors that are commonly measured in international research on

educational attainment and that would be particularly relevant for this investigation. The first category is the health in the family including psychological and physical health and the second captures indicators of poverty.

Physical and mental health. Physical and mental health have been associated with an array of developmental outcomes (Bornstein & Bradley, 2014; Bradley & Corwyn, 2002). This study incorporated measures of both psychological and physical health of the mother and child, with substantial evidence that health of the child and the mother have been linked to educational outcomes of the child (Barro & Lee, 2001; Engle, et al., 2007; Kataoka, Zhang & Wells, 2002; Stigler & Hiebert, 2009). Recent findings have noted the importance of maternal depression, noting very high rates in low- and middle-income countries with implications for family and child health and adjustment (Wachs, Black & Engle, 2009). Questions were asked regarding how often the mother is sick, how often the child is sick, how often the mother is sad, the relationship quality between the mother and father, and alcohol abuse in the family. Each of these is considered an important indicator of health in the World Health Report on Mental Health (World Health Organziation, 2001) and is relevant to this population in rural Guatemala.

Poverty. The second category of covariates considered that are commonly measured in international research on educational attainment is socioeconomic status of the family, or measures to capture poverty. Poverty is often used as a control in domestic and cross-cultural studies (Besharov & Couch, 2009; Brandolini, Magri & Smeeding, 2010; Couch & Pirog, 2010; Paulus, Sutherland & Tsakoglou, 2010), particularly in those incorporating gender inequality (UNPF, 2000; WEF, 2009).

Extensive scholarship has examined the effects of socioeconomic disadvantage on children's education (Bradley & Corwyn, 2002). Work exploring the factors that promote educational resilience in developed nations points to individual-level (e.g., maternal health and child socio-emotional well-being) and family-level protective factors (e.g., stable relationships (Waxman, Gray & Padron, 2003). Numerous studies have also found that poverty and low parental education are associated with low academic attainment in the developed world (Duncan et. al., 1994; Boyden & James, 2014). Many studies link increased socioeconomic disadvantage with decreased educational opportunities in the United States, leading to poorer earnings, health, and psychological adjustment outcomes (e.g., Gang & Zimmerman, 2000; Portes & Hao, 2004).

There has also been important opportunity for cross-cultural comparison work relating socio-economic disadvantage and school attainment (De Graaf, De Graaf & Kraaykamp, 2000; Solon, Page & Duncan, 2000). In lower-income countries, higher school attainment has been linked to better intergenerational outcomes such as better child health, lower fertility and higher earnings, but more research is needed (Barro & Lee, 2001; Boyden & James, 2014). Prior research on Mayan families suggests that low family income contributes to poor academic outcomes (Yount et al., 2013). Further identifying and understanding the factors that promote children's education despite very limiting social and economic circumstances is critical for informing policy and intervention to improve the educational opportunities for youth and the quality of life across generations, both for indigenous children in Latin America and globally.

Townsend (1979) argued that poverty is a multidimensional construct and that being poor is being excluded from the ability to participate in normal aspects of social

life in your own country and proposed that income poverty should be measured relative to others in your own country. Both the European Union and the United States governments measure poverty with this framework, although it is sometimes adapted to be relative to those in the broader community rather than a strictly country level comparison (Burkhauser, 2009; Couch & Pirog, 2010).

In considering past research, this study incorporated measures of poverty including if the family has enough resources to provide for basic needs (e.g., food, clothing). Rather than adapting a standard income level and asking where the family lies on the spectrum, this study is designed to explore how the family interprets their level of poverty and need relative to the community and their life goals. In this study, I assessed poverty in terms of material hardship, including access to water, electricity, warm clothing, food, and basic housing needs. This incorporated a multidimensional approach to poverty that was broader than the simple availability of money roots the indicators in community importance. This study also incorporated common risk factors for poverty that have been linked to children's educational attainment including the mother's age at first birth (Duncan & Brooks-Gunn, 2000; Walker et al, 2007) and the total number of children in the family (Black, Devereux & Salvanes, 2005).

Research question 1. Do maternal factors regarding education (i.e., maternal education, maternal literacy, maternal belief about the importance of education, maternal belief about expectancies for the child's education, and maternal involvement in a child's education) predict a child's likelihood to graduate from elementary school versus dropping out prior to completing elementary school, controlling for poverty and mental and physical health?

Hypothesis 1: I expected that there would be a strong positive influence of each of these maternal factors on a child's elementary school attainment, above and beyond the typically studied influences of mental and physical health of the child and family and socioeconomic factors (Bornstein & Bradley, 2014).

Research question 2. Are the five maternal factors different for boys and girls? That is, are the processes by which these maternal factors predict graduating from elementary school versus dropping out different for boys and girls? While the first study has shown that boys and girls graduate elementary school and drop out of elementary school in relatively equivalent numbers, the predictors of these outcomes may vary.

Hypothesis 2: Given that this research is exploratory and there is not substantial literature on the selected maternal factors influencing educational attainment for children in rural Guatemala or similar communities, I did not have specific hypotheses regarding differential influences for boys and girls. However, Guatemala is identified as facing significant gender inequalities (UNDP, 2013) and indigenous girls are known to experience specific educational risks (UNICEF, 2013). Thus, I expected that there may be differences in the models examined for boys and girls though specific patterns cannot be predicted. By examining the influence of each of the maternal factors differentially on the likelihood of completing elementary school for boys and girls, I aimed to develop a deeper understanding for the effect of social and cultural gender development processes on a child's educational attainment.

Method

Participants and procedure. Data collected in Wave 1 and described in study 1 was also used in this study, though only students who had graduated from 6th grade or

dropped out of school prior to completing elementary school were considered. Additionally, only students aged 12 years and older were considered as these students have had the opportunity to complete elementary school. It was inappropriate to consider other students such as those who are behind for age but still attending elementary school because it is unknown whether or not they will graduate or drop out, thereby reducing certainty in the findings. Thus, 132 children (60 boys and 72 girls) who graduated elementary school and 64 children (33 boys and 31 girls) who were over 12 years old and had dropped out of elementary school were included in the study.

Measures.

Child health. Mothers reported on each of their children separately and were asked "How often is (name of child) sick? Is this child sick every day, once a week, once a month, a few times a year, or never?" Scores ranged from 0 "Every day" to 5 "Never".

Mother health. Mothers reported on their own health as well. They reported how often they were sick using the same question and scale as the question about their child.

Mother mental health. Mothers were initially asked about sadness and anger to examine rates of depression, but discussions with the community revealed that anger is an inappropriate emotion for the women and they do not experience it. Thus, sadness alone was measured: "How often are you sad? Every day, once a week, once a month, a few times a year, or never?" Scores ranged from 0 "Every day" to 5 "Never".

Relationship quality. To further address psychological health, mothers were asked about the relationship quality with the father of their children: "Would you say your relationship with your children's father is good, average, or bad?" Scores ranged from 0 "Bad" to 2 "Good".

Alcohol use. Alcoholism has been noted as a significant source of stress for many poor families (WHO, 2000) and this was highlighted in preliminary discussions with community members. In discussions with community members, alcoholism by any member of the family was identified as a significant source of psychological stress for a family. Anecdotally this seemed to a burden that mothers managed related to their husbands drinking. But we were warned that if we asked directly about the father, we were likely to get an inaccurate and protective response. Therefore, mothers were asked to report "Does anyone in your family have a problem with alcohol? Yes or no?" Scores were either 0 "No" or 1 "Yes".

Home. To assess poverty, mothers reported on the condition of their house: "What is the predominant type of floor in your house? Is it dirt, concrete, tile, or other?" All houses were classified into categories reflecting overall condition: "dirt", with a score of 0, "concrete" with a score of 1, or "tile", with a score of 2. In discussions with community members this was determined to be a better indicator of poverty than the number of rooms, type of roofing, or type of bathroom in the home.

Food. Mothers were asked if they were able to meet basic needs: "In the past month, how often did your family have enough food? Always, sometimes, or never?" and scores ranged from 0 "Never" to 2 "Always".

Clothing. Mothers were asked "In the past month, how often did family members have warm clothing and shoes? Always, sometimes, or never?", and scores ranged from 0 "Never" to 2 "Always".

Number of Children. To account for family influences on poverty, the total number of children in the house was recorded. "How many children 18 years old or younger live in the home?"

Age at First Birth. Mothers were asked "Do you know how old you were at the birth of your first child? If they answered yes, their age was recorded. If they could not remember, we followed up with categories: "Do you remember if you were under the age of 15? or 16-20, 21-30, 31-40, 41-50, or over 50?" and then a number was further selected within their selected range. Therefore, the final recorded number was the exact age on a continuous scale, though this was an estimate for some mothers.

Maternal Education. Mothers were asked "How many years did you complete in school?" and the number reported was recorded as a continuous number. This was important as distinctions for how many grades completed would qualify as an elementary education or middle school education change over generations.

Maternal Literacy. Mothers were asked "Do you know how to read? Yes, or no? Do you know how to write? Yes, or no?". "Yes" was given a score of 1 and "No" was given a score of 0. A summed score for literacy was calculated based on the mother's response to those two questions. A scale score of 0 was identified as "not literate", a score of 1 was "somewhat literate", and a score of 2 was "literate".

Importance of Education. Mothers reported on their beliefs about the utility of elementary education.. "How much does graduating from elementary school help children in your community get a job?" Scores ranged from 0 "Not at all" to 2 "A lot".

Expectancies for Education. Mothers reported on their beliefs about their expectancies for their child's education: "Do you think your child (name) will graduate from elementary school? Yes, maybe, or no?" Scores ranged from 0 "No" to 2 "Yes".

Utility of Education. Mothers reported on their beliefs about the utility of elementary education for children. "How much does graduating from elementary school help children in your community to get a job? Does it help a lot, a little, or not at all?" Scores ranged from 0 "Not at all" to 2 "A lot".

Educational Involvement. Mothers reported on their involvement in their child's education. "During your child's last school year, how often did you talk to your child's (name) teacher? Was it roughly every day, once a week, once a month, or less than once a month?" Scores ranged from 1 "Less than once a month" to 4 "Every day".

Educational Attainment. The dependent variable was a categorical one based on if the child had graduated elementary school (N=132), assigned a score of 1, or dropped out prior to completing elementary school (N=59), assigned a score of 0. Only children aged 12 years and older were included, the age at which elementary school graduation would occur, to allow for those who dropped out of elementary school time to go back to school. We did not want young children who may take a temporary pause in education in early elementary school to be confounded with older children who had dropped out and were therefore far less likely to return.

Results

Preliminary Analyses

To test for the appropriateness of nesting, an intraclass correlation (ICC) and the design effect were calculated by family. There were 196 children included in this sample

from 120 families, with the number of children per family ranging from 1-4. The ICC for this sample is 0.653, suggesting that nesting accounts for a high proportion of the total variance among values on graduation status (i.e., graduating versus dropping out prior to graduating) from two children in the same family (Hox, 1998; McCulloch & Nehuas, 2001). Calculating the design effect further explored the necessity of nesting by measuring the magnitude of adjustment needed to produce accurate standard errors when using the clustered data (Hox, 1998; Peugh, 2010). Design effects greater than 2 suggest the need for nesting (Peugh, 2010), and calculations using this data set revealed a design effect of 1.43. However, the data were nested by mother for these models given the ICC and the expectation that children from the same family may have related educational experiences, particularly regarding the influence of maternal factors on their likelihood for graduating elementary school or dropping out.

Data management and preliminary analyses were conducted using STATA 12. Two proposed independent variables were not included in the final model due to a lack of variance in the data: maternal literacy and maternal beliefs about expectancies for their child's education. To further examine the variables used in the model, independent group t-tests were conducted by gender and no significant differences between boys and girls were found (See Table 2). Normality of the variables was also examined and maternal education was found to be slightly skewed and kurtotic in predictable ways (See Table 2). Though values ranged from 0-13 years of education in the sample, the mean was 1.9 years with a standard deviation of 2.8, and this is in keeping with expectation as the majority of mothers in the sample did not have much elementary education. However, meaningful differences were expected with a one unit increase in the value of the variable

(between 0 and 1 years of maternal education, as well as between 1 to 2 years of education), and these differences were more meaningful than a transformation would represent. Further, transformations were not recommended in logistic regression when the variable is predictably non-normal and behaving in expected ways as they affect interpretation of log odds and odds ratios (Pampel, 2000). See Table 2 for a review of the descriptive findings for each variable.

Table 3 illustrates the zero-order correlations between covariates and predictor variables and Table 4 shows the same correlations split by gender. Many variables were correlated in expected ways at low to moderate levels. There were some differences suggested for boys and girls, particularly in that two predictors, maternal education and belief about the importance of education for getting a job, were significantly correlated for boys but not for girls, and this was in an interesting direction where having less education was correlated with having ideas that graduating elementary school would help children get a job, but mothers who had more education did not necessarily expect that education would help their sons. The dependent variable was the child's graduation status: either graduating from 6th grade or dropping from school prior to completing 6th grade. There were 132 children (60 boys and 72 girls) who had graduated from 6th grade and 64 children (33 boys and 31 girls) who had dropped from elementary school. Since the variable was dichotomous, Pearson's chi square tests were performed to test the relationship between the independent variables individually and children's graduation status (See Table 5 for details). Child physical health and maternal mental health had trend level influence on a child's graduation status from elementary school, and mother's mental health had a significant effect for boys but not for girls. The quality of the

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parent's relationship had a significant effect on graduation status, with trend level significance showing for both boys and girls. The total number of children in the home had a significant effect on graduation status for the full sample and then for boys, but not for girls, when split by gender. SES had a significant effect on a child's graduation status for the full sample and for girls specifically, using both the type of floor in the home and having sufficient warm clothing. Regarding the influence of maternal factors on a child's graduation status, maternal belief about the importance of education for a job had a significant effect on a child's graduation status for the full sample as well as split by boys and girls, and maternal education had a significant influence on a child's graduation status for the full sample and for boys specifically.

Missing data was evaluated in preparation for the regression analyses using full information maximum likelihood estimation (Enders, 2010). The covariance matrix was evaluated for the covariance coverage between each variable and most range from 0.8-0.9 which is considered acceptable, with the highest value of 1 (Enders, 2010). The lowest coverage was between parent relationship quality and maternal education, where 42.7% of the cases had valid values. There was no missingness on the dependent variable, meaning that every child included in this study was identified as having graduated from 6th grade or having dropped out prior to graduating and thus no data was imputed.

Analyses

Logistic regression analyses were conducted in MPlus 6 to analyze the influence of maternal factors on the likelihood of graduating from elementary school or dropping from school prior (See Figure 22: Model Diagram). Three continuous predictors were considered: maternal education, maternal belief about the importance of education, and

maternal involvement. Covariates that are commonly considered in this research were included in the model: the child and mother's physical health, mental health, relationship quality between the mother and father, socioeconomic status of the family, and other known risk factors including mother's age at first birth, total number of children in the family, and alcohol abuse in the family. The predictors were examined for interactions by gender in keeping with hypotheses and previous research that suggests differences in educational experience by gender.   A step-wise model building approach was used to best interpret the effects of the hypothesized predictors and covariates on the likelihood of elementary school attainment. The regression table (Table 6) lists estimates for each model tested including the unstandardized log odds coefficients and standard errors for each variable, as well as the respective odds ratios (ORs) associated with graduating elementary school versus dropping out prior to graduating from elementary school.

Model 1 examined differences between boys and girls in elementary school attainment and no gender effects were found (B = -.12(.35), OR = .89, p =.73). Model 2 added the three maternal factors: beliefs about the importance of education for future employment, involvement in schooling, and mothers' education level. Looking at mothers beliefs that graduating from primary school will help children in the community get a job, odds that a child would graduate elementary school increased by 4.23 for every one unit increase in beliefs about education (i.e., it will help "not at all", "a little", or "a lot"), controlling for maternal involvement, maternal education, and child gender (B = 1.45(.31), p < .001). Maternal education also had a significant, positive association with primary school graduation, net of the other maternal factors and child gender; odds that a child would graduate elementary school increase by 1.36 for every one unit change in

mothers' level of education (B = .31(.11), p = .01). Contrary to expectations, maternal involvement was not significantly related to school attainment.

Model 3 incorporated all hypothesized covariates to test the predictors' influence on elementary school completion above and beyond factors that are commonly found to influence education in similar samples. The significant influence of maternal beliefs about the importance of education on employment and mother's education level remained, where the log of the odds of a child graduating was positively related to an increase in those maternal factors. Further, the finding remained that maternal involvement in education, as measured in this study, does not influence a child's likelihood for graduating elementary school. Two significant covariates were found. As maternal age at first birth increased, so did the odds that her child would graduate from elementary school. Unexpectedly, families who reported having enough warm clothes had decreased odds that their child would graduate from elementary school (See Table 6 for regression statistics).

Model 4 represents the final model and includes a significant interaction by gender (See Figure 22: Model Diagram). Holding all other factors constant, the odds are 69.92% higher for boys for graduating. Thus, the genders differed in how the predictors influence the outcome and there may be a gender interaction. The same three maternal factors were included as predictors with similar results as previous models. The influence of maternal education remained statistically significant - for every additional year in a mother's schooling, her child's odds of graduating elementary school increased by 1.44. The influence of maternal involvement remained non-significant. There was a significant interaction of gender and maternal belief about the importance of education for her

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child's future employment (B = -1.57(.68), p=.02), with a stronger effect for boys. For boys, for every 1 unit increase (i.e., from "not at all important" to "a little important", or from "a little important to very important") in a mother's beliefs that graduating elementary school will help children in the community to get a job, her son's odds for graduating elementary school increase by 12.21. For girls, with every 1 unit increase in their mother's beliefs about the importance of elementary school for employment, their odds for graduating elementary school still increase, but only by 2.53. (See note in Table 5 for this calculation.)

Though many of the covariates were not significant, it was still important to include them in the final model as previous research demonstrates their effects on educational attainment and this paper was interested in effects of maternal factors above and beyond health and socioeconomic status indicators in the family. Child health, maternal sadness (an indicator of mental health), the quality of the parent's relationship, the total number of children in the home, the prevalence of alcohol in the home, and the type of flooring in the home (an indicator of SES), did not affect the likelihood that a child would graduate elementary school versus dropping out prior to graduating. An increase in the age of the mother at her first child's birth was associated with increased odds of her child graduating elementary school (B = 1.01(.41), p=.02). Unexpectedly, maternal health was negatively associated with a child's odds for graduating (B = -.41(.21), p=.05), where a 1 unit increase in maternal health led to a 34% decrease in the odds that a child would graduate. In addition, a 1 unit increase in a mother's reporting that her family frequently had enough warm clothes led to the same 34% decrease (34%) in the child's odds for graduating elementary school (B = -.42(.13), p=.001).

