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Résumé de l'article

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"*LI KA FE'L TOU*"[1]: THE INFLUENCE OF AN EDUCATIONAL TELEVISION PROGRAM ON HAITIAN CHILDREN'S GENDER BELIEFS

Dina L. G. Borzekowski, Tanesha Mondestin, and Sacha St-Onge Ahmad

Abstract: This study examined whether an educational television show would affect young Haitian children's gender perceptions. We first collected data on children's beliefs about male and female characteristics and roles. Among 862 participating 6- and 7-year-olds from urban, peri-urban, and rural settings, we saw gender stereotypical beliefs about activities, traits, and occupations. We conducted a school-based intervention over a 10-week period, in which children were randomly assigned to watch a children's television program in either of two groups: one that watched *Lakou Kajou* or one that watched *Dora the Explorer*. Each group saw 21 episodes of its assigned show, spread over 3 screenings of 7 episodes each. *Lakou Kajou* is an educational television show created in Haiti that purposely incorporates overt counter-stereotypical gender messaging. Among those children who watched *Lakou Kajou* and recalled more characters from the show, beliefs around gender became less stereotypical. In countries like Haiti, where pronounced gender disparities and biases exist, it is encouraging to see that a locally produced educational television show can change beliefs.

Keywords: television, media, educational, gender, sex roles, Haiti, receptivity, stereotypes

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[1] Haitian Creole for "He/She can do it too"

As early as age 3, children form perceptions around gender roles and assign stereotypical classifications to objects and activities (Kuhn et al., 1978; Liben & Bigler, 2002; Skočajić et al., 2020). Children come to believe the traditional stereotypes: that men will serve as the primary wage earner in their families, excel in mathematics and science, and suppress their emotions; that women will be wives and mothers, perform domestic tasks like cooking and cleaning, and gain employment in care roles (nurse, teacher, etc.; Vlassoff, 2007).

Rigid and inflexible gender stereotypes can impact children's development and the choices they make during childhood and throughout the lifespan. After children form beliefs about what is culturally acceptable or expected, they approach or avoid certain behaviors (Skočajić et al., 2020). Accordingly, internalization of gender stereotypes can negatively affect academic self-concept, reduce motivation and effort in certain subjects, and dissuade one from pursuing advanced education or STEM occupations (Correl, 2001; Cvencek et al,. 2011; Heckhausen, 1989; Möller & Köller, 2001; Rudman & Phelan, 2010; Ünal et al., 2018; Wille et al., 2018).

Sandra Bem's (1981, 1983) well-established gender schema theory posits that children learn sex-typing and gender roles primarily through cultural–environmental cues and constructions, forming beliefs about what is culturally acceptable or expected (Skočajić et al., 2020; Starr & Zurbriggen, 2017). Bem's gender schema theory aligns with two other theories — Bussey and Bandura's (1999) social cognitive theory and Gerbner's (1998) cultivation theory.

Social cognitive theory posits that children observe and learn traditional and non-traditional roles through social contexts, which include media messages: watching video and film, viewers absorb characters' behaviors and note which are rewarded and which are punished (Bussey & Bandura, 1999). Viewers form relationships with media characters and this can help explain media effects on children (Reeves & Nass, 1996). Children tend to adopt viewed behaviors into their own behavioral repertoires, especially if they like and admire particular characters (Bussey & Bandura, 1999). Learning is enhanced when children identify culturally with media characters and their narratives (Hoffner & Buchanan, 2005). Especially in educational media for preschool and young children, familiar characters and settings result in audiences paying more attention to, understanding, and accepting the communicated messages (Borzekowski, Lando, et al., 2019; Borzekowski, Singpurwalla, et al., 2019; Fisch, 2014).