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Discussion

The goal of this study was to investigate maternal factors that may influence a child's likelihood of dropping out of school before completing elementary school compared to children who do successfully graduate, above and beyond typically measured indicators of poverty and health. Though boys and girls in this community graduate or drop out of elementary education at relatively equal rates, the goal of the present study was to test if the processes and mechanisms of influence of these maternal factors may differ for boys and girls in the community.

Findings

The results indicated that maternal factors matter for predicting whether a child graduates from elementary school or drops out prior to graduating, even when controlling for indicators commonly linked with educational attainment in low- and middle-income countries. As hypothesized, maternal beliefs about the importance of education for children's future success in finding a job predicted the likelihood of a child graduating elementary school for both boys and girls. Interestingly, this pattern was particularly consequential for boys, increasing the odds of graduating nearly four times as compared to girls. Though specific hypotheses about this relation were not made, possible explanations can be found in the literature. In other low income countries, males are expected to financially support the family and there is evidence that this pressure may influence young boys' educational attainment (Boyden & James, 2014; Engle et al., 2011), even with regard to completing elementary school in other communities in Guatemala (Edwards, 2002). It is important to note that maternal beliefs about education helping future employment was also predictive for girls in increasing the likelihood that

they would graduate elementary school. Is this more moderate relation a reflection of the changing context where it may be that girls are also expected to contribute financially in their future families? Or is it a reflection of expectations that the jobs that girls are expected to have in the future do not require as much education as those of their male counterparts? Nevertheless, it is promising that if mothers value the contributions of education to their children's future work, their children are more likely to graduate from elementary school.

In addition, the results demonstrated that maternal education matters for a child's likelihood for graduating. This finding is particularly interesting given that the mean level of education for mothers was 1.9 or between 1 and 2 years of elementary school. This finding suggests that even a slight increase in maternal education (i.e., from 1 to 2 years of elementary school) has a significant effect on her child's likely future completion of elementary school. No gender effect was found, implying that the processes may be similar for boys and girls. Some studies suggest that if mothers have more experience with education, they are likely to see its positive effects more often in their own lives, and thus want the same for their children (Anderson & Minke, 2007; Edwards, 2002). Future research should examine if increasing maternal education in adulthood would show the same pattern. There are some interventions that aim to improve education for adults in the community (Boyden & James, 2014; Engle et al., 2011) and one possible benefit of this is that those parents concurrently support their children's pursuit of education (Andersen & Minke, 2007). If this was the case in this community, the notion that maternal education matters for a child's likelihood to graduate could be particularly useful for current interventions which could encourage

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mothers to continue their education at the same time that their children are in elementary school. Future research is needed to determine if maternal education increases the likelihood that her children will graduate elementary school only if her education occurs when she is a child, or if an increase in maternal education in adulthood will also improve her children's likelihood of graduating elementary school.

Several unexpected results were found. Maternal involvement, measured as how frequently a mother spoke with the child's teachers, did not predict graduation for children in this community. This was surprising as maternal involvement is an established predictor in promoting education both in high income countries (Hara & Burke, 1998; Hoover-Dempsey & Sander, 1995; Grolnick, 2016). The mean for maternal involvement was 1.48 (possible range 1-4), demonstrating that mothers were talking to teachers between once a month and once a week, a relatively low average for maternal involvement overall. It is important to understand what mothers are discussing with teachers in these interactions. It may be that the conversations between mothers and teachers are not directly about the child or topics which would promote educational attainment for the child – instead these discussions could be about topics unrelated to the child's educational experience (e.g., costs associated with school, community events).

In anecdotal discussions with community members about these results, I was told that many mothers primarily speak their indigenous language of K'iche and most teachers are educated in cities and thus primarily speak Spanish. Children in Guatemala are educated primarily in Spanish, even in these rural indigenous communities, and thus language barriers are present (Chavay & Rogoff, 2002; Cuxil, 2002). If mothers do not speak the same language as their children's teachers then measuring maternal

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involvement by how often a mother speaks with the child's teachers may not be useful as it may represent very limited or superficial conversations with significant language barriers and these conversations likely would not have an effect on a child's likelihood of graduating. The language barrier was not present for all mothers; there are teachers in the community who speak K'iche, and children can translate in times of need, so the inclusion of this variable is not to be discounted completely, but there may be spurious effects negating the relation of maternal involvement to child educational attainment in this study.

Several predictors were not included in the final model. The measurement of maternal literacy was deemed inaccurate in this study. Mothers reported on their own ability to read and write but without a description of the level of ability expected to be considered literate or a direct test of this literacy, I suspected that the findings were not interpretable. Nearly half the sample reported that they were fully literate (i.e., could read and write) but anecdotal community evidence suggests that literacy rates in the community are much lower. Further, it is unlikely that literacy rates are that high as the mean of maternal education is 1.9 years. However, rates of self-reported literacy were highly correlated with maternal education (.79) and thus maternal education was used in the model in lieu of literacy. Maternal expectancy for their children's graduation from elementary school was not included in the final model due to a lack of variance. 286 mothers said their child may graduate elementary school, whereas only 7 said their child would not graduate and 26 said their child would graduate elementary school. This level of uncertainty in expectations for their children's education is quite interesting and worthy of future consideration.   It is notable that the vast majority of mothers in this

community did not know if there child would graduate elementary school, and also that there were not effects of social desirability in this answer in that mothers did not overestimate the likelihood that their child would graduate.   It is important to consider why mothers are uncertain about their children's educational attainment and what factors are influencing this uncertainty.

The covariates were important to include in the model as controls even if their influence was not significant, to account for the variance that these factors contribute to the prediction of educational attainment and ensure a more complete model. While many were not significant, the strongest predictor of educational attainment was mother's age at first birth, where a delay in first birth predicted an increase in the odds of any one of her children graduating. Socioeconomic status, as measured in this study, did not influence the likelihood of graduation as expected – the type of floor in the home was not associated and having enough warm clothes for the family decreased the odds of graduation. Though it was not problematically skewed or kurtotic (see Table 2), the mean was relatively high (M=2.40(0.59) with the majority of mothers reporting they "sometimes" or "always" had enough warm clothes for their family. Substantial efforts have been devoted to the difficulty in accurately measuring socioeconomic status (Bradley & Corwyn, 2002) and its influence on people in rural low income communities (Couch & Pirog, 2002). I aimed to heed these warnings and measure poverty in ways that were contextually relevant (Townsend, 1979) but it is possible that these efforts were not adequate. Future research is needed to examine what constitutes socioeconomic status in this community and to ascertain how levels of poverty might differentially affect educational attainment (Clarke & Feeny, 2007; Yount et al., 2013).

The influence of mother's physical health was similarly surprising. The variable was normally distributed (See Table 2) and an increase in mother's physical health led to a decrease in the odds that a child would graduate. Upon examination of the data, 59 mothers stated that they were sick every day and in consultation with community members who aided this research I learned that this can include issues such as headache, worry, anxiety, or upset stomach, and does not necessarily reflect what maternal health intended to measure. I expected maternal health to capture illness that might affect a mother's ability to provide for her children, either financially or in emotional resources or allocation of time to support her child's education. In addition, I expected this to capture chronic illness (i.e., sick every day) as well as occasional illness (i.e., sick a few times a year). More research is needed to better understand the links between medically prohibitive health concerns that may detrimentally influence a child's education in this community and these important but lesser health concerns that may be reducing effects.

Key Contributions

A primary contribution of this study is that it was designed to examine maternal beliefs above and beyond typically measured influences on educational attainment (e.g., poverty, health) to identify potentially malleable factors that can be addressed in future interventions. While many studies call for relieving the negative effects of poverty to improve educational attainment for children globally (e.g., build free schools, provide scholarships, vaccinate children against disease, improve hygiene, etc.) (Engle, et al., 2011), this study provides insight into maternal beliefs that can be changed with community-level interventions more readily than global poverty can be addressed. In fact, I chose a community-specific contextual approach in identifying specific maternal

factors in this community that increase a child's likelihood of graduating: maternal beliefs about the importance of education for securing a future job and maternal education itself.

The community-specific nature of these findings is further supported through the contributions of a gendered perspective on the process whereby maternal beliefs about the importance of education influence a child's educational attainment. Though Guatemala is known to struggle with issues of gender inequality (UNDP, 2013), particularly regarding the education of indigenous girls (GEF, 2015; UNICEF, 2015), there is evidence that mothers hold beliefs that support their education and their ability to obtain future employment. This introduces interesting gender implications that should be considered further for this community and may suggest that there are changing historical and social contexts, and that these changes may not yet be captured in more global country-level indicators of gender beliefs and disparities. Lastly, this study supports the perspective that though there are not differences in the rates of graduation and dropping out from elementary school for boys and girls, the underlying processes may differ by gender and are worthy of future investigation.

I proposed Bronfenbrenner's Bioecological Model (Bronfenbrenner, 1986; 2006) and Eccles Expectancy-Value Theory (Eccles, 1983) as illustrations of how maternal influence can interact with the child to influence educational outcomes, and findings in this study support this approach. Both theories demonstrate that maternal factors, along with other important areas of influence such as cultural beliefs, interact to affect a child's educational outcomes. In addition to supporting the processes of influence revealed in this study, these theories promote that the influence between child and environment

(including maternal factors) are sensitive to change; therefore, I interpret that these patterns of influence can be intervened upon and changed. These theories lend further support to the notion that interventions aimed at shaping parent beliefs about the importance of education and their own levels of education may increase a child's likelihood for graduating from elementary school. Future research should explore the contribution of these theories further.

Limitations

There are important limitations regarding measurement of maternal factors that can be addressed in future research. Parental involvement in education is multifaceted and includes involvement in both home and school contexts (Epstein, 1995). I focused on one aspect of parental involvement in the school context – the frequency of mothers' communication with teachers. This item fails to examine the content of these conversations which is problematic for a number of reasons. Mothers may be talking to teachers about school-related topics that are tangential to the individual child's educational attainment such as school events or unrelated community topics. Moreover, research in developed countries suggests that conversations between parents and teachers often take place when children are struggling in school or addressing educational concerns (Crosnoe, 2001), where parental involvement is a response to poor achievement rather than a predictor of good achievement.

Involvement in the school is typically measured in multi-faceted ways (e.g., volunteering at events, talking with the principal, attending parent-teacher meetings) and this study only considered one factor, thus not accounting for the many ways mothers may be involved in this community that we did not capture (Raikes et al., 2006; Suizzo &

Soon, 2006). In addition, we did not explore various ways that mothers may be involved in the education of their children within the home context, which may contribute differently than direct involvement in the school context (i.e., talking with teachers). We cannot discount the many important ways that mothers can support their children's education, including both concrete and abstract support (Cooper, 2010). Concrete support includes asking about or assisting children with homework or providing space and time to practice educational skills at home, among many other ways. Abstract support, for example, includes discussions about the importance of attaining an education and children's progress throughout the school year. A limitation of this study is that it did not measure many of the multi-faceted ways that mothers can be involved in education. Future research is necessary to address these issues, particularly in communities where mothers may not have high levels of education or substantial experience with the educational system, and may therefore be involved in their children's education in unexpected and multi-faceted ways.

Another limitation involves the measurement of maternal beliefs about the importance of education. Mothers were asked about the utility of education for helping children in their community to get a job. Although it is important to assess mothers' beliefs about the connection between education and employment at a community level, it does not reflect mothers' beliefs about each of her children. This is potentially problematic in that mothers' beliefs may differ for each of her children or for children in the community and to the extent that this is true, the mother's beliefs about each child may have a stronger effect on a particular child's educational attainment than would her more general or abstract beliefs about other children. In this regard, I am not capturing

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mothers' perceptions about child-level factors for each child individually in predicting their likelihood for graduating or dropping out. In addition, since the children included in this study have either dropped out or graduated, their mothers may have an opinion about how much elementary school helps children to get a job based on their own children's actual experiences post elementary school. Thus, the questions I asked may not be measuring a global belief about the importance of education as much as it may be measuring a mother's actual experience with at least one of her children in terms of how much education actually helped her child to get a job. If this is the case, it would not be a good assessment of her global beliefs, particularly in predicting the likelihood that each of her children would or would not graduate.

There are several additional limitations in this study, including limitation of context and limitation of interpretations. Regarding the limitation of context, it is important to consider what makes small rural indigenous communities different in terms of the effects of maternal factors on a child's educational attainment. In the first study in this dissertation, I found that Camanchaj may be showing higher rates of educational attainment for their children than other similar communities. Is this because maternal beliefs are different in this community, or is it due to another influence this study has not accounted for (e.g., Camanchaj has easier access to schools than other communities)?

It is also important to consider these findings within the historical context of mothers own educational experiences, and that maternal factors that contribute to a child's education may be associated with the generation included in this study and not driectly translatable to future applications as social influences (e.g., gender beliefs, importance of education) continue to shift. There are further limitations to the

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interpretation of these findings, specifically in that this quantitative study does not explore what these educational beliefs are – knowing that maternal ideas about the importance of education for their child's future work influence their child does not illuminate what these beliefs are or how they manifest in a mother's direct action with her child, nor does it explore how mothers process or apply these beliefs differently depending on the gender of their child. Thus, understanding how mothers are interpreting their own beliefs and what those mean for their parenting and promoting their children's education would be a valuable extension of these findings.

Future Directions

Future research should aim to examine the influence of these covariates in more depth. Many key covariates were included in this study but each could be improved upon in terms of measurement and verification of applicability in this community. For adequate exploration of the affect that these maternal factors have on educational attainment, this must be considered holding constant known influences on educational attainment such as poverty and health, among others not included. It is also important to investigate the mediators involved in the process linking maternal factors to educational achievement – how are these factors working and through what process? In addition, other moderators may also contribute and should be considered. For example, it would be useful to examine the father's role and influence on his children's educational attainment. As this study demonstrated that some maternal factors are important, the same assumption must be tested for paternal factors (e.g., paternal education, paternal health, paternal values regarding the importance of education for his children). There may also be interactions between maternal and paternal factors that are worth

considering. For example, is a mother's level of education more influential if the father also has education, or is one more important than the other in promoting a child's education? Lastly, findings from this study promote the notion that in future research on educational attainment of children in this community, gender effects should be considered on the processes of influence even if gender differences in the outcomes are not found. Importantly, if we are to improve education for all children we must understand how these influences are delivered through a gender development lens that moves beyond a superficial exploration of gender differences and includes potential moderation of the influences by gender.

Figure 22. Model Diagram

For boys: B = 2.50***, *t* = .63, OR = 12.21
For girls: B = .93, OR = 2.53 (see note)

B = .36**, *t* = .13, OR = 1.44

| Maternal Belief - Job |
| Maternal Education |
| Maternal Involvement |

Graduating 6th Grade (or Dropping Out)

Covariates
1. Mother's Physical Health, β = -.41*, *t* = .21, OR = .66
2. Mother's Mental Health
3. Child's Physical Health
4. Parent's relationship Quality
5. SES – Type of Floor in Home
6. SES – Enough Clothes for Family, β = -.42***, *t* = .13, OR = .66
7. Mother's Age at First Birth, β = 1.01*, *t* = .41, OR = 2.73
8. Number of Children in Family
9. Alcohol Abuse in Family

Note. Slope and odds ratio calculated by hand for girls, SE and *p* not calculated.

Table 2.
Descriptive Statistics

	Full Sample M(SD)	Girls M(SD)	Boys M(SD)	Independent Group T-Test by Gender	Range	Skew	Kurtosis	Missing
Dependent Variable								
Elementary Graduation	0.67(0.47)	0.66(0.48)	0.69(0.47)	t=-.39(194), p=.70	0-1	-0.74	1.55	0
Predictor Variables								
Maternal Belief for Job	2.10(0.85)	2.16(0.81)	2.05(0.88)	t=.92(187), p=.36	1-3	-0.19	1.43	7
Maternal Involvement	1.48(0.63)	1.52(.67)	1.46(.61)	t=.67(184), p=.51	1-3b	0.95	2.83	10
Maternal Education	1.90(2.80)	1.67(2.41)	2.14(3.08)	t=-1.19(193), p=.24	0-13	2.08	7.72	1
Covariates								
Child Health	3.54(1.02)	3.65(.95)	3.44(1.08)	t=-1.33(177), p=.19	1-5	-1.25	3.66	17
Mother Health	2.76(1.33)	2.70(1.40)	2.8(1.27)	t=-.51(194), p=.61	1-5	-0.28	1.78	0
Mother Mental Health	2.61(1.42)	2.75(1.49)	2.49(1.35)	t=1.23(194), p=.20	1-5	0.12	1.42	0
Parent Relationship	2.27(0.52)	2.23(.51)	2.32(.53)	t=-1.05(168), p=.29	1-3	0.22	2.50	26
Mom Age First Birth	19.15(3.35)	18.98(2.94)	19.30(3.69)	t=-.67(192), p=.50	14-32	1.04	4.40	2
Children in Home	5.01(1.98)	5.19(1.86)	4.86(2.08)	t=1.16(194), p=.25	1-9	0.02	2.19	0
Alcohol in Home	1.87(0.34)	1.84(.36)	1.88(.32)	t=-.82(192), p=.42	1-2	-2.15	5.62	2
SES - Floor in Home	1.43(0.50)	1.40(.49)	1.46(.50)	t=-.95(183), p=.35	1-2a	0.27	1.07	11
SES - Enough Clothes	2.40(0.59)	2.38(.61)	2.42(.57)	t=-.41(194), p=.68	1-3	-0.38	2.29	0

Note: An "a" subscript notes the possible range was 1-3. A "b" subscript notes the possible range was 1-4. If not specified, the full range was used for that variable. In STATA, a normal distribution has skew 0 and kurtosis 3.

Table 3.

Correlations: Covariates and Predictors

	1	2	3	4	5	6	7	8	9	10	11	12
1. Child Health	-											
2. Mother Health	.21[a]	-										
3. Mother Mental Health	.18[b]	.46[a]	-									
4. Parent Relationship	.11	.40[a]	.12	-								
5. Mom Age First Birth	-.01	.03	.07	.07	-							
6. Children in Home	.15[b]	.09	-.04	-.07	-.21[a]	-						
7. Alcohol in Home	.03	.13	.03	.29[a]	.17[b]	-.20[a]	-					
8. SES - Floor in Home	-.07	-.12	-.06	.09	.07	-.04	-.09	-				
9. SES - Enough Clothes	-.02	-.01	.02	-.00	.03	.08	-.04	.00	-			
10. Maternal Belief Job	.22[a]	-.06	.04	-.35[a]	-.21[a]	.10	-.10	-.21[a]	-.17[b]	-		
11. Maternal Involvement	-.08	-.03	-.02	-.05	-.15[b]	.05	.03	-.08	-.22[a]	-.13	-	
12. Maternal Education	-.08	.17[b]	.00	.11	.18[a]	-.04	.11	.09	-.02	-.25[a]	.11	-

Note: An "a" superscript notes significance at $p<.01$. A b superscript notes significance at $p<.05$.