Cultivation theory suggests that communicated media messages convey societal rules and realities: viewers who watch more media adopt what they see as normative. Over 25 years ago, cultivation theory provided evidence that one's level of media use predicted how much one's beliefs aligned with presented messages (Gerbner, 1998; Signorielli, 1990; Wille et al., 2018). As literature, advertisements, film, television, and videogames tend to transmit gender stereotypical messages, heavier media users tend to hold sexist attitudes and stereotypical views (Gerbner, 1998). That said, when media convey counter-stereotypical representations, users' beliefs can be

altered (Kneeskern & Reeder, 2020; Simon & Hoyt, 2013). The literature is encouraging, suggesting that well-designed media can shift rigid gender-stereotyped perceptions among young children.

Content analyses from around the world and across genres reveal that female characters are underrepresented and typically take on gender-stereotypical roles (Aramendia-Muneta et al., 2020; Bronfman & Wood, 2012; Daalmans et al., 2017; Prieler & Centeno, 2013; Sink & Mastro, 2017; Warsh, 2011). A recent study, which explored preschool programming delivered via public and private television stations in the United States, found that not only are there more lead characters who are male (49.3%) versus female (27.9%), programs addressing STEM and problem solving were more likely to feature male lead characters (Hamlen & Imbesi, 2020). In another study looking at science programs for school-aged children, male scientists significantly outnumbered female scientists, and appeared in more scenes than they did (Long et al., 2010). These media presentations perpetuate stereotypes related to gender characteristics and roles (Wille et al., 2018; Simon & Hoyt, 2012). While there have been improvements over time, and although exceptions exist, most media continue to fall short of portraying gender equality and highlighting counter-stereotypes. A recent U.S. content analysis exploring STEM television shows for children revealed that, while males outnumber females, characters of both genders engaged in scientific behaviors such as observations and problem solving (Aladé et al., 2021). The aforementioned theories and media representations would suggest that media can affect children's development of gender stereotypical beliefs.

The work described in this paper explores the ways in which a new educational television program might affect the beliefs of children living in Haiti, a country with strong, long-standing cultural traditions that faces many challenges. Before presenting our research questions and methodology, we describe the context of this under-studied setting.

Haiti

Part of the Caribbean island of Hispaniola, Haiti is the world's first Black republic. Plagued by environmental and political disasters, it is the poorest country in the Western Hemisphere. According to the United Nations Development Program (UNDP; 2022), 58.5% of the country's population lives in poverty, 24.5% of whom live on less than US $1.90 per day. Haiti has two official languages: the majority of the population speak Haitian Creole at home, but the language of instruction is French in the country's public and private schools (Felicien, 2019).

Great gender disparities and biases exist in Haiti. The gender inequality index (GII), a composite measure reflecting reproductive health, empowerment, and the labor market, is .636 in Haiti[2] (UNDP, 2023). Around 72.8% of men and 61.9% of women aged 15 and older are part of Haiti's formal labor force (UNDP, 2022). Few Haitian women work in professional jobs in the

[2] The GII ranges from 0 to 1, with higher values denoting greater inequality. The GII is .118 in the United Kingdom, .204 in the United States, and .455 in the Dominican Republic.

private (11%) and public (4%) sectors; rather, 77% work in the lowest-paid informal sector (Schuller, 2015). Women typically work in agriculture or in informal trading, such as selling food, clothes, and other goods in markets (Gardella, 2006). Also, women tend the home; when they work outside of the house, their jobs often entail housework and child care, fetching water, selling produce, and cooking for others. Among those employed, Haitian women earn annually around 70% of what Haitian men earn: $1,410 versus $2,016 (UNDP, 2022).

Haiti's natural disasters and political disturbances have not only contributed to the existing hardships women face, but also to additional vulnerabilities such as structural and gender-based violence (Mukherjee et al., 2011; Schuller, 2015). The women's movement in Haiti was greatly affected when three prominent feminists, Myriam Merlet, Magalie Marcelin, and Anne Marie Coriolan, who had been working towards gender equality, died in the 2010 earthquake (Tøraasen, 2020).

Schuller (2015) attributed the gender inequality in Haiti to unequal access to formal schooling, an educational disparity that shapes other types of discrimination in a Haitian woman's life. Among Haitian adults aged 25 and older, women have significantly fewer years of schooling than men do — 4.3 years versus 6.6 years (UNDP, 2022). It is well documented that both increased schooling and gender equality in educational attainment are valuable national investments, resulting in improved health and added human capital (Local Burden of Disease Educational Attainment Collaborators, 2020).