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Table 4.

Correlations by Gender: Covariates and Predictors

	1	2	3	4	5	6	7	8	9	10	11	12
1. Child Health	-	.30[a]	.17	.09	-.29[a]	.29[a]	-.08	-.13	.01	.00	.09	-.12
2. Mother Health	.14	-	.52[a]	.50[a]	-.09	-.03	.17	-.04	-.09	-.05	.07	.12
3. Mother Mental Health	.19	.41[a]	-	.23[b]	.14	-.10	.07	.08	.06	-.12	-.01	.19
4. Parent Relationship	.22[b]	.31[a]	.05	-	-.09	-.13	.22	.10	.10	-.23[b]	-.03	.01
5. Mom Age First Birth	.16	.13	.03	.16	-	-.21[b]	.09	.11	.02	-.09	-.14	.09
6. Children in Home	.05	.20[b]	-.00	-.02	-.21[b]	-	-.32[a]	-.10	.18	.12	.01	-.12
7. Alcohol in Home	.14	.08	-.01	.36[a]	.23[b]	-.10	-	-.16	.01	-.15	.14	.12
8. SES - Floor in Home	-.03	-.21[b]	-.19	.08	.04	.02	-.03	-	-.01	-.31[a]	-.01	.17
9. SES - Enough Clothes	-.04	.06	-.00	-.10	.03	.00	-.11	.00	-	-.15	-.31[a]	-.06
10. Maternal Belief Job	.36[a]	-.06	-.00	-.41[a]	-.27[a]	.08	.00	.14	-.18	-	-.07	-.17
11. Maternal Involvement	-.22	-.12	-.03	-.05	-.15	.07	-.08	-.14	-.12	-.18	-	.02
12. Maternal Education	-.05	.21[b]	-.12	.18	.22[b]	.02	.10	.04	.00	-.29[a]	.18	-

Note: An "a" superscript notes significance at $p<.01$. A "b" superscript notes significance at $p<.05$.
The data set are split by gender - boys' values are shaded light blue and girls' values, light red.

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Table 5.

Pearson's Chi-square with Status Graduating (Dependent Variable) for Covariates and Predictors

	Full Sample χ^2(df, N)	Boys χ^2(df, N)	Girls χ^2(df, N)
1. Child Health	(4, 179) = 9.15†, p =.06	(4, 97) = 4.63, p =.33	(4, 82) = 6.72, p =.15
2. Mother Health	(4, 196) = 6.71, p =.15	(3, 105) = 2.33, p =.51	(4, 91) = 4.53, p =.34
3. Mother Mental Health	(4, 196) = 8.44†, p =.08	(4, 105) = 12.68**, p =.01	(4, 91) = 3.21, p =.52
4. Parent Relationship	(2, 170) = 6.75*, p =.03	(2, 92) = 5.17†, p =.08	(2, 78) = 4.99†, p =.08
5. Mom Age First Birth	(14, 194) = 18.59, p =.18	(14, 103) = 14.40, p =.42	(10, 91) = 13.47, p =.20
6. Children in Home	(8, 196) = 23.12**, p =.003	(8, 105) = 19.32**, p =.01	(8, 91) = 10.06, p =.26
7. Alcohol in Home	(1, 194) = .41, p =.52	(1, 104) = .02, p =.90	(1, 90) = .52, p =.47
8. SES - Floor in Home	(1, 185) = 5.73*, p =.02	(1, 99) = .99, p =.32	(1, 86) = 5.83*, p =.02
9. SES - Enough Clothes	(2, 196) = 14.1**, p =.001	(2, 105) = 3.34, p =.19	(2, 91) = 12.57**, p =.002
10. Maternal Belief Job	(2, 189) = 43.28***, p <.001	(2, 103) = 15.73***, p <.001	(2, 86) = 30.59***, p <.001
11. Maternal Involvement	(2, 186) = 4.75, p =.09	(2, 101) = 4.55, p =.10	(2, 85) = 1.57, p =.46
12. Maternal Education	(9, 105) = 20.63**, p =.01	(9, 105) = 20.63**, p =.01	(9, 90) = 12.98, p =.16

Note: p≤ .05*, p≤ .01**, p≤ .001***

Table 6.

Logistic Regressions on Likelihood of Graduating 6th Grade

	Variables	Estimate	SE	P value	Odds Ratio
Model 1	*Gender Only*				
	Gender	-.12	.35	0.73	.89
	Intercept	-.66**	.26	0.01	
Model 2	*Model 1 + Predictors*				
	Gender	.08	.37	.83	1.08
	Maternal Belief for Job	1.45***	.31	<.001	4.26
	Maternal Involvement	-.10	.54	.86	.91
	Maternal Education	.31**	.11	.01	1.36
	Intercept	-5.46	1.66	.001	
Model 3	*Model 2 + Covariates*				
	Gender	0.38	.45	.39	1.46
	Maternal Belief for Job	1.52***	.36	<.001	4.59
	Maternal Involvement	.56	.60	.36	1.75
	Maternal Education	.35**	.12	.004	1.42
	Child Health	.26	.22	.25	1.29
	Mother Health	-.37^t	.20	.07	.69
	Mother Mental Health	.08	.19	.68	1.08
	Parent Relationship	.15	.64	.82	1.16
	Mom Age at First Birth	.94*	.39	.02	2.56
	Children in Home	-.06	.08	.46	.94
	Alcohol in Home	-.17	.61	.79	.85
	SES - Floor in Home	-.36	.47	.44	.70
	SES - Enough Clothes	-.37***	.12	.002	.69
	Intercept	-6.72^t	.28	.07	

Table 6 (contd.).

Logistic Regressions on Likelihood of Graduating 6th Grade (contd.)

	Variables	Estimate	SE	P value	Odds Ratio
Model 4	*Model 3 + Interaction*				
	Gender	4.25*	1.76	.02	69.92
	Maternal Belief for Job	2.50***	.63	<.001	12.21
	Maternal Belief Job*Gender	-1.57*	.68	.02	.21
	Maternal Involvement	.52	.63	.42	1.68
	Maternal Education	.36**	.13	.004	1.44
	Child Health	.37	.23	.10	1.45
	Mother Health	-.41*	.21	.05	.66
	Mother Mental Health	.10	.21	.63	1.11
	Parent Relationship	.27	.64	.67	1.31
	Mom Age at First Birth	1.01*	.41	.02	2.73
	Children in Home	-.09	.09	.31	.92
	Alcohol in Home	.04	.62	.95	1.04
	SES - Floor in Home	-.28	.47	.55	.76
	SES - Enough Clothes	-.42***	.13	.001	.66
	Intercept	-9.98*	4.17	.02	

Note. Unstandardized coefficients and standard errors are reported for logit estimation.
   $*p \le .05. **p \le .01. ***p \le .001.$
   The slope for the influence of maternal belief for girls (0.93) was calculated by
   adding B for maternal belief for Job (the value for boys) and B for the interaction
   term. The odds ratio for girls was calculated as $e^{0.93} = 2.53$.

Study 3: A Qualitative Exploration of Mother and Child Educational Beliefs, Experiences, and Expectancies in Rural Guatemala

The third study used follow-up interviews from a group of mothers (i.e., Wave 2 of data collection) to improve understanding of how to promote educational attainment in rural Guatemala. The purpose of the third study was to explore findings from study 1 and 2 and enhance understanding of the environmental influences examined in this dissertation that affect a child's educational attainment in this community. This was an explanatory study that seeks to clarify some of the patterns and processes found in the previous studies and to gain further insight into their meaning within the community.

Specifically, this study was designed as an in-depth examination of the perspectives from the mothers on what influences a child's likelihood of graduating or dropping out of elementary school, what causes interruptions to education and how these interruptions are managed, as well as assessing community level expectations for children's education and how mothers suggest that education can be improved in the community. It is known that parental expectations about education (Chrispeels & Rivero, 2001; Garcia Coll, et al., 2002; Grolnick, 2016), the importance of education and literacy in the home environment (Bradley & Corwyn, 2002; Boyle et al., 2006; Magnuson, Sexton, Davis-Kean, Huston, 2009; Sénéchal & LeFevre, 2002), and parental behaviors that promote child learning (Anderson & Minke, 2007; Davis-Kean, 2005; Dearing, McCartney, Weiss, Kreider & Simpkins, 2004; Hara & Burke, 1998), all influence a child's educational outcome. These influences have been identified as the indirect path through which parental education and income affect child educational achievement (Davis-Kean, 2005; Suizzo & Stapleton, 2007;) as well as serving as a buffer against the

negative impacts of the environment on a child's educational attainment (Anderson & Minke, 2007; Sénéchal & LeFevre, 2002). It is also important to understand parental perceptions of the community level educational environment and the community's role in improving child education (Breitborde & Swiniarski, 2002).

 In addition, I explored the gender-related processes that influence beliefs and expectancies about education (e.g., In this community, are there families that believe that school is not important for girls?) as well as direct influences on the educational attainment of the children (e.g., Are girls more likely to drop out of elementary school than boys? Why?). There is substantial documentation that gender affects children's educational attainment in Guatemala and in other countries with gender inequality (CIA, 2015; UNDP, 2013), with girls' educational attainment significantly reduced compared to boys' (UNICEF, 2013; WBG, 2015). However, engaging in a qualitative dialogue about the perceived influences of these inequalities with those in the community has been particularly informative for understanding areas of intervention (Barker, 2000; Cornwall, 2003). It is not only important to know that gender inequalities influence educational attainment for this population, but to understand how the mothers interpret these inequalities and their effects within the community.

Research Questions.

Research Question 1. What influences a child's likelihood of dropping out prior to completing 6th grade in this community?

Study 1 highlighted the occurrence of unconventional educational histories where children leave school or repeat a grade yet continue pursuing their education. This research question was examined by exploring mother's answers on their child's school

history, how the family made decisions about schooling, their expectations for the child's education, the mother's involvement in the child's education, and the mother's ideas about education in the community. For example, we explored reports of parental encouragement to continue with school or to drop out (e.g., the family can't afford it, your siblings didn't continue, girls should get married instead), reflections on how mothers feel about their child's education and if leaving or staying in school was the best choice, thoughts on the likelihood of the child returning to school or continuing, and parental involvement in the education of their children (i.e., talking to teachers, helping with homework, talking about school). Educational interruptions were also considered, including how children and families navigate a child's continuing education despite falling behind or returning to school after dropping out. Perspectives on the educational situation in the community are discussed including the best age for children to start school and why, beliefs on whether it is ok for a child in that community to leave school, and how to improve the educational situation in Camanchaj.

Particular attention was given to responses about children who have dropped out of elementary school. However, responses from all mothers were considered for any discussion relevant to a child's likelihood of dropping out. For example, it is possible that some families considered a child's dropping out heavily but they did not actually drop out, or that some mothers refused to let their child drop out at any cost. For these reasons, all participants interviews were examined.

Research Question 2. What influences children's successful graduation from 6th grade in this community?

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This research question was examined with the same procedures as the first research question, analyzing the responses and discussions of mothers about each of their children on the same interview questions as research question 1. However, attention was given to responses about children who have successfully graduated from 6th grade. All participant answers were considered for any discussion relevant to a child's likelihood of graduating 6th grade or community-level expectations and promotions of 6th grade graduation.

Research Question 3. What are the gender-related attitudes and beliefs about education that are prevalent in the community?

This question further explored the gendered nature of the educational environment and climate prevalent in this community to better understand how the mechanisms explored in the first two studies influence boys and girls differently with regard to their educational attainment within this community. Following a similar exploration as previous research questions in this study, all mothers' responses about each of their children were considered, and any discussion related to gender was examined regarding education. Particular focus was given to any time gender is used as a reason or explanation in a response. In addition, mothers were asked to comment directly on the gendered climate in the community including if more boys were in school than girls, if more girls were in school now compared to the past, and if girls and boys had the same opportunities for education and employment.

Method

A qualitative research methodology was chosen to improve understanding of how to promote educational attainment in rural Guatemala. The research questions in

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this study were chosen to explore the findings from previous studies – that elementary

school graduation is an important marker in this community, that maternal-level

processes influence elementary school achievement, and that these patterns are

influenced by the gender of the child and the gendered expectancies in the environment.

Qualitative research allows us to understand how individuals make meaning of their

environment (Reid, Flowers, & Larkin, 2005; Hesse-Biber, 2010) and thus, of the

findings of the previous studies. It allows for an exploration of the respondent's meaning

making and how they might reflect on the research findings in their daily lives.

This qualitative study used semi-structured interviews which incorporates a

guided set of research questions but enables flexibility both in the response, the probes

of those responses, and the follow-up questions (Smith, 2004). Semi-structured

interview questions vary slightly between interviews, with follow-up questions led by

organic responses and conversation (Potter & Hepburn, 2005). Throughout the research

process, the researcher is encouraged to reflect on and adapt the questions or the order of

the questions depending on spontaneous differences within the interview (Smith, 2004).

Despite this flexibility, qualitative work benefits from a strict adherence to a

defined set of standards that determine quality and rigor (Archibald, et al., 2015;

Yardley, 2008; Mays & Pope, 2000). One risk of international work is that scholars

come in to the research with a sense of authority and a pre-determined idea of the

research conclusions, use quantitative methodological tools (e.g., surveys) that confirm

their suppositions based on their own culture, but that fail to represent the lived

experiences of their participants (Crossley & Watson, 2003). However, careful

qualitative methodologies allow for the researcher to listen to the social reality of the

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participant (Hesse-Biber, 2010). To maintain high quality research that informs the

quantitative findings, this study follows guidelines accordingly, including a well-

established sensitivity to context (i.e., a deep and committed understanding of the culture

and community over time), a detailed research design with commitment to rigorous and

systematic sampling and data collection, and the use of transparent and reflexive analytic

process (Yardley, 2008; Mays & Pope, 2000).

Participants. Researchers returned to the community of Camanchaj 3.5 years after the

quantitative Wave 1 data collection to conduct in-depth qualitative follow-up interviews

on a sample of 37 mothers of the original 178 from Wave 1. The mothers interviewed in

Wave 2 were identified using a stratified sample selection plan incorporating families

who had all of their children in middle school only, high school only, or who had children

in both middle school and high school (i.e., each family fit into one of those classification

groups), and concurrently, families with some children who were academically at-risk or

enrolled in school below grade level (i.e., all were meeting or excelling education

standards), families where all of their children were at-risk, and families with no children

who were considered academically at-risk. Thus this design created 9 strata (e.g., a

family who only had children in middle school and all children were considered

academically at-risk) to classify each of the 178 originally interviewed mothers from

Wave 1. Per Pearce (2002), regression diagnostic tests were used to determine residual

values for the academic indicators to identify outliers who were 2 standard deviations or

more above or below the mean residual and then participants were randomly selected,

stratified by expected values. An equal number of participants were randomly selected

from each strata until we identified 40 potential participants, as some strata had relatively

few families (40 is not a perfect multiple of 9). After considering our data and previous

research (Braun & Clarke, 2013), we felt that 40 carefully chosen families (over 20% of

the quantitative sample) was a reasonable number of interviews to be able to complete

given our resources and surpassed many field work studies of similar depth within a

community setting (Darbyshire, MacDougall & Schiller, 2005). Of these 40 identified

mothers, we were able to complete 37 follow-up interviews with mothers from Wave 1.

Procedure.

Wave 2 data collection. During the Wave 2 data collection, the interviews were

conducted in a private room at Salud Y Paz, a community clinic and preschool. This

design was selected in response to the complications with ensuring privacy when

conducting interviews in the home as had been done in Wave 1. As Wave 1 was

quantitative and responses were short and mothers could point to answers if necessary

and generally conceal their response, Wave 2 was designed to elicit in depth responses to

the questions. Thus we employed the community social worker to go into the

community, discuss the study, recruit the targeted participants, and schedule a time for

mothers to come into Salud Y Paz for the interview. This is quite complex field work as

many of these families do not have cell phones, were difficult to locate, and needed help

with transportation to and from the interview. We occasionally kept odd hours, adapting

to the mothers' schedules and conducting the interview at a convenient time for them and

research assistants often provided childcare on-site.

The interviews were semi-structured qualitative interviews that had specific

questions all mothers were asked as well as established and consistent probes as well as

space for open-ended responses. Participants were allowed to talk as long as they wanted

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and were never restricted. When they were done answering and all probes were complete, we moved on to the next set of questions. We attempted a fairly effortful qualitative interview design (Kyale, 1996; Kyale & Brinkmann, 2009) that requires careful and attentive guidance for the duration of the interview, but using guidance from best practices (Roulston, 2010), I felt that it was a necessary design to best probe the ideas I had from Wave 1 as well as to allow new unpredicted ideas to emerge. These interviews lasted between 1 and 3 hours (typically 1.5 hours) and breaks were offered as often as the mother needed. There were three interviews where the mother was in a hurry or was not interested in discussing her thoughts and these lasted under 30 minutes. Each of these mothers was reminded several times that they did not need to participate and that they could stop at any time but they all chose to continue.

All interviews involved the primary researcher (Dawn), who guided and directed each interview and selected all probes and follow-up questions. This was carefully designed to maintain the integrity and consistency of all interviews (Kyale & Brinkmann, 2009). The interviews were conducted in the mothers' native language, K'iche, and thus with recommendations from community members we located and trained a Guatemalan research assistant, Micaela Perez, who met the suggested qualifications as a Mayan, college-educated female from a neighboring community who spoke the language of the community fluently but was not familiar with the participants for the study (Lopez, Figueroa, Connor, & Maliski, 2008; Van Nes, Abma, Jonsson, & Deeg, 2010). Micaela listened to the mothers' responses and translated each response from K'iche to Spanish. Dawn then interpreted the Spanish response and determined the probe or subsequent

question which she delivered in Spanish to Micaela who then translated the question into K'iche for the mother.