Haiti's media landscape is varied. The most recent data from The World Factbook (Central Intelligence Agency, 2023) indicate that just 39% of Haiti's population can access the internet. As a result, most Haitians receive information through radio. Across the country, radio is the dominant media source; around 200 independent radio stations are in operation, with 53 of them in Port-au-Prince (Privacy Shield, n.d.). Only one Haitian radio station, *Radio Timoun* (Children's Radio), caters to children (Internews, 2012).

According to Privacy Shield (n.d.), Haiti has around 106 television stations, with 32 stations in the capital, and three cable providers, Tele Haiti, NuTV, and Canal+, that offer subscription services, including international channels featuring programs from Europe, Latin America, North America, and the Caribbean. These are mainly available in Haiti's urban settings; people who live in remote or rural areas lack access to cable (Privacy Shield, n.d.).

There are no radio or television stations offering children's programs in Haitian Creole. Available shows typically are in French or the originally produced language. As we will describe in more detail in the following section, *Lakou Kajou* is the first animated educational television program in Hatian Creole designed specifically to target children.

The Potential of Educational Media

In low- and middle-income countries, intervention studies offer evidence that media has an impact on young children, helping them to develop skills including school readiness and social development (Borzekowski, 2018; Borzekowski, Lando, et al., 2019; Borzekowski, Singpurwalla, et al., 2019; Cole & Lee, 2016). Educational and entertaining programs, such as those created by media production companies like Sesame Workshop and Ubongo, can result in increases in literacy, numeracy, social skills, and health knowledge (Borzekowski, 2018; Borzekowski, Lando, et al., 2019; Borzekowski, Singpurwalla, et al., 2019; Cole & Lee 2016). While there has been much commentary on media's negative influences, carefully crafted messages can positively affect children's attitudes, self-perceptions, and aspirations (Simon & Hoyt, 2012).

In 2016, the nonprofit, U.S.-based organization Blue Butterfly Collaborative[3] (n.d.) launched *Lakou Kajou*, a children's educational media program produced by Haitian educators, artists, musicians, and others. As the Blue Butterfly Collaborative website explains, the goal of *Lakou Kajou* is to reach young Haitian children to improve their literacy, numeracy, and scientific and cultural skills. A main objective of the program is to convey counter-stereotypical messages around gender. Using animation and live action, *Lakou Kajou*'s content involves stories and events that model gender equity. Cartoon characters Tilou and Lili, who are brother–sister twins, encounter adventures and challenges that require problem-solving and cooperation. These siblings demonstrate that both boys and girls are capable of engaging in the scientific method. Additionally, as a means of promoting gender equity perceptions, *Lakou Kajou* offers short live-action documentaries showing young Haitian children participating in diverse and counter-stereotypical activities (Lakou Kajou Team, 2019; Sérant, 2019).

The gender messages in *Lakou Kajou* are prominent and overt. As stated in *Lakou Kajou*'s education framework, a document guiding the creation of program content (Lakou Kajou Team, 2019), the series' two primary gender equity objectives are to help children understand that:

1. Girls and boys (men and women) have equal rights and responsibilities.
2. Professions are not gender-specific.

Lakou Kajou's content promotes these objectives through explicit messaging (such as stories about gender discrimination, including one where the best player, a girl, is denied a place on a soccer team) as well as via implicit modelling of girls and boys, or men and women, engaging equitably in all aspects of daily life. In the animated shorts with Tilou and Lili, the girl character is often the more confident and successful problem-solver. Examples of messages in the live action segments include: a young girl considering a range of professions from pastry chef to car mechanic, a young boy assisting his grandmother on laundry day, and boys and girls helping with chores around the house.

[3] https://www.bbutterfly.org/about-us

The Present Study

The main research question explored in this quasi-experimental study is, "In what ways can exposure to a locally produced educational