There were 30 interviews where the mother only spoke K'iche fluently, and 7 interviews that were done in a mix of Spanish and K'iche (e.g., the mother would answer the simple yes/no questions in Spanish or fully understand the question in Spanish from Dawn without translation but chose to respond in K'iche). In instances where both Spanish and K'iche were used we were very careful to ensure that they fully understood the Spanish and that they knew they could use whichever language they were most comfortable with. As Spanish is not Dawn's native language, an additional research assistant who was certified with bilingual English-Spanish fluency was included for the first week of interviews to ensure that Dawn was able to interpret the Spanish responses accurately and conduct the interviews in Spanish (Lopez, Figueroa, Connor, & Maliski, 2008). Often an additional research assistant was present for the interview to monitor the recording device and assist with processing consent forms, transitioning between interviews, and to provide general support (Regmi, Naidoo & Pilkington, 2010; Twinn, 1997). Both Micaela and the research assistant present were trained on the full interview including the suggested probes and would correct or help guide the interview when Dawn erred.

Everyone involved in the interviews underwent substantial interview training for the week prior to beginning interviews (see Appendix A for a sample of training materials). This training was designed to be consistent with best practices in qualitative field work (Kyale & Brinkmann, 2009; Smith, 1995) and included a careful discussion of proper research tactics and composure during interviews. We practiced administering the

interview to several community members to ensure that our final questions made sense and our translations were fully accurate and refined (Larkin, de Casterlé, & Schotsmans, 2007; Temple & Young, 2004). During this preparatory time, we also became familiar with the demands of the space (e.g., when electric outlets or internet may not be available), the interview equipment (e.g., recording device, a stamp pad for consent from those who cannot sign their name), the process for ensuring the safe and protected storage of the audio files for the interviews, and we carefully monitored the recruitment of participants. Though it is expensive and time consuming to pay for staff to plan, train, and organize the study the week prior, we found it very valuable (Potter & Hepburn, 2005).

Transcription and translation. Upon completion of the data collection, Micaela, the Guatemalan research assistant who served as the translator for the interviews, transcribed each of the interviews from the K'iche audio recording into Spanish. Those transcriptions were than translated from Spanish into English by a team of 10 undergraduate and graduate research assistants over a year long period. Special attention was devoted to the translation work, as inappropriate translation would render the data and all efforts to attain it meaningless. All involved in the transcription and translation process underwent specific training (see Appendix B for a sample transcription with guidelines) in keeping with previous research (Kyale & Brinkmann, 2009; Mays & Pope, 1995, 2000; Yardley & Bishop, 2008). After initial training, each student completed the translation for two interviews which were then edited by Dawn and following a discussion, a third interview translation was then completed and checked by Dawn before translators were allowed to proceed with the full sample.

Each translator was then assigned a number of interviews to translate and was paired with another translator to work together, answer questions, and provide support when needed. Twenty percent of the interviews, with at least one interview from each translator, were translated twice by different translators and the results were compared by Dawn to ensure that responses matched. Though this is a costly use of translator time, it was important to ensure that there were not unforeseen issues with the translation process (Regmi, Naidoo & Pilkington, 2010; Temple & Young, 2004). Regular discussions were held with the entire team regarding any questions that arose during the process. All the completed translated interviews were then given to a professional translator to double check, edit, and raise any issues. This translator worked with Dawn and a local Guatemalan trilingual consultant to verify and try to protect the original K'iche meanings of the responses despite being translated into Guatemalan Spanish and then into English.

Measures.

Every interview was examined for pertinent information from every participant for each research question. However, each research question does involve key interview questions that will be explored initially, and a sample of the questions are listed below, following a general description of the interview.

The interview questions in the Wave 2 data collection included similar questions to those asked in Wave 1 for follow-up data, as well as novel questions. Mothers reported on why their children dropped out of school or were succeeding, what obstacles they faced in the past and present that influenced educational attainment, their involvement with their children's education, commonly held beliefs in the community regarding children's education and their educational beliefs and goals for each of their

children separately. Prompts focused on the protective role of cultural, social, emotional, and health resources at the child, family, and community level. The goal was to consider not only family level proximal factors related to parenting and the child's experience at home, but also to explore cultural values and beliefs regarding education as well as community level expectations, support and engagement in children's education.

The first research question was designed to explore influences on a child's likelihood of dropping out prior to completing elementary school, as well as interruptions in a child's education (e.g., leaving school and returning, repeating a grade) and how these interruptions influence elementary school attainment. Analyses focused on interviews from mothers reporting on children who have dropped out of school or who experienced interruptions in their education. A sample of specific interview questions that were closely examined include:

Did the child ever stop going to school and then return? If yes, when did those times occur and why?

How was the decision made that the child would stop going to school?

Did you child say that they wanted to continue going to school? Did they say that they wanted to leave? Did you listen to your child? Did you encourage your child to stay in school? Did you encourage your child to leave school?

Do you think this was the right decision for your child?

The second research question was designed to explore influences on a child's likelihood of completing elementary school. Analyses focused on interviews from mothers reporting on children who have graduated elementary school or are in

elementary school and are on track for grade and age. Specific interview questions that

were closely examined include many related to those in research question 1 as well as:

How did you decide that it was the right time for your child to start school?

How do you feel about your child staying in school? How would you feel if your child

stopped going to school?

What are your hopes and dreams for your child with regards to them having a family?

And education? Do you expect that this will happen? Why or why not?

The third research question was designed to explore the gender-related attitudes

and beliefs about education. Analyses focused on all interviews and all questions,

searching for instances where gender is mentioned as a cause or consideration in a child's

educational experience. Specific interview questions that were closely examined include:

Parents sometimes have to choose whom among their children to send to school because

they cannot afford to send all of their children. How do you think they make that

decision?

In some communities, families think it's more important for boys to go to high school.

Do you think that's true here?

It also seems like a lot more girls are going to school than they did in the past.

Why do you think that's happening?

Analyses.

The framework method for qualitative analyses. This study used the Framework Method

(Ritchie, Lewis, Nicholls & Ormston, 2003) to analyze the interview data. The

Framework Method is recommended for semi-structured interview transcripts that

involve large data sets and some level of understanding and prediction about the research

questions that will be examined. This approach highlighted three key purposes for the analytic procedure: data reduction, data display, and conclusion verification (Aronson, 1995; Attride-Stirling, 2001), and each is further justified in the analytic plan below.

Thematic analyses. Within the Framework Method, Thematic Analysis was the analytic process for data reduction and data display (Aronson, 1995; Braun & Clarke, 2013). This focus allowed for coding where data is ordered according to a-priori hypotheses (specific questions were asked and examined in isolation) and these answers were coded to reduce data volume and aid in interpretability. I used a theme-based approach where answers from all of the respondents were grouped by question and analyzed as a population sample (rather than a case-based approach where one respondent is considered individually and in-full for their response to every question in the interview). Using a theme-based approach with a developed codebook allows for a systematic, comprehensive, and transparent processing of the data that can be easily verified for reliability and replicated (Braun & Clarke, 2013). However, limitations must be considered including the possible effects of a-priori hypotheses influencing codes created and thus analyses, the risk of becoming more process-oriented than outcome oriented and thus missing overarching findings (e.g., seeing the trees and not the forest), and the extensive time and labor involved (Aronson, 1995).

The thematic analysis was designed with guidance from Braun and Clarke (2006) as the best way to identify "thematizing meanings" which can then be applied to many diverse qualitative analysis techniques (Holloway & Todres, 2003), including mixed methods work (Ryan & Bernard, 2000). We used Thematic Analysis for three primary purposes (Braun & Clarke, 2006). The first was to organize the data into meaningful

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chunks or data sets (e.g., children who wanted to pursue an education and children who were not interested in education). The second purpose was to identify, analyze, and report any patterns in the data. The third purpose was to help interpret meaning from the data (e.g., what are the key influences on a mother's educational beliefs for her children?). Though the exploratory work was not guided by pre-existing ideas of themes, it was still relatively deductive (Boyatzis, 1998) in that the existing literature reviews and hypotheses suggested some guidance in interpretation of the data and analytic preconceptions. We also chose the semantic approach (as opposed to the latent level approach), where data is used to provide a description and reveal patterns, and then interpretation of the meaning comes from analysing these patterns (Frith & Gleeson, 2004), as opposed to attempting to understand latent assumptions, conceptualizations, and underlying ideas that may be influencing participant responses.

In summary, the six stages of thematic analysis were followed (Braun & Clarke, 2006). First, the primary researcher familiarized herself with the data, including substantial note taking and reading and re-reading of interviews. Transcription of all interviews was carefully managed (Riessman, 1993) to exacting standards (Oliver, Serovich & Mason, 2005; Lapadat & Lindsay, 1999). Next, codes were carefully developed to capture meaningful groups of data (Tuckett, 2005), which were then later organized into subthemes and themes. Themes were then refined using comparisons of internal homogeneity and external heterogeneity (Patton, 1990) to ensure that themes cohere meaningfully but with distinctions between themes. All themes were then reviewed against the original data and in a thematic map to represent the themes against

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the data set as a whole. Themes were then defined and refined and a codebook was finalized with clear descriptions for each code.

The codebook. Thematic Analyses suggests the use of a codebook. This codebook contains a set of codes and associated categories that are directly applied to the data for conducting rigorous analyses (Gale, Heath, Cameron, Rashid & Redwood, 2013). This codebook was created by the primary researcher and research assistants after data was collected (Gale, et al., 2013). Thus, this is a deductive approach where codes were largely pre-determined based on previous literature and our own findings from the previous two studies. Themes within the data were then generated by examining the coding results and identifying patterns that describe aspects of the data (Gale, et al., 2013). These themes were examined to derive the meaning from the participant's responses or the research conclusions.

Once the themes, subthemes, and specific codes were established by the lead researchers, a detailed codebook for data reduction was designed and 8 graduate students were trained to conduct a content coding analytic approach on all the transcripts using NVivo. Codes were applied when a mother made a specific reference to a topic established and described as a code in the codebook. A single code was given to a discussion of a complete thought or experience, even if that topic was mentioned several times in one statement. However, if the mother added an additional experience (e.g., a new and different financial barrier than one previously discussed, or one occurring at another time) then that code was applied an additional time. Thus, the frequency of codes stated in the results is interpreted as a mother having referenced that topic or explanation (e.g., finances) for a given probe (e.g., barriers to education), but not

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necessarily the number of times a mother stated that or similar words (e.g., "money", "cost", "finances"). Further, the absence of a code does not imply that it was not an issue for that mother, it simply implies that she did not reference it at that time. Given the very open-ended and flexible design of these interviews and appropriate probes used, mothers were free to comment and specific topics were not verified during the interview. For example, when a mother discussed barriers to education for her children and only discussed finances, interviewers did not then follow by asking whether other factors were also at play. Thus, when interpreting the frequency of times a code was referenced, it is important to note that this represents the salience of that factor for those who discussed it but does not necessarily imply that it was not a concern at all for any mothers who failed to mention it.

To aid coders, memos and data displays (e.g., networks, matrices) were used to organize the data (Willig & Stainton-Rogers, 2008). The qualitative data was entered into an excel spreadsheet to provide useful organization and structure to the interview responses (Braun & Clarke, 2013). Randomly selected transcripts were coded in NVivo to establish inter-rater reliability (reliability scores met an 80% agreement threshold). Once inter-rater reliability was established, all interviews were coded by trained and reliable research assistants with support from the primary researchers.

Research conclusions and meaning making. In describing conclusions, the process of reflexivity was used (Archibald, et al., 2015). Reflexivity is a highly important process that involves describing how the findings are interpreted or drawn out from the data such that all patterns and processes from raw data to codes to themes to conclusions can be

traced (Gale, et al., 2013). To enhance reflexivity, examples from the raw data were given to illustrate codes, themes, and research conclusions.

In drawing research conclusions, two forms of analysis were used: Frequency Analysis (Braun & Clarke, 2013) and Experiential Thematic Analyses (Braun & Clarke, 2006). Frequency analysis involves quantitatively noting how many times each code was discussed, and determining patterns within the sample for the appearance of various codes. Experiential Thematic Analysis involves identifying key themes that provided unique information and explanation into the participant's experiences. Themes will be presented and substantiated with quotes only if at least two participants make reference to a similar idea or experience; single presentations of ideas will not be presented in this paper as they may not be representative of shared experiences in this community.

Results

The interviews were structured such that mothers first answered about each of her children individually and then answered the community-level questions at the end of the interview. Answers from every mother who had been interviewed were coded and analyzed for each applicable question, regardless of her child's educational status, to best capture perceptions in the community with regard to each research question. However, the majority of the themes and supporting quotations provided are from mothers who had specific experience related to the specific research question (i.e., either a child who dropped out or a child who was currently pursuing education). Results are structured such that each interview question or probe is presented and the coding analysis follows, along with exemplary quotations for each theme to provide an explanation for conclusions in keeping with guidelines for thematic analysis and reflexivity (Smith, 1995).

Research Question 1

The first research question was designed to explore influences on a child's likelihood of dropping out of school. Mothers were asked a series of questions regarding their thoughts about children dropping out of school in the community, and their experiences with their own children if relevant. This research question aims to understand barriers to educational attainment.

Explanations for Dropping Out of School

"How was the decision made that the child would stop going to school?"

This question examined mothers' responses regarding their children who had dropped out of education and were currently not attending school. The decision that a child would drop out of school was almost always a compilation of one or more of the following themes: who made the decision that the child would leave (i.e., either the child or the parent) financial factors, and health. Lesser themes that presented include family responsibility, equality across siblings, a child's behavior in school, the child's age, and academic performance.

Explanations for dropping out of school were coded 56 times in reference to it being the child's decision. For example: "He doesn't want to study [no further explanation given]." (ID 148). "He did not want to anymore. I would send him and he would not go to school, he would stay with his grandmother [instead of going to school]." (ID 110). "I encouraged her to continue but she didn't want to anymore." (ID 18). Many of the explanations were cross-coded as the child's decision and due to another influence (each described below), most notably 13 cross-codings with financial considerations, 7 due to health, and 3 due to family obligations.

Dropping out was coded as the parent's decision 34 times and almost every instance included a cross-coding with at least one other theme: there were 18 references to financial considerations, 9 references to it also being a child's decision, 4 references to health (either a parent or the child's physical health; see below for detailed explanation), and 4 references to the child's behavior in school.

The most common reason for dropping out of school was financial, with 43 references to financial considerations, either by the parent (18 cross-codes) or the child (13 cross-codes). Examples of financial explanations include: "Because there are several children and their father didn't have a lot of money." (ID 191). "We did [parents made the decision] because we no longer had money…my daughter felt sad when she stopped". (ID 96). "He was no longer able to because of the money, also because he [the child] was paying. Because he works and studies and doesn't have time." (ID 188). An example of both parent and child influences on the decision due to financial considerations is given: "We did [parents made the decision] because we didn't have any more money. He [the child] said no more and started his business." (ID 110).

Health factors were the next most common reason, with 9 codes, 5 of them cross-coded with financial considerations. For example: "His dad got sick and died. Because of this my son did not finish because we had the need of money." (ID 82). An example of a parent decision due to health includes: "He wanted to study, but because they operated on his father he stopped going. He feels really bad about not continuing because his classmates continued. But because of us he didn't continue…we are the guilty ones [parents made him stop]." (ID 40). There are also examples of it being a child's decision due to health: "She made the decision because she said that her head hurt a lot when she

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studied." (ID 165). "Because I got sick, I got diabetes, I was in critical condition I almost died, then he said that perhaps due to worries about money with them I fell ill and since his dad is not with us then he said that it was best for him to stop studying." (ID 19). Lastly, there were examples of both the parent and child making the decision due to health: "I saw that he was sick and…he said he didn't want to go. I told him that if I obligated him it would be worse because he would get worse."

Explanatory themes used less frequently included obligations towards their new family (5 codes): "She didn't want to study, she had desires but at school she met her husband and she asked us why spend money on her schooling that it's better for her to get married and not study." (ID 189); equality across siblings (3 codes), likely due to financial limitations: "We took the decision [that they would drop out] because we have too many kids and if we give to one of them then we have to give to all of them." (ID 1); and behavior in school (2 codes): "We were going to give them more [education] but they bothered others in school and they hit other children. Afterwards the mothers would come to my house to tell me that my son hit other children, so because of that my husband got angry and he took them out of school." (ID 129); child's age: "…my son did not want to go anymore because he was already 12." (ID 18). "…she took the decision [to drop], still her father insisted…and now tells her to continue because she is only fourteen. She doesn't want to because she is embarrassed now because the children are small and they would call her mom." (ID 40). Lastly, several parents admitted to directly encouraging their child to drop out when probed (*"Did you encourage your child to leave school?"*): We thought that she only needs to finish third grade of middle school." (ID 100). "In first grade…we took him two times and he did not pass. And so I did not take

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him anymore. It was three years that he repeated the same grade." (ID 110). "She says that she wants to continue but I see that she doesn't benefit and that is why I will not take her next year…if she showed interest then I would take her but I do not see that, so it is best I do not take her…I will not take her next year." (ID 91).

Reflection on Consequences of Dropping Out

"Do you think this was the right decision for your child?"

There were 48 responses coded where mothers agreed that dropping out was the right decision for their child, though explanations for this perspective were sparse. The ability to work was coded 5 times: "He doesn't have the desire to study. He has the desire to work and he went to work in Guatemala city." (ID 42). "Yes because we saw others that do have jobs and it was a good decision." (ID 23). Pursuing family obligations was another reason for dropping out considered as the right decision: "Yes, [it was the right decision] because now she has a husband." (ID 18). "…he is going to support his family when he gets married." (ID 42).

There were 86 instances coded where mothers felt that it was not the right decision for their child. Interestingly, of these, there were 21 references to it ultimately being the child's choice: "Well to me it wasn't the right decision, but what can I do if she's decided?" (ID 24). However, there were 9 instances of defeat: "What can we do if I do not earn enough and I did not have any more money." (ID 18) and 13 references to regret or remorse: "We didn't know and we didn't tell her to continue." (ID 165). "…she has a bit of problems with her husband and sometimes she regrets not studying." (ID 189). "I feel bad because they didn't continue. [Child's name] got really sad and sick when I told her I couldn't give her school anymore." (ID 96).

Some explanations were given for why mothers felt that dropping out was not the right decision.   Lacking education was coded 15 times: "No [it was not a good decision] because…she cannot read or write." (ID 18) and this decision affecting work was coded 7 times: "It's not okay [leaving school] because now he's working in a microbus and he says it's tough…" (ID 96). "No [it's not good] because he does not have knowledge of the English language and he cannot write well. It's not good because he will not find employment later." (ID 125).

Children who have Dropped Out and Returned

"Did the child ever stop going to school and then return? If yes, when did those times occur and why?"

There were only 19 children who were reported as having dropped out of school and then later returned to continue their education. Mothers were often unable to confidently report when those times occurred for each of their children, but did provide explanations, though many explanations speak more to the reasons for dropping out than the reasons for returning.

One theme that emerged involved who made the decision that a child would drop out and/or return – there were 11 instances where it was coded as the child's decision and 3 instances coded as the parent's decision. Illustrative examples of the child having control over the decision include: "…she stopped, she didn't want to go anymore. If they had wanted to study I would have worked hard to give them more studies but they didn't want to." (ID 122) "After 6th of primaria she [chose to] rest for two years and later continued." (ID 191)

In addition, some children had control over the decision and responsibility for the financial means (i.e., explanations were cross-coded for both "child decision" and "finances"): "…he now completed third grade of middle school, but it was through his own account [his own money]. Then he dropped because the career is too much money to pursue." (ID 1) "…because we didn't have the possibility [of paying], she continued on her own account and graduated as a teacher…" (ID 188)

Illustrative examples of the parents having control over the decision of whether their child leaves school include: "…Now she does not say anything, but before I had to force her to continue." (ID 1) "When we failed second grade he did not want to continue. And we took him, that is why he still continued." (ID34)

Three explanatory themes emerged to describe why children dropped from school and returned. Academic performance was coded 5 times and always involved failing a grade. Health was coded 3 times, involving either the child or the parent getting sick and this prohibiting the child's ability to attend school during the time of the health crisis. Changing financial support was discussed twice as a reason for continuing and discontinuing education: "…they gave money to the children if they were studying and they told me that she had to keep studying and that's why I took her. [She is no longer in the program] because now they don't give us hardly anything." (ID 191).

Children who have Dropped Out and Not Returned

"Do you think your child will return to school?"

There were 26 codes given where mothers indicated that they thought their child would return to school, and 63 codes given to responses that this would be unlikely. Of those who said yes, 6 indicated that it was the child's decision: "Yes, if he has desires to

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study then he will continue." (ID 120). "She sometimes says that she will continue studying and I tell her that is good and that she should continue and her friends tell her to continue. Now she is deciding because her brothers continued…and she says that perhaps she will do the same." (ID 191). Another 6 indicated a strong parental conviction to encourage the child to return: "I say and I set my mind that he will continue even if he is older in age. Hopefully he finds a job and he heals. [He is sick and cannot study or work]". (ID 82). There were 4 instances of financial influence on the decision: "I think she will because I tell her to continue studying, but it's always due to the lack of money." (ID 188). "She says yes but I tell her to see if she can afford to because there are people who [have to] study and work." (ID 91).

Among mothers who said they did not expect their child to return, 21 identified this as the child's decision: "We want him to go, but he doesn't want to." (ID 110). "No because she doesn't want to. Just recently she regretted it and says why didn't she continue with her school because right now she would have been graduating and I tell her that she can still go but she says it'd be best not to." (ID 92). There were several commonly mentioned factors influencing their perspective. There were 10 codes given to prohibitive family obligations for both men and women: "Yes [he would return] if he could, but would be impossible because he is already married." (ID 140). "He said not anymore because he wants his children to study." (ID 142). "Not anymore because she's a grown woman and she has a family." (ID 165). Financial factors were given as an explanation 4 times: "He says not anymore [He won't return.]…because who will give him money. He helps me with our expenses and we support each other." (ID 18). "Not

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anymore because they [her two children] don't want to and sometimes they say if they were younger in age they would continue, but now they are earning money." (ID 40). Work was identified as prohibitive 3 times. For example: "Not anymore [he won't return] because now he's working and he's not going to be able to study." (ID 42).

Research Question #2

The second research question was designed to explore influences on a child's likelihood for completing elementary school. Similar to the procedure for research question 1, mothers were asked a series of questions on factors that promote educational attainment regardless of their child's educational outcome, but specific probes were also given regarding their children who are currently in school, if applicable. This research question aimed to understand promotive factors for educational attainment.

Factors Contributing to Starting School

"How did you decide that it was the right time for your child to start school?"

Children were coded 34 times as making the decision to start their education, both in beginning and delaying education. "She is the one that said she wanted to go with her brothers and that is why she started." (ID 19). "Because she didn't want to when she was five years old. [So she started at] six years old." (ID 50). However, the vast majority of mothers referenced it being the parent's decision, with 229 codes illustrating this: "I made the decision because schooling is important and also as parents it's our obligation to give our children schooling." (ID 92). The most common factor parents considered was the child's age (116 codes), and though the appropriate age to begin school seemed to be established by individual parents rather than a school standard, there is evidence of a normal range for age. "When I saw that she was 6 years old I took her." (ID 50). "I

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didn't take them when they were little because I didn't have time to drop them off since I had to work at home…That's why I took them at the age of 7." (ID 142). "For me it is better that she start school young and other people told me that it was better, because the majority take them when they are eight years old." (ID 184). "…I want her to learn, at that age because she is still small so she can learn. They took me at age 12 and I no longer put interest in my studies." (ID 91).

Finances were stated as a factor in deciding when a child should start education 33 times. "She stayed back a year because we couldn't afford it. Everyone else started at six years old." (ID 93). "I didn't have money, she started because they helped us [a scholarship], and they gave us notebooks for her." (ID 185). Another common factor considered was whether the children were physically developmentally ready, with 22 statements referencing this concern. "[We took them] at this age because my husband says that it is better so that they can defend themselves from other children if they push them" (ID 140). "I did not take her when she was little because I felt bad that they would bother her and that other kids would hit her." (ID 184).

Discussions around Staying in School

"Did your child say that they did or did not want to continue going to school? Did you listen to your child? Did you encourage the child to stay in school (or to leave school)?"

Several themes emerged from this discussion including some mothers who expressed uncertainty, others who were very certain about plans to continue, and others who seemed to defer to their children's plans. Specific coding counts are harder to

determine given the interconnection of these themes but specific examples of each are presented.

Even though these children are in school, there is evidence of uncertainty in their discussions with their children about what they want and their child's likelihood of staying in school: "She has desires to study. When she was in elementary she would ask me if we would take her to middle school. I told her we would see what we could do." (ID 34). "Yes, he wants to, if he behaves I will still give him but if not I will not continue." (ID 91). "She says that only [until] sixth grade, but her dad insists that she continue. She hasn't decided yet." (ID 24). "He still wants to continue [to college]. I do not know if we are able." (ID 23).

Some mothers are more planned and certain in their discussions with their children about the child's desires and their likelihood of continuing: "We told her that only [through] 6th grade and she agreed and said that she was going to start looking for a job because she knows we can't [pay for education after that]." (ID 185). "His brothers tell him that they're going to give him schooling, because they weren't able to and they are going to support him to continue." (ID 96). Some mothers spoke of this certainty coming from the child's influence alone: "We asked her if she wanted to continue and she said yes. It's her decision to finish." (ID 146). "He wanted to, he likes his studies a lot." (ID 12). "She wanted to. She does not miss a single day. Even when she is sick she always goes to school." (ID 23). "When we told him to leave school he did not agree because he wanted to keep going [and he did]." (ID 140). "Ever since he was in elementary school he would tell us he was going to continue studying when he graduated sixth grade." (ID 42).

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Reflections on Educational Attainment

"How do you feel about your child staying in school? How would you feel if your child
stopped going to school?"

There were 32 references to staying in school being the child's choice. All the

mothers who reported that it was the child's choice were happy their child was studying.

Despite this, some mothers who reported that it was the child's choice were comfortable

with the child's decision: "I feel happy [that he is in school]. If he stopped attending then

that would be his decision. But I tell him that it is best to continue." (ID 1). "That would

be his decision [to stop studying] because he will be of age. If he says that he doesn't

want to go we can't obligate him to go…"(ID 170).

Other mothers who were positive about the child attending expressed sadness if

the child stopped, either due to a loss of future opportunity or a loss of parental

investment in the child's previous education: "I feel happy because I see that she is

making an effort…if she were to stop attending school, well to be honest I would feel sad

because she would be the same as me, because there is no one who will give me a job…I

do not want her to have the same experience, it is very sad, it is very difficult for one to

earn a living without an education." (ID 14). "I feel happy because when she finishes

she's going to get money. If she were stop studying…it would hurt me because she's

spent so much money." (ID 96).

There were 33 references to the mother providing direct support to help the child

stay in school, despite obstacles. "For me it is a joy for her to continue with her studies

and to finish…If she stopped studying I would force her…" (ID 19). "I am happy for her.

If she stopped studying I wouldn't feel right because I would be spending money for

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nothing, and I would keep fighting for her because I would feel sad." (ID 106). "…my obligation is to support her to continue studying. But if it's due to an economic situation, maybe one cannot do anything or maybe she could look for a job and study. But I would feel bad." (ID 114).

Reflection on Consequences of Education

"What are your hopes and dreams for your child with regards to them having a family? And education? Do you expect that this will happen? Why or why not?"

This open-ended question was designed to understand what parents viewed as success for their children, and what factors they considered would be responsible for aiding them in their success, as well as how much control parents and children had over the outcome for their children's lives.

Several themes emerged regarding parents hopes for their children. The most commonly mentioned goal involved references to their child's education, with 232 codes. Sometimes this was described as the most important goal to achieve first, and above all else: "It is best that he finish his studies…When he has a title he will be able to get a job anywhere…One day he will obtain a title and then a job and get married." (ID 1). "…We told her that we want to give her an education…Because there are girls that get married as early as 14 and we spoke with her…and asked her if she would finish and she said yes so we told her that we would make the effort even if we do not have things for us [the parents] but the important thing is to give them [our children] an education." (ID 12). For other mothers, this was described in conjunction with their child's future family: "I want her to continue with her studies. And when she graduates I want her to get a good job and to find a family, a husband that truly loves her." (ID 14). "It is not good if she

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gets married because she has not finished her studies. I hope that when she gets married that she has finished her studies [already]." (ID 184). "If he had a family he would not be able to study. He has not mentioned anything about marriage." (ID 23).

There were 161 references to their child's future family, occasionally listed as the only hope or dream the mothers discussed: "Hopefully she gets married and does well with her children, but she doesn't want to get married…" (ID 122). "I want her to do well, like our marriage." (ID 148). "I tell her that it's not good to get married young, how I did, I was only seventeen years old. I tell her to be at least twenty or twenty-three." (ID 165). Often, a child's future family was described alongside reference to a child's future job. There were 125 codes about future work: "That they be well with their families and that they have a job." (ID 110). "My dream is that one day he finishes his Carrera and that he continues to the university and that he finds a job and that way he will be able to support his family later and that they don't suffer." (ID 61). Interestingly, among these codes regarding hopes for work, it was rare that the mothers discussed a specific career goal. Very occasionally a mother would mention that they become a teacher or a lawyer or a mechanic, but this was always because the child had specified that goal. Thus, there does not seem to be parental pressure about a specific job, just that they have enough work in general.

References specifically to finances were coded 98 times when discussing hopes for their children's future, either in having enough money to continue education or enough money to support themselves or their family. "I would like for them [her children] to continue studying, but we don't have enough money and I say hopefully they acquire scholarships to study." (ID 140). "I said that it would be good if she studied so

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that she would not suffer with her money." (ID 91). "I hope he finds a job to maintain his family, if he continues his studies…he'll have money." (ID 96).

Some mothers expressed the notion that their hopes and dreams for their children were relatively out of their control. There were 61 references to it being up to the child: "I can't tell her anything because she has her own child and she can't regret what she's done…" (ID 189). "What can I say, if she does not want to continue with her studies I cannot force her." (ID 125). "I want him to finish 6th grade, but if he wants to continue we're going to give him it, and if not, I'm not going to obligate him." (ID 42). "If she continues to study she will do good with her family, now if she does not continue it will cost her in the future." (ID 44). A caveat was coded 49 times, usually in that the mother "did not know", sometimes in that it was the child's choice and sometimes with a defeated tone. "I do not know because it is him who will decide when he turns 18." (ID 18). "That he finish his education for a career if he can. I think that he will do well with his family, but I don't know." (ID 110). "I don't expect anything from him, what can I say because we didn't give him an education." (ID 185). God or religion was referenced 19 times, often with uncertainty or a notion that the child's future wasn't fully in the mother or child's control: "I want him to do well but may God decide…" (ID 19). "I want him to do good, with God's will he gives him life still, but I don't know what he'll do." (ID 146). "…I have told her to start her education for her career and to finish with God's will." (ID 106).

Research Question #3

The third research question was designed to explore the community-related attitudes and beliefs about education for children in this community. Interview questions

discuss knowledge of other parents' decisions about their children's education, perspectives on how to improve educational attainment in the community, and the perceived influence of gender biases on children's educational attainment.

Importance of Elementary Education in the Community

"Are there parents who think their children do not need to go to primary school or do not need to complete primary school? What do you think about these parents?"

Four mothers were coded as responding that no one in the community has this perspective: "Everyone takes their children to school." (ID 120). "No, perhaps now there isn't. Everyone takes their children to elementary school. Even if they only learn to read and write but they give them elementary school." (ID 106). There were 33 codes given to the statements that suggest that there are parents in this community who do not believe that their children need to complete primary school, either due to perceptions about the importance of education or due to financial necessity: "Yes there are [parents in this community]. They say that it will be the same with or without studies. It is worse if they have a lot of children." (ID 110). "There's also parents that think that it's better not to [send children to school]. Some say that school is bad because they learn bad things there. Some think like that." (ID 114). Examples of financial factors include: "I think because of financial hardship and they have a lot of children…they send their children to work and not to study." (ID 142). "I know a family that does not have the ability [to pay for education]. They don't have a home, only nylon on their roof, and they didn't give their children schooling. They said they didn't go to school. A lady in our community felt bad for the children and she gave one of the children a year of schooling so they could learn a bit." (ID 93).

There were 20 codes given to mothers expressing that the belief that children do not need elementary education was wrong: "It is not right because there are children that do want to study. Yes, there are still a lot of parents that think this way." (ID 44). "It's not good what they're doing [not giving children education]. They [parents] should at least give them three years of schooling." (ID 189). Four codes were given to statements where mothers expressed that this perspective was neither right nor wrong, or not fair to judge: "On one side it is good and on the other side it is not good. Because sometimes they have studies and they are not good financially and the ones that are not [educated] are financially better off. But maybe it is better for them to study." (ID 184). "Well, I don't think anything [about it] because it is the one as the parent who makes the decision." (ID 24).

Acceptance of Dropping Out from Elementary School

"In this community, if a child doesn't want to finish primary school, will parents usually allow him/her to drop out?"

Affirmation that children are allowed to drop out from elementary school in this community was coded 32 times. Perceptions of the importance of education was coded as a contributing factor 20 times: "There are parents who say that school isn't necessary and why give them schooling, because they do not have money." (ID 189). "It's not fine, they should send them because it's better for them to study." (ID 185). Financial considerations were coded 22 times: "Yes, because perhaps financial restrictions do not permit them otherwise." (ID 12). The decision to drop out was considered as the child's choice in 29 statements, typically echoing that you cannot force children to attend school: "It is not right if a child does not want to go to school and the parents allow that…I think

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it is best for children to go to school. But also if a child does not want to go what can a parent do to obligate them?" (ID 120).

Starting School in the Community

"It seems like some children in Camanchaj start school at age 7 and some start at age 8. How do you think other parents decide when it's best for their children to start school? Or can the children decide when they want to start school?"

Many themes were identified as influencing the decision to start education for children in the community, including the interplay between parent and child choice as well as benefits of delaying due to physical development, benefits of beginning young, finances, and parental neglect. One mother spoke to the complexity well: "…sometimes we as parents only think about ourselves and not about them [the children]. And they also say that they don't have money. Sometimes the children don't want to go to school and for the parents that is fine and they let them. There are parents who say that the kid doesn't want to and they don't make them because they don't want to spend their money…But what would be of the future of our children?...An education is like an inheritance for our children. So that they can later get a job and have money…the ones that don't have money are the ones that struggle [to provide] for their children." (ID 61). There were 41 instances coded where the participant mentioned that parents decide and 11 references to children deciding, with several mentioning both as described in the quote above. There was only 1 reference to the school setting the age and promotes a later start date: "They tell us that they can not be too young and that they have to be in preschool two years." (ID 14).

Developmental readiness was coded 26 times, either in reference to logistics with getting a child to school or physical danger at school and supported the benefits of delaying the onset of education. Examples of logistic concerns include: "Because when they are young you have to drop them off and pick them up and it costs a lot. When they are eight years old then they can come back alone." (ID 110). "Perhaps they feel sorry waking them up so early…and perhaps with one more year it is different they get dressed themselves." (ID 23). Waiting until children were old enough to protect themselves was another explanation: "…When one takes them so young they [other kids] hit them sometimes." (ID 18). "…a child was standing by the door and the others closed it and his finger got stuck and they took off a piece. I felt bad for him because they're little and that's why I didn't take mine so young. We ought to take care of them." (ID 142).

Twenty references were made to the benefits of starting school at a younger age, either because they learn better or they progress through school and graduate at an earlier age.

"…I sent them at that age [older] because I got scared when they were younger. But later on I noticed that it's better to send them when they're little because at this age they don't learn much, I see that with my youngest now that I took him very small and he learned how to read at the age of six." (ID 184). "…for me it is better when they are still small. When they graduate sixth grade they are at a good age. But for other parents, no." (ID 142).

Other noted themes include the effect of finances on prohibiting the start of schooling, coded 16 times: "…there are parents that don't have money and…that's why

they wait to take them until that age." (ID 92) and the occurrence of parents in the community who do not prioritize their children's educational needs, coded 5 times: "
"Maybe the children don't want to or maybe it's the parents who don't notice their children." (ID 50). "I think it's because parents don't notice their children. They don't love them because when one loves their child you have to think about them first, because when they get older they don't learn as well." (ID 122).

Choosing Among Children in a Family

"Parents sometimes have to choose who among their children to send to school because they cannot afford to send all of their children. How do you think they make that decision?"

Responses to this question suggested that it was often due to a complex combination of factors: "I think that perhaps the kids don't want to or maybe it's the parents that don't have the possibility because when the children go to school they need to be given money…I don't know how they choose or maybe because they're girls and that's why they don't give them any [education]." (ID 146). The most commonly coded reason was financial, with 33 references to not having enough resources for all children: "Perhaps they can't with the studies because you spend a lot of money and that's why only some go." (ID 178). "Perhaps they don't want to take them because they want them to have enough to eat. I have my children in school…even though we only eat tortillas with salt. Now the ones that don't take their children to school always have good food…I took all of them [my children] to school even if only for a little bit."

The second most common consideration in choosing which children to send to school involved thoughts about gender, with 21 codes represented by the following

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quotes: "There are parents that believe only the boys need it and that girls are only going to get married and they don't take them." (ID 42). "With my siblings they only gave schooling to my brothers, and I tell my husband that we are all the same that's why we gave them [our children] up to 6th grade [education]." (ID 188). Sometimes gender considerations were necessitated by limited resources: "There are parents that have 8 to 10 children and thus they can't send all of them to school. It's because here many parents like the males a lot but not the girls." (ID 12)

There were 19 references to individual characteristics of the child influencing which ones attend school: "Perhaps the kids do not want to go and they do not push them to go but the ones that do want to go they take [to school]". (ID 23). "There are some [parents] that say only for the intelligent ones and the others no, they do not give them an education." (ID 125). Parent neglect was coded 9 times: "There are parents that do not care. And they say they will see what they will do later. It is because they are a bad father, a bad mother. They do not strive or fight for their children…" (ID 40). Lastly, doubting or rejecting the importance of education was coded 5 times: "There are a lot of families over there that don't send their children to school. Sometimes I ask them why they don't send them, and they say that no one sent them and they are surviving." (ID 40).

Educational Attainment Beyond Elementary School
"Are more children going to middle school and high school now than in the past? If so, why do you think more children are going to middle school and high school?"

There were 4 references to no change between the past and current educational attainment after elementary school, 37 references to some change and 20 references to the

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occurrence of significant change. Many factors explaining this change were identified, and often it is a combination of several at play. Shifting perspectives on the importance of education were cited 42 times: "But now it is changing, education is important. When one does not have an education we cannot do anything, we cannot even read a paper. Everyone is studying now, before only the chosen ones would study in schools." (ID 1). "…back then education wasn't necessary…now men and women are becoming open minded that education is worth it…" (ID 142).

There were 28 references made to parent compliance with pursuing education, often cross-coded with an understanding of the importance of education (18 times): "Now there is more because the parents do what is possible and they are struggling for their children, they do their business and that way they can take the kids to school." (ID 120). "Now they [parents] take children to school. When I was younger they would hide us from the teachers so that they wouldn't take us to school." (ID 42). "I think parents realized that the education is important." (ID 114).

Access to education was referenced 15, either in the availability of schools or financial ability: "Before there was only one school and now there are a lot of children and schools. Before there were no schools." (ID 18). "I think that there are more now because a lot of people in the past didn't have the capability give their children an education." (ID 61). "Now there is more because before they did not give us studies because they [parents] didn't have money and they didn't look for a way." (ID 44).

Individual child characteristics that influence the decision were identified 13 times, sometimes in combination with an increase in accessibility: "The kids now want to study." (ID 120). "Because today the kids have more of an understanding and want to

study and there are also more parents that have the ability to give their children schooling." (ID 191). Lastly, gender was mentioned twice as a contributing factor: "Because before they would not give us studies…they would not give any to the girls." (ID 106).

Gender Beyond Elementary Education

"It also seems like a lot more girls are going to school than they did in the past. Why do you think that is happening?"

There were 45 affirmations coded that this is true in this community and 7 references to there being no change between the present and the past. There were 34 codes for gender equality, and more illustrative examples are provided for full context of the variety of responses: "Because now the girls say they have a right to study. But before they would tell me that girls didn't have rights and now the rights are equal." (ID 191). Gender equality was cross-coded with the importance of education 7 times: "Now it's the same as the boys, not before because they didn't value girls and they would say that women only get married and that they don't need an education…now it's changed." (ID 92). "There is more now because before they did not allow us [women] to go to school, now they know the importance of education." (ID 120). Gender equality was cross-coded with financial ability 4 times: "…because they [parents] tell the girls that they do not have enough money and because they are girls they do not value them…" (ID 82). "Yes, now there's more [girls in school], back then it wasn't like that. Now girls can [go to school] more because of the money." (ID 165). Lastly, there were 12 codes of girls' influence, but not referencing equality: "Because I see that the girls are more obedient than the boys." (ID 100). "There are more girls [in school] because perhaps they want to

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get a good job…" (ID 18). Three mothers described: "More girls are being born." (ID 91).

"In some communities, families think it's more important for boys to go to high school. Do you think that's true here?"

Responses were coded 25 times affirming that those attitudes exist in this community, but almost all thought that it was true for some but not all families. 8 mothers said that this is not the case here anymore.

References to gender equality were coded 21 times: "When I took my daughter to school someone told me why did I give her schooling if she's a woman. If she turns out to be pregnant [get accidentally pregnant from someone at school] it would just be a waste of money and that it's better to give it to the boys." (ID 191). "Yes there are [families who think this]. They say that only [high school education] for the men yes and the women no. For me, no [she does not agree]." (ID 91).

Among those who agreed that this does exist, 6 mothers rejected the idea that it's more important for boys to go to high school: "But her [the mother's daughter] being a girl and not giving her more will never get in my head." (ID 14). "I think that they [families who think this] have the wrong thought process." (ID 34).

Efforts to Improve Education

"What could the primary and/or middle schools in Camanchaj do to help children's education in your community?"

The most common response to this question involved improving teachers or that education was the teacher's responsibility, with 42 codes: "For the teachers to make an effort to teach the children." (ID 178). "I want them to give children more education,

because there are teachers that aren't giving a good education and we are wasting money because the children aren't learning." (ID 189). "It is the responsibility of the teachers to teach well." (ID 106).

Other suggestions for improving education in the community were sparse. There were 10 references coded as involving the children to improve education: "The teachers are good, it is on the kids if they do not pay attention." (ID 23). "[the schools should] insist that they [the children] attend school." (ID 24). 4 mothers said that they did not know or that nothing could be improved. 1 mother mentioned improving health: "One ought to properly nourish the children so that they can learn…" (ID 122), and 1 mother mentioned that improving education was the parents responsibility: "Nothing [the schools can do] because it's about the parents of the family. The teachers tell us to help one another to educate the children because they're our children…" (ID 42).

"What could the community of Camanchaj or the Guatemalan government do to help children's education?"

Responses were varied regarding whether the community or government could help improve education. There were 48 codes for statements that education could be improved, 18 statements that the respondent did not know how to help children's education, and 10 statements that nothing could be done by the government, either because the government does not help (e.g., is useless or incompetent), there is no need for improving education, or it is the parent's responsibility to improve education. For example: "I think everything is fine and there is nothing to do." (ID 120). "The government doesn't support us with anything." (ID 50). "Nothing because it's about the parents of the family." (ID 42).

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Among those who said that education could be improved by the community or government, financial suggestions were coded 42 times: "Send scholarships to children because they need them." (ID 142). "They have helped us by sending books, pencils, because that is what the children need. They need to support them so that they continue in their studies. They need to send them notebooks because that would help us a lot. School supplies and lunches. They have helped with that." (ID 34).

There were 41 references made to improving teachers: "The president of Guatemala needs to tell the teachers to give the children a good education because that is what he pays them for." (ID 1). There were 16 references to increasing the supervisory role of local or national government to improve education: "To control the schools how they're educating the children." (ID 189). "What the authorities could do to support education of their children is they should go to the schools, visit the children and see how they're doing. To support in whatever need they have." (ID 114). "The town council also needs to improve because they are the authority in the center. The job of the council is to speak with teachers so that they can give a good education to the children, but they don't say anything." (ID 1).

Improving accessibility to education was referenced 9 times, either by providing more schools or more teachers: "…there are not institutes [middle schools] here…There needs to be another space, another land to build more schools…because we are growing, there are more people now…" (ID 19). "The government said they were going to hire more teachers for schools but they haven't done it. Now there are a lot of children in a classroom. The government should hire more teachers to give the children a good education." (ID 106). Lastly, 9 references were made to the government providing lunch

or snacks: "To send lunch. Before they sent school supplies but now I don't know…" (ID 61). "The government is the one who's given the lunch for the children…"(ID 42).

Results Summary

Research Question 1. This research question focused on the factors that influence a child's likelihood of dropping out prior to completing 6th grade. The most common explanation for dropping out of school was financial (43 references), followed by health (9), family obligations (5), equality across siblings (3), and poor behavior in school (2). Children were referenced as making the decision 56 times whereas parents were referenced 34 times, and 9 times both were involved in making the decision. Parents referenced their child having dropped out as being a poor decision 86 times, and some mentioned strong emotions such as regret (13) and defeat (9), and that despite it being a poor decision, ultimately it was the child's choice (21). Explanations describing why it was a poor choice included that their children now lacked education (15) or were unable to get a good job (7). However, dropping out was considered the right decision 48 times, with explanations that their children were now able to work (5) or pursue starting a family and/or providing for their own children (2).

There were 19 children who had dropped out of school and later returned, and explanations for the decision to temporarily withdraw included poor academic performance (5), health (3) and finances (2). Interestingly, the choice to temporarily withdraw and later return was referenced as the child's decision (11) far more often than the parents' (3). Among those who had dropped out and not yet returned to school, it was more likely that their child would not return (63) than would return (26). For mothers who felt it was unlikely, explanations included family (10), finances (4), and work (3),

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and this was often described as the child's decision (21). However, for those who felt their child would return, only 6 referenced it being the child's decision and an equal number of references were made to parental conviction to ensure they return.

Research Question 2. This research question was designed to explore influences on a child's likelihood of graduating from elementary school. In choosing when to begin school, this was referenced as the parent's decision 229 times and the child's decision only 34. Explanations included being the appropriate age 116 times, finances 33 times, and physical development 22 times. However, once the child is in school, decisions to remain allow much more child influence and are marked with a level of uncertainty in continuing education. When mothers reflected on how they felt about their child's continuing education, 33 mentioned providing direct parental support. Though mothers often felt happy their child was in school and would feel sad if they left, 32 mentioned it being the child's choice.

When parents were asked a very open-ended question about their hopes for their child's future, education was mentioned 232 times and family 161 times, and often both were mentioned, suggesting that parents understand the importance of both in their child's life and that education is a key component to a successful future. These two goals were often cross-referenced with explanations involving work (125) and finances (98). However, uncertainty about their child's future was clear, where 61 references were made to it being up to the child, 49 explicitly stated that they are uncertain what will happen for their child, and 19 made reference to it depending on God.

Research Question 3. The third research question was designed to assess community-level attitudes and beliefs about education and the impact of gender-related beliefs on

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children's education in the community. Mothers affirmed that there are parents in the community who did not value elementary education 33 times and rejected the notion that this exists only 4 times, offering either financial explanations or that education was not important to some parents in the community. However, the majority of mothers felt this was wrong (20) and only 4 said it was neither right nor wrong. Mothers affirmed that there are parents in this community who allow children to drop out of elementary school 32 times, citing explanations that you cannot force children to attend school against their will (29), financial limitations (22), or not viewing education as important (20).

In reflecting on how other parents determine the best time to start school, parent choice (41) was referenced more often than child choice (11), and guidance from the school on the appropriate age to begin was only referenced once. Mothers felt that other parents considered developmental readiness of the child (26), that it was good to start young (20), that finances may be prohibitive (16), and that some parents felt education was not important (5) and thus were likely to delay starting their children's education. When parents had to decide which children to send to school within a family, mothers reported that other parents considered finances (33), gender of the child (21), and child characteristics (e.g., intelligence) or desires to attend (19). In addition, the occurrence of parental neglect in this community was referenced 9 times and that some parents in this community did not value education (5).

Mothers almost always affirmed the changes in the community that we expected. For example, when asked if more children are attending education after elementary school than in the past, only 4 mothers rejected this whereas 37 references were made to some change and 20 references to significant change. Explanations included that parents

valued the importance of education more (42), that more parents are struggling for their children's education now than in the past (28), that access to education has increased (15), that child characteristics have changed (e.g., more children want to study now) (13), and changes in gender ideas (2), specifically that more girls are studying.

When asked specifically if more girls were attending school now than in the past, 45 affirmative references were made and this idea was rejected only 7 times. 34 references explained that this was due to gender-equality, either that the importance of education is valued for girls now (7) or that parents are willing to pay for girls education now more than in the past (4). Twelve additional gender-related explanations included that girls were more obedient, wanted a job, or more were being born. Further, when asked if families in the community felt that it was more important for boys to attend high school than girls, mothers affirmed this 25 times and rejected this idea 8 times, citing that some in the community held beliefs consistent with gender inequalities (21), but 6 responded by saying that these beliefs were bad and rejected this for their own child.

Lastly, efforts to improve education in the community were discussed. Improving education was referenced as the teacher's responsibility 42 times, and 10 mentioned child-level improvements (e.g., children should be made to attend more). There were relatively few other ideas for improving education: 4 mentioned that they did not know what could be done, 1 mentioned that health could be improved, and 1 mentioned that it was the parent's responsibility. However, there were 48 affirmations that the Guatemalan government could or should improve education, whereas only 10 said there was nothing the government could do, though 18 said they did not know what could be done to help education in their community. Suggested improvements from the government included

financial help (42), improving teachers (41), increasing government supervision (16), increasing accessibility to education (9), and providing free lunch or snacks (9).

Discussion

The purpose of this study was to engage in an in-depth examination of the perspectives of mothers in the community on the perceived influences that promote or inhibit their children's educational attainment. This study was designed to explore findings from Study 1 and 2, to clarify and enhance understanding of the patterns and processes described in those studies as well as to interpret if the findings have relevance to mothers' reported experiences. Each research question will be examined separately for specific themes that emerged and then limitations, key contributions and future directions will be discussed.

Research Question 1

The first research question was designed to examine influences on a child's likelihood of dropping out prior to completing 6th grade, how mothers felt about their child dropping out of school, and if they thought their child would return to school. In analyzing the respondents answers to the interview questions, three themes emerged that will be discussed: the complexity of multiple influences, child versus parent choice in decision making, and the effect of crises.

The Complexity of Multiple Influences. Some explanations for dropping out of elementary school have been verified in past research, including financial concerns and limitations and the impact of health, either the mother's or the child's (Engle, et al., 2011; Krishnarante, White & Carpenter, 2013). However, I expected a greater impact from wanting to pursue starting a family and poor academic performance than was discussed in

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this community (Boyden & James, 2014; Edwards, 2002). Interestingly, I did not expect concerns about maintaining equality across siblings or poor behavior in school to have the influence it did on the likelihood of dropping out of education and these factors must be explored in more depth. Mothers in this community seemed to know that education was important to pursue and that it helped children to get a job, citing both of these as reasons that dropping out was a poor choice for their children. However, other mothers felt that it was a good choice, listing work and family obligations, suggesting that education competes with these in this community. Indeed there were many indications that multiple influences interacted to affect a child's likelihood of dropping out, reflected in the many cross-codes found in the analyses. These are not simple decisions and there were many instances where finances were connected to other influences such as child factors (e.g., if one child wants to attend school more than their siblings). Financial factors were often cross-coded with parent or child choice as well to determine if a child would drop out of their educational trajectory, suggesting that it was often a part of many considerations for educational attainment. Intervention efforts must aim to provide a multisystemic approach to influences and the interaction of these influences such that the interventions are responsive to factors individually and in conjunction with one another.

Child Versus Parent Choice in Decision Making. One striking theme present in the interviews involves the idea that children are active in educational decisions and often are given authority in deciding their educational choices. In dropping out and in returning, children were referenced as making that decision far more often than parents were. This persisted even when parents felt that dropping out was a poor choice, yet over one fourth of those responses also referenced that ultimately it was the child's decision. It is crucial

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to investigate the underlying factors in this decision making process, both within this community and more broadly to validate if this occurs in other low income countries. In many high income countries with developed educational systems, a child simply does not have the choice about whether or not to continue their education until late adolescence. In Guatemala, as in most high income countries, elementary education is compulsory (GEF, 2015) though this is not enforced. However, there were parents who demonstrated a strong encouragement of education for their children or a strong conviction that their child would eventually return to school and complete their education. It is necessary to understand how families negotiate decisions surrounding a child's education and how they determine who has ultimate decision making authority. There may be particular value in examining mothers who do not let their children decide their educational futures, but instead assert that their children will complete elementary school in this community regardless of child preference.

The Effect of Crises. Crises are particularly problematic and exercise great influence on children's educational trajectories. Financial struggles were identified as the primary factor increasing a child's likelihood of dropping out as well as a key factor in preventing a child's likelihood for returning. Health was the second most common explanation for dropping out and for causing an interruption where the child later returned to school. These health concerns usually involved an unforeseen health crisis that affected the child or affected the parent which then limited the parent's ability to pay for their children's education. Importantly, mothers noted that their child was unlikely to return nearly three times more frequently than they stated that their child would return, suggesting that when a child drops out they are at a high risk for discontinuing their education permanently.

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Therefore, these crises and their damaging effect on a child's educational attainment are crucial to examine further. This is not unique to this population; low income communities often report the lack of a safety net such that one unexpected health or financial incident can have devastating effects on a child's educational attainment, and these effects can be lasting (Boyden & James, 2014; Clarke & Feeny, 2007), particularly given the reduced likelihood that a child will continue education once they have dropped out in this community.

Research Question 2

The second research question was designed to examine influences on a child's likelihood of graduating elementary school, when the child began school, how parents felt about their child staying in school, and how mothers felt about their child's future more broadly. In analyzing the respondents answers to the interview questions, four themes emerged that will be discussed: maternal support for education, uncertainty about education, social support for education, and the relationship between education and work.

Maternal Support for Education. Mothers generally report wanting their children to pursue their elementary education and feeling happy when their children are in school and report that they would feel sad if they left. This was highlighted in mothers' discussions of their children beginning education as well. The decision to begin education was the mother's decision far more frequently than it was the child's choice, and mothers cited the appropriate age for beginning education as the most common reason, followed by physical development and readiness, suggesting that most mothers in this community are eager to send children to school when they feel their child is ready, even though this comes at an increased financial cost or burden, which they also report

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when discussing the decision to begin their child's education. Mothers referenced the need for direct parental support in encouraging their child's education with the same frequency that they mentioned continuing education as the child's choice when discussing how they felt about their children continuing to pursue education. When discussing their children's future more broadly, educational goals were mentioned at the highest frequency, followed by goals for family. Further examining the role of maternal support in fostering children's educational attainment would reveal important contributions that these mothers could offer to other parents in the community. In particular, mothers who are struggling with similar barriers and concerns but ultimately report wanting the best for their children, as revealed in the hopeful discussions about what mothers want for their children's futures.

Uncertainty about Education. Despite the majority of mothers clearly stating that they want their children to continue pursuing education, that they actively support it, and that it is an important component for their child's future, many mothers report a general lack of control over the situation or an element of uncertainty. Despite feeling sad if their child left education, 32 references were made regarding the notion that continuing to stay in school was the child's choice. Further, mothers echoed this uncertainty when discussing their children's futures more broadly, with 61 references to the future being up to the child and a relatively equal number saying they were uncertain how the future would end up for their child. In addition, the notion that a child's future was up to God was stated frequently, and often in an unempowered way. This lack of empowerment is a known experience in low income countries, particularly regarding the future of one's family, health, and financial success (Kim, Yang & Hwang, 2006; Israel, Checkoway,

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Schulz & Zimmerman, 1994). If parents do not feel a sense of efficacy regarding their child's educational attainment, while simultaneously facing pressing financial or health concerns, it is clear that this could have very negative effects on educational outcomes in this community.

Social Support for Education. There does seem to be social influence on educational choices. In interviews, mothers reported that their children experienced positive social pressure to continue their education from many sources including parents, friends, and siblings. There is evidence that education is important to mothers in this community, both to mothers generally in that many report feeling happy when their child is in school and that education was the most frequent factor discussed when talking about a child's future. Further, there is a community sense of an appropriate age for children to begin their education, suggesting that these social norms exist to support beginning education. This is a crucial baseline for interventions where knowledge about existing social supports can be useful for capitalizing on community strengths and for understanding areas of need to improve educational attainment.

Education and Work. One important factor that seems to conflict with goals for educational attainment in this community is ideas surrounding work. Though this study does not indicate evidence of child labor as a barrier to education in this community as is well documented in other low income countries (Basu & Tzannatos, 2003), there is evidence of work inhibiting education, particularly as children age. Perhaps more importantly, education and work were cross-referenced with great frequency. It is clear that many mothers consider education to be a necessary precursor to a good job and this is often intertwined with goals for future financial success. Interestingly, almost no

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responses about goals for a child's future employment discussed a specific job or career – mothers did not seem to have specific career goals for their children, simply that they had a job to support their families. Anecdotally, this may be quite different from career goals that mothers state for their children in high income countries. Understanding community perceptions regarding the path from education to career to financial stability seems to be one way that interventions promoting educational attainment may be particularly successful for this community.

Research Question 3

The third research question was designed to examine attitudes and beliefs prevalent in the community regrading education, the influence of gender on a child's education, and ways to improve educational attainment for children in the community. In analyzing the respondents' answers to the interview questions, three themes emerged that will be discussed: community-level beliefs, gender-related beliefs, and ideas for improving education.

Community-Level Beliefs. Mothers affirmed the existence of many beliefs in the community that we expected from prior research and other studies in this dissertation. First, many mothers affirmed that there are parents in this community who do not value elementary school education for their children, and that there are parents in this community who allow their children to drop out, sometimes because they do not view education as important. In addition, mothers affirmed that there are community beliefs about the right time to begin school and that these beliefs are far more influential than the school setting an appropriate age for children to begin (mentioned only once).

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Interestingly, mothers were far more likely to report on these negative perceptions when asked if these beliefs exist in the community than they did when discussing their own children. Thus, it may be that though these community-level beliefs exist, they do not translate to their own children. Importantly, though the results indicate little doubt that mothers perceive that there are parents who do not value elementary education, the majority of mothers felt this was wrong. Additionally, some mothers rejected these community-level beliefs directly when discussing their own children.

It is necessary to consider changes in the community with regard to educational attitudes and beliefs, and mothers were aware of many of these changes. The notion that more children are attending elementary school now as compared to the past was affirmed 57 times and rejected only 4 times. Further, mothers were aware that other parents are valuing the importance of education more now than in the past and also that more parents are struggling to pay for their children's education despite financial obstacles. The historical context of these community-level beliefs is important to consider and reflects some expected patterns that have been reported for Guatemala more broadly (e.g., some communities do not seem to value elementary education; Cuxil, 2002), but with a caveat clear in these findings that suggests that mothers may not apply these beliefs to their own children.

Gender-Related Beliefs. An explicit demonstration of the disintegration of the link between community-level beliefs and application of these beliefs to a mother's own child is illustrated in findings regarding gender-related beliefs in this community. Mothers reported that gender inequality and associated beliefs do exist in this community – specifically they affirmed that some parents consider the gender of the child when

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choosing which of their children to send to school and that there were families who felt that it was more important for boys to attend high school than for girls and that this was directly due to gender inequality. Importantly, mothers rejected this idea for their own child six times, even though they were not probed about how they felt about that belief in the interview.

Evidence of improvement in this community is also noted in the findings. Mothers affirmed that more girls were attending school now than in the past and that this was due to issues of gender equality, that education is now valued for girls as well as for boys whereas this was not always the case, and that parents are willing to pay for girls' education now more than in the past. The nuances in these findings are consequential for considering not only the community context but how this context may directly influence a child within that community, and the family processes responsible for negotiating potentially competing perspectives and goals.

Ideas for Improving Education. Lastly, mothers were asked about their ideas for improving education in this community. There were two factors that were most prevalent: financial support and improving teachers. Financial support was framed as help that the Guatemalan government should provide rather than being the responsibility or contribution of the smaller community. Improving education through increasing access with scholarships or free schools is a proven tool for increasing educational attainment throughout the world (Clarke & Feeny, 2007) and has been successful in Guatemala and specifically in rural indigenous communities (Cuxil, 2002; Edwards, 2002). The sharp focus on the need to improve teachers in order to improve the educational situation for children in this community was more surprising. Further

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research must uncover in what ways parents suspect that teachers are not meeting the needs of children or how teaching could be improved specifically. Lastly, there were a substantial number of mothers who reported that nothing could be done or they didn't know what could be done by the community or the Guatemalan government to improve education for children. This sentiment echoes a lack of empowerment to change the current situation and may be particularly important to investigate if interventions in this community to improve education are to be successful.

Limitations

Qualitative research and the structure of these interviews pose some limitations to the interpretation of this research. First, findings described in this study are not necessarily actual influences on educational attainment, but rather what parents perceive to be influences. This is particularly relevant when considering community-level beliefs and attitudes; though mothers reported that certain beliefs exist in this community, this study did not test or verify that these beliefs actually do exist in the community at the level that mothers reported. For example, though mothers report that many in the community hold gendered beliefs, a sampling of the communities gendered attitudes and beliefs may reveal that many do not actually hold beliefs that other mothers assume. Sampling community members and assessing their beliefs may provide a very different picture than what mothers perceive to be true. This would call into question whether the assumed pressure truly exists in the community – that is, mothers may perceive gender inequality in the community but this may be an over-estimation or under-estimation of actual pressures in the community. Nevertheless, noting the perception of mothers

provides a unique lens to examine social norms and pressures they may experience that shape their interactions with their own children regarding educational attainment.

Second, there were some well-cited barriers to education that were not found in this research. For example, physical access to education such as transportation availability and the location of schools was not identified as a key barrier to children's educational attainment, though past research suggests that in some communities it certainly is (Little, 2010). Other examples include fearing for children's safety on their way to school or concerns about the spread of disease in school, among others (Engle, et al., 2011). Given the open-ended nature of these interviews, it is not known if these unmentioned yet often-cited barriers did not exist in this community or if they were simply less salient and therefore not mentioned. The findings would have benefited from probes throughout to verify that common barriers or promoters for educational attainment that were not mentioned were truly not considered factors in educational attainment in this community. One limitation is that our sample is very homogenous - only mothers are considered and there is not significant diversity in this community. Thus our participants do not vary significantly by background and may not represent all of the challenges associated with educational attainment, particularly for neighboring communities.

Findings must be interpreted with caution due to limitations associated with using multiple languages in this research. The majority of the interviews were conducted in Ki'che, transcribed in Spanish, and translated and ultimately analyzed in English by an English speaking researcher. Thus, nuances of language and the meanings behind phrases may have been lost, though many attempts were made to mitigate this risk (See Methods). Interpretation of findings has not yet been member verified which will

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provide further protection against this risk. As a next step, I intend to take these research findings and discuss them with community members to validate my interpretation of their narrative and my conclusions from the research study.

Key Contributions and Future Directions

This study contributes an in-depth examination of factors that contribute to educational attainment in this community, many of which were found in the prior studies in this dissertation. This study clarifies some of the processes that influence a child's dropping out or continuing with education, as well as specific beliefs about the importance of education, the influence of gendered beliefs on educational attainment, and perspectives for how to improve education. This qualitative exploration allowed researchers to pass the quantitative findings from previous studies through the filter of culture and community to determine if the participants perceive the same environmental influences that are shown in the quantitative data (Hesse-Biber, 2010).

Verifying research findings with participants in the community is asserted as crucial for designing effective interventions (Kim, Yang & Hwang, 2006; Krishnarante, White & Carpenter, 2013). Considering all three research questions, it is clear that education has value on its own in this community but that other considerations such as work and family are important and that financial concerns and health are often barriers to educational attainment, particularly when they present as unexpected crises. Further, while community-level beliefs are important and mothers are aware of these beliefs (e.g., gender inequality in the importance of education), this study illustrates that these beliefs are not prescriptive for individual mothers – that is, some mothers reject those beliefs and do not parent according to community beliefs.

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General Dissertation Discussion

UNESCO (2010) released a report asserting that 61 million primary school-aged children were not in school globally and called for international development efforts to improve educational attainment in low income countries. Prior research has revealed important factors that influence educational attainment and related interventions (Krishnarante, White & Carpenter, 2013) but efforts are not always successful and international aid organizations continue to call attention to this concern (UNICEF, 2015). A primary criticism lies in the unmet need for research examining the nuanced and complex community-level explanations and reactions to this dilemma in order to better design high quality, effective interventions. By researching factors that contribute to elementary school attainment and the associated processes within the community and family, this dissertation aims to provide further understanding useful for ensuring that more children successfully complete elementary school in a rural village in Guatemala, with findings applicable to other low income rural communities globally.

This dissertation was designed to test and explore specific areas to target to improve educational attainment for rural indigenous communities through examining socialization patterns, beliefs and behaviors thought to influence educational attainment. In the first study I mapped the educational trajectories available to children in this community to gain a firm understanding of the educational landscape that influences the educational expectations and experiences for children in the community. I found very heterogeneous experiences and risks to educational attainment, both in the existence of many possible educational trajectories and in large age-for-grade diversity, and patterns

did not differ substantially by gender. The second study was designed to examine maternal factors that predict the likelihood of a child graduating from elementary school or dropping out in this community, above and beyond covariates of poverty and health. I found that maternal education predicted educational attainment for both boys as girls, as did maternal beliefs about the importance of school for future employment which was a particularly strong predictor for boys. The third study was a qualitative assessment exploring findings from Studies 1 and 2 in order to clarify the suggested patterns and processes affecting educational attainment and to offer explanations and provide insight into their meaning within the community. I concluded that interventions must consider many interacting factors including poverty, health, and gender inequality, as well as maternal and community-level attitudes and beliefs.

Key Contributions

Findings from this dissertation highlight several important contributions which will be discussed relative to all three studies and their application for future work aimed at improving educational attainment for rural children in low income communities globally.

Mixed-Method Design. I used a mixed-methods approach to more fully understand the processes influencing educational attainment in this community as well as the way community members interpret, frame, and reflect on these influences. In addition to mapping that risks and inequalities in educational attainment exist, and beyond predicting these patterns by identifying influencing factors, this mixed methods approach advanced the research to also consider how mothers perceived these risks, inequalities, and influencing factors to affect their own children. This provides a richness and depth of

understanding (Smith, 1995; Frost, 2011) that is particularly important in international work where significant cultural comparisons are made.

Understanding of Community Context. This contribution is crucial both for conducting high quality research in the community and for developing successful interventions. Mapping the educational trajectories in Study 1 and probing the interpretation of influences for community members in Study 3 allowed for a strong understanding of community context. For example, this community was found to excel in some unexpected ways (e.g., relatively few gender disparities in educational outcomes, most school-aged children are in school) compared to that which would be predicted by prior research for a rural indigenous village in Guatemala (UNICEF, 2013).

Investigating community context revealed that it is not necessarily prescriptive for children in this community. A clear illustration of this regards gender inequalities: Guatemala is known to have substantial gender inequalities (UNDP, 2013) with the education of indigenous girls suffering significantly (CIA, 2015). However, study 1 showed that girls in this community are graduating and dropping out of education at relatively equal rates as boys. Interestingly, in study 3, mothers affirmed that beliefs about gender inequality do in fact mothers do believe that the education of some girls in their community is affected by this, but that their own daughters are not affected by this community context. Thus, it may be possible that individual parents are protecting their own children's educational attainment regardless of present attitudes and beliefs in the community and the existing social context.

There is additional evidence of the influence of community on children's educational attainment and the importance of understanding the impact of this context. In

this dissertation, I noted equifinality in the educational trajectories of this community (Study 1); there were many different paths leading to educational attainment and heterogeneous explanations for having experienced different trajectories (Study 3). For example, dropping out was influenced by many factors (Study 2 and 3): where finances may be a cause for some children, others may be influenced by their mothers beliefs about the importance of education (Study 2) and yet, for others, dropping out was caused by an unforeseen family crisis (Study 3). When children drop out of education prior to graduating, regardless of the age or cause, some children return to education while others do not (Study 1 and Study 3), and for many varied reasons (Study 3). Thus, among the group of children who do successfully graduate from elementary school in this community, their educational trajectories and the processes that lead to their successful graduation may look very different for each child, with community context influencing them in very different ways.

Dynamically Shifting Context. This community is experiencing rapidly changing historical and social contexts and this may provide one explanation for these very different experiences and trajectories as well as the possibility for many influencing factors leading to educational attainment outcomes.

There is a changing historical context for this community and it is important to note how this might affect educational attainment for children. In this dissertation I interviewed mothers about the educational experiences of their children (Study 3), while taking into account factors like maternal education (Study 2), but mothers' experience with education was substantially different than their children's and vast change occurred over a period of only decades. Shifting historical contexts were the result of several key

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changes. International attention and resources were drawn to Guatemala in the 1990's after the civil war crisis, and many of this focused on oppression of rural indigenous communities and reduction of poverty (Chamarbagwala & Moran, 2011). Similarly, substantial educational reform has occurred in a few short decades, specifically focusing on indigenous communities and their lack of resources and low educational attainment historically (Cuxil, 2002). Therefore, maternal beliefs and the interactions of these with resources available in the community have been fast changing, and this dynamic context can be challenging for interventions. Quality research must be responsive to global child development concerns that are in flux and must account for these rapid changes in the community with flexibility and adaptability in order to design effective interventions.

In this research, it was particularly important to understand what these shifting, dynamic contexts mean for social change and the socialization processes within the family that influence educational attainment for children. This dissertation demonstrated that attitudes are indeed shifting in the community: parents value the importance of education for all children more than in the past. Perspectives on gender equality have also shifted, specifically mothers reported that girls deserve equal opportunities for education as boys, but that this was not the case in the past.

During these rapidly changing times, a key question concerns the directionality of the influence of social context and of the influence of beliefs on behavior. Are beliefs and attitudes lagging behind social changes (particularly related to children's educational attainment) or are mothers' and children's attitudes and beliefs leading the social change in the community? Social Role Theory (Eagly, 1983; Mead, 1934) would assert that societal changes (i.e., more gender equality) lead to shifts in individual beliefs and

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attitudes (i.e., mothers value education for their daughters) which then lead to changes in behavior (i.e., mothers fund the education of both sons and daughters) and progressive outcomes (i.e., girls educational attainment increases in the community). However, the present studies show evidence that mother's beliefs and attitudes about their own children are more progressive than what they perceive the attitudes and beliefs to be in the community. Therefore, there is evidence that our mothers are rejecting social norms when deciding to promote their own children's educational attainment, particularly for their daughters. In this pathway, attitudes later shift in alignment with experiences, and mothers may still think that education is not as important for girls as it is for boys generally, yet for their own daughter, they value her education. Future research should focus on identifying the processes through which social change influences educational attainment to create interventions that are responsive to these shifting historical and social contexts.

Implications for Intervention

The dynamic and shifting nature of the social influences and the heterogeneous educational trajectories highlighted in this dissertation suggest that a rich understanding of community context is critical to understand the factors contributing to educational attainment of children in rural low income communities. In addition, other important implications for interventions are considered.

In designing interventions to improve educational attainment, it cannot be assumed that the community shares attitudes and beliefs that researchers might mistake as universal. For example, education is not considered important to all families. Many parents felt that dropping out of elementary school was the right decision and that, when

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considering many competing factors, they valued the ability to work and earn income more than an elementary school degree. This dissertation illustrated that while finances and health are indeed barriers to education, providing free schools and healthcare may not increase educational attainment for children if mothers do not believe that elementary school is important for a child's future. In fact, many mothers in this community have not graduated elementary school and yet consider that they are happy and healthy and therefore have no real experience with how or why educational attainment may improve the lives of their children.

The findings also revealed the surprising power given to children in making decisions about their own educational trajectories – that is, there is no doubt that for some children in this community, if they decided not to go to school anymore they were allowed to drop out. And in instances where parents made decisions about their children's education, some parents reported allowing the child's preference to heavily influence their decision. Thus, interventions aimed at building schools, supplying scholarships or increasing health, while important, may not be effective in this community given the influences of maternal beliefs about the importance of education and social norms regarding negotiation of educational choices between parents and children.

However, these interviews undeniably illustrate that mothers in this community care about their children's futures. Due to complexities of poverty and the conflicting needs a family has when resources are limited, mothers often frame education as an economic commodity (i.e., weighing the costs of education now against the potential to earn more money with a diploma later) while being unable to witness the intrinsic value

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of education itself and the ability it has to improve lives more abstractly. But this reality does not mean that these beliefs are static; in fact, this and other rural low income communities frequently demonstrate resiliency and an ability to readily adapt to improve their lives and the lives of their children within highly changing social contexts.

Interventions to improve educational attainment for children globally must embrace the complexity of the interactions between many factors, including physical needs (e.g., poverty, health) as well as attitudes and beliefs among parents and community members. To achieve this, interventions must be built on a strong foundation of research that assesses these dynamic and shifting influences within the community while providing culturally respectful and applicable solutions. Though this dissertation provides valuable contributions, much future work is needed to understand the influences on elementary school attainment for rural children in low income countries to continue to work to improve child development globally.

> "One child, one teacher, one book, and one pen,
> can change the world." – Malala Yousafzai

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APPENDIX A

INTERVIEWER GUIDELINES

The translators must provide the literal translation. They cannot summarize what the interviewer says or what the respondent says.   Michaela will translate from Spanish to Quitche and Marisol will translate from Spanish to English.

The interviewer (Elizabeth) will lead and the translators are there as friendly help. Elizabeth will try to keep as much eye contact with the mom as possible throughout the interview. Sometimes this may feel like Elizabeth is ignoring the translators but it is not meant that way. She must do this so that it feels like the mom and Elizabeth are having a conversation that flows well.

It is important that we do not ever talk about the interviews outside of the interview room or with anyone else besides Elizabeth, Madisen, and Janet. We cannot ever tell anyone the name of the people we interviewed. We cannot ever tell anyone about the questions we ask the mothers. And we cannot ever tell anyone about the mother's answers. All of these things are a secret. They are confidential. We tell the mothers that we will keep their identities and their answers a secret and it is important that we do at all times.

It is important that we do not ever laugh or giggle or look surprised at a respondents answer because we want them to be able to tell us everything and always tell us the truth. If they do not feel like they can tell us the truth without being judged then they will not tell us everything that they think or know and the interview will be useless. We also cannot let them know that we agree with an answer or that we like an answer or that we think an answer is normal because they may try to only tell us answers that they think we like. We must always be friendly but neutral in our body language and our responses.

I understand these rules and guidelines and will follow them.

X _____   X _____   X _____
    Interviewer 1   Interviewer 2   Interviewer 3

APPENDIX B

EXCERPT OF INTERVIEW TRANSCRIPT

Mother ID: 23
Interview Date & Time: 8/22/14 8:00 a.m.
Interview location: room in S y P clinic
Interviewer: Dawn
Translators Present: Micaela
Is anyone else present during the interview: no
Language spoken during the interview: only kiche
Mother's level of spanish: none
Problems: no
Mother Packet: 1
Signed consent form: yes
Child Packet A: 2
Child Packet B: 0
Child Packet C: 0
Child Packet D: 0
Child Packet E: 2
Los Hijos y paquete:
Edgar 18, A
Luis 12, A
Alicia 23, E
Juan 20, E

<div align="center">Transcription Instructions</div>

<div align="center">Interview Questions</div>

Black Bold: Use this for the questions.

Purple Bold: Use this for extra questions asked. The ones we did not write in the template.

~~Black: Use if we did not ask the question to the mother because it was unnecessary. For example, she responded with "no" to a question and thus we did not need to ask the following question.~~

~~Red: If it was an error on behalf of the interviewer and she did not ask the question.~~

<div align="center">Interview Responses</div>

Normal Black: Use for responses that mothers said word for word when they were asked the question. This is for responses that do not need extra notes over special circumstances.

Blue: Use for responses that are copied from another place but are still the mothers exact words. This is for responses that mothers mentioned before and thus the question was not asked again.

Green: Use if the interviewer knows the answer but the response is not the mothers exact words. The mother might have mentioned it before or it was presumed. *For example, the question about clothing to protect themselves from the cold that the mother answered with a story about her sons shoes.

<div align="center">193</div>

--------------------------------------BEGIN INTERVIEW TRANSCRIPTION------------------

Child Packet A: Edgar, 18

1. **Do you remember how old child was when she/he started 1st grade?** *(If they can't remember, was it younger or older than most other kids?)*
   Five years

2. **Did child go to preschool? (***If yes, which school and why?***)**
   Only primaria

3. **How did you decide that it was the right time for your child to start school?**
   I see that other people have work here in the center. I did not got to school. I cannot speak Spanish. Thus we said its best for him to go to school so that he finds a job afterwards.

4. **Was the child ever held back a grade?**
   Yes. Third primaria
   Why did he start at that age?
   Because he only played at home and we said that its best he go to school and they did take him because I went to go ask the teachers and I told them I would give to the collaborations if I had to give, whether he passed or not I was going to give. They did accept him and he passed.

5. **Did she/he ever stop going to school and then return?**
   If yes, **when did those times occur and why?**
   No. Because I always got him up. I told them to go to school, I made their breakfast, their coffee. I washed them. And they became accustomed to it.

6. **What grade is child in now?**
   Sixth magisterio. **(Last year of his carrera as a teacher)**

7. **Where does she/he go to school?**
   In Chicua

8. *If currently in high school,* **how did you choose which high school to send child to?**
   Because all of the ones that have come out of there with a carrera have jobs. Because it is double shift.

APPENDIX C

IRB APPROVAL

APPROVAL: CONTINUATION

Carol Martin
Social and Family Dynamics, T. Denny Sanford School of (SSFD)
480/965-5861
CAROL.MARTIN@asu.edu

Dear Carol Martin:

On 4/11/2016 the ASU IRB reviewed the following protocol:

Type of Review:	Continuing Review
Title:	Colombia Peer Study
Investigator:	Carol Martin
IRB ID:	1304009062
Category of review:	(7)(b) Social science methods, (7)(a) Behavioral research
Funding:	Name: NSF-EHR: Division of Graduate Education (DGE), Funding Source ID: NSF-Division of Graduate Education
Grant Title:	None
Grant ID:	None
Documents Reviewed:	

The IRB approved the protocol from 4/11/2016 to 5/10/2017 inclusive. Three weeks before 5/10/2017 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 5/10/2017 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the "Documents" tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Dawn England

Office of Research Integrity and Assurance

To:	Carol Martin
	SS
From:	Mark Roosa, Chair
	Soc Beh IRB
Date:	05/22/2013
Committee Action:	**Amendment to Approved Protocol**
Approval Date:	05/22/2013
Review Type:	Expedited F7
IRB Protocol #:	1304009062
Study Title:	Colombia Peer Study
Expiration Date:	05/13/2014

The amendment to the above-referenced protocol has been APPROVED following Expedited Review by the Institutional Review Board. This approval does not replace any departmental or other approvals that may be required. It is the Principal Investigator's responsibility to obtain review and continued approval of ongoing research before the expiration noted above. Please allow sufficient time for reapproval. Research activity of any sort may not continue beyond the expiration date without committee approval. Failure to receive approval for continuation before the expiration date will result in the automatic suspension of the approval of this protocol on the expiration date. Information collected following suspension is unapproved research and cannot be reported or published as research data. If you do not wish continued approval, please notify the Committee of the study termination.

This approval by the Soc Beh IRB does not replace or supersede any departmental or oversight committee review that may be required by institutional policy.

Adverse Reactions: If any untoward incidents or severe reactions should develop as a result of this study, you are required to notify the Soc Beh IRB immediately. If necessary a member of the IRB will be assigned to look into the matter. If the problem is serious, approval may be withdrawn pending IRB review.

Amendments: If you wish to change any aspect of this study, such as the procedures, the consent forms, or the investigators, please communicate your requested changes to the Soc Beh IRB. The new procedure is not to be initiated until the IRB approval has been given.

Please retain a copy of this letter with your approved protocol.

Section I: PROTOCOL DESCRIPTION (Please answer each question in the space below it)

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1. Please describe the purpose of your research. Provide relevant background information and scientific justification for your study. You may provide citations as necessary.

The proposed project will involve the analysis and interpretation of data previously collected and maintained by Dr. Carey Cooper, PI of the proposed project, in a study of the predictors of academic attainment in rural Guatemala (carried out under the approval of the Institutional Review Board at Arizona State University). The project currently being proposed will therefore not involve the collection of any additional data.

A large body of research has examined the effects of various forms of socioeconomic disadvantage on children's academic outcomes in developed nations. Although disadvantaged youth face higher odds of experiencing academic difficulties, many remain engaged in and ultimately complete high school. Work exploring the factors that promote educational resilience in developed nations points to individual-level (e.g., maternal health and adolescent socio-emotional well-being) and family-level protective factors (e.g., stable relationships; see Cooper, 2010, as one example).

Research from developing countries, where socioeconomic disadvantage is more pervasive, is limited in scope but has increased our understanding of factors that place adolescents at risk academically. In these countries, many families are plagued by poor sanitation and limited access to clean water, electricity, health services, and schools. In Guatemala in particular, more than half of the overall population and about 71% of the Mayan population live below the national poverty line (World Bank, 2013). Not surprisingly, the educational chances of Mayan adolescents are bleak, with 28% completing primary school and 16% enrolled in secondary school. Mayan girls, in particular, appear most at risk, with 21% completing primary school and 12% ever attending secondary school (vs. 36% and 20% for Mayan boys; Hallman et al., 2006). Prior research on Mayans suggests that low family income contributes to poor academic outcomes (Yount et al., 2013). Little is known, however, about the educational consequences of other forms of socioeconomic disadvantage, especially those specific to families in isolated, rural areas. Even less is known about individual, family, and community resources that potentially buffer against academic risk.

Using data collected from structured interviews with mothers of school-aged children, the proposed research will use descriptive statistics and multi-level regression analyses (i.e., children nested in families) to examine the family- and individual-level predictors of school attainment (e.g., completion of primary school, middle school, and high school) among indigenous children in Camanchaj, Guatemala. Gaining a better understanding of relevant risk/protective factors and the extent to which they vary by adolescent gender can inform policies and programs designed to improve the educational chances of Mayan youth.

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2.	Federal guidelines state that research cannot exclude any classes of subjects without scientific justification. Will your study purposely exclude any classes of subjects (e.g. by gender, class, race or age)? If so, please justify.

No, as this research will use existing data. We will conduct analyses with the whole dataset.

3.	Please state your research question (in one or two sentences, if possible).

RQ1. To what extent are school-aged, indigenous children in Guatemala exposed to various forms of socioeconomic disadvantage (e.g., material hardship, low parent education)?

RQ2. To what extent are the quantity and quality of this disadvantage associated with children's school attainment (i.e., years completed)?

RQ3. What are the protective factors associated with school attainment for children in Guatemala who are exposed to disadvantage?

RQ4. Within our sample, to what extent are children's school attainment and family decisions about education associated with child gender?

4.	Please describe the *specific data* you plan to collect and explain how data and the subjects you choose will help to answer your research question/s.

This study will use existing data (see question 3). These data include information provided by mothers of school-aged children, collected during structured interviews and recorded in survey format, on factors directly related to the research questions. These include household composition, socioeconomic indicators, attitudes toward and expectations relating to education (predictor variables), and their children's school enrollment, attainment and experiences (outcome variables). Mothers were identified as the group most likely to be able to provide this kind of child and family data.

NB: As PI of the original study, Dr. Cooper is the owner of the data that we propose to use, and therefore a letter providing written permission to use the data will not be necessary.

Section II: DESCRIPTION OF RECRUITMENT AND PROCEDURES

5.	Please describe your recruitment methods. **How** and **where** will subjects be recruited (flyers, announcement/s, word-of-mouth, snowballing, etc.)? You will need to include your IRB Protocol number in all recruitment materials, including announcements, online and email text. Paper copies of submitted recruitment materials to be distributed will be stamped with your IRB Protocol number once your study has been approved.

N/A – This study will use existing data.

6.	Are you recruiting subjects from institutions other than Teachers College? If so, documentation of permission or pending IRB approval from the institution/s is required with this submission.

No. This study will use existing data.

7.	How many subjects are you planning to recruit?

N/A – This study will use existing data.

8.	Please list what *activities* your subject will be engaging in (e.g. surveys, focus groups, interviews, diagnostic procedures, etc.). [**PLEASE NOTE**: If you are collecting any private medical information from your subjects, please see our website **www.tc.edu/irb** under Forms and Guidelines for the HIPAA consent document.]

Name of activity	# of times the activity occurs	Duration of activity per instance	Total time period of active participation per subject (days, weeks, etc.)	Describe the Data collected

Total hours of participation: **Duration of participation:**

N/A – This study will use existing data.

9.	Where will your data collection take place specifically (e.g., in classroom, outside of classroom, waiting room, office, other location)?

N/A – This study will use existing data.

10. Will subjects be remunerated for their participation? If, so please describe. [**PLEASE NOTE:** If using a lottery system, please remember to state odds of winning in consent form].

N/A – This study will use existing data.

11. Will deception be used? If so, please provide a rationale for its use. How will subjects be debriefed afterward? <u>Submit</u> debriefing script. Scripts should include a statement that gives your subjects the opportunity to withdraw their participation at that time. [**PLEASE NOTE:** studies involving deception are given **Full Board Review** unless the deception is minor and risks are minimal].

No.

12. Will you have a control group? Please describe your procedures and explain the purpose of using a control group.

No.

13. Will you be videotaping your subjects? If so, please describe in detail. [**PLEASE NOTE**: The IRB will only approve videotaping when there is adequate scientific and ethical justification].

N/A – This study will use existing data.

Section III: CONFIDENTIALITY PROCEDURES

14. How will you ensure the subjects' confidentiality? Describe in detail your plans for ensuring confidentiality of data regarding subjects. [**PLEASE NOTE**: If you will be remunerating subjects after their participation, please make it clear if and how you will link their names/contact information confidentially to their compensation].

Electronic data with family and child identification numbers will be stored on personal computers of Dr. Cooper, in files that are password protected. University-provided and/or personal computers of Dr. Cooper and Elizabeth Crossman will be used for data analysis. Electronic data files used for this data analysis will use subject codes and will have no identifying information that could link study data to individual participants.

15. If you will be audio/videotaping, please state how you will ensure that subjects have consented to being recorded, **and** if some subjects do not consent to being recorded, explain how you will protect their confidentiality. (This must also be clearly stated in your consent form/s).

N/A – This study will use existing data.

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16. Will data be collected anonymously? Will you be able to link the data? If data will not be collected anonymously, how will subjects' identity/ information be protected? (e.g. codes, pseudonyms, masking of information, etc.)?

The data that will be used for this study were not collected anonymously. To ensure that subjects' identities are protected, subject codes will be used in the data files used for analysis. Family identifiers are stored separately from subject codes and are protected with a password.

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17. Where will coding and data materials be stored (e.g. 'in a locked file cabinet in the Principal Investigator's home or office')?

Coding materials are stored on Dr. Cooper's computer in her office at Teacher's College, Columbia University. All other data materials are stored in a locked filing cabinet in Dr. Cooper's office.

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18. Will you need bilingual interpreters or interviewers, and if so, what will you do to ensure confidentiality of the subjects? What are your procedures for recruiting interpreters/interviewers? Indicate the name of the interpreter/interviewer and for whom he/she works. <u>Submit</u> copies of all questionnaires or interview questions for each subject population.

N/A – This study will use existing data.

SECTION IV: DESCRIPTION OF RESEARCH RISKS & BENEFITS

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19. What are the potential risks, if any, (physical, psychological, social, legal, or other) to your subjects? What is the likelihood of these risks occurring, and/or their seriousness? How will you work to minimize them? [**PLEASE NOTE**: The IRB regards no research involving human subjects as risk-free. You may describe minimal risks for your study (such as discomfort, boredom, fatigue, etc.), or state that the research will involve minimal risk, similar to an activity (named) like that which participants will perform as part of your study.]

This research will involve minimal risk to subjects as it involves conducting analyses and interpretation of existing data, with no contact with subjects. A potential risk in the use of data such as in this study is embarrassment caused by breach of confidentiality. In this study, subjects' confidentiality will be assured by securing identifying information in a locked filing cabinet and in password protected computer files, and by including no identifying information in electronic

files used for data analysis. Any disseminated data (e.g. that used in empirical research papers prepared for publication) will also be de-identified and only reported in aggregate.

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20. What are your plans for ensuring necessary intervention in the event of a distressed subject and/or your referral sources if there is a need for psychological and/or physical treatment/assistance?

N/A – This study will use existing data.

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21. What are your qualifications/preparations that enable you to estimate and minimize risk to subjects?

Dr. Cooper has maintained the confidentiality of the data that will be used in this study since its collection in 2010. The procedures for maintaining confidentiality, described above, will be continued during the proposed study.

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22. What are the potential benefits of this study to the subjects? Most research conducted at TC provides NO DIRECT BENEFIT to participants and must be STATED as such in the INFORMED CONSENT FORM. Occasionally, study design will include a diagnosis, evaluation, screening, counseling or training, etc., that have a concrete benefit to participants, independent of the nature or results of a research study that may be listed below. Benefits such as "an opportunity to reflect," "helping to advance knowledge," etc., ARE NOT BENEFITS and MUST NOT be included in this section.

There are no direct benefits of this study to subjects.

Section V: INFORMED CONSENT PROCEDURES (Please use the templates on the website in preparing your consent form/s, and note that Informed consent is a process, not a form).

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23. What are your procedures for obtaining subject's informed consent to participate in the research?

N/A – This study will use existing data.

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24. How will you describe your research to potential subjects? [**Please note:** if working with a population under eight (8) years of age, a script is necessary.]

N/A – This study will use existing data.

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25. What will you do to ensure subjects' understanding of the study and what it involves?

N/A – This study will use existing data.

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26. If you are recruiting students from a classroom during normal school hours, what will the **alternative** activities be for those who wish not to participate? (This should also appear in your consent form/s)

N/A

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27. Use this section to provide a request for a full or partial waiver of informed consent, and justify this request. You may site criteria from the following link regarding Federal regulations and guidelines:
http://www.hhs.gov/ohrp/humansubjects/guidance/45cfr46.html#46.116

We request a full waiver of informed consent for this study. Subject consent was obtained at the time of the original data collection, and this study only uses that existing data.

Note for Researchers: Submit all consent forms/scripts, using the templates provided on the website. **Drafts of consent forms will not be accepted.** Each consent form must be a separate document and titled for its respective subject population (e.g. teachers, parents, etc.). All consent documents must be in English, even though you may translate them. **All consent documents should be printed on Teachers College letterhead or include the name and address of the college, per the online Informed Consent and Participant's Rights templates**.

If your research project requires using documents that are translated into other languages, please submit both the translated English version AND the translated document with your application. You must sign and date the document.   TC strongly urges investigators to use back translation (translation into the target language and back into English) as a method of ensuring the translation's accuracy. Revised consents will also need to be translated.

NOTE: If you are conducting any part of your research within NYC DEPARTMENT OF EDUCATION [DOE] Schools: It is required that you receive approval from TEACHERS COLLEGE prior to submitting to the NYC Board of Education's Division of Assessment and Accountability.

To: Carey Cooper
From: Karen Froud, IRB Chair
Subject: IRB Approval: 14-331 Protocol
Date: 07/09/2014

Dear Carey,

Please be informed that as of the date of this letter, the Institutional Review Board for the Protection of Human Subjects at Teachers College, Columbia University has given full approval to your study, entitled "*School Attainment among Mayan Adolescents in Rural Guatemala: Quantitative Study*," under **Expedited Review**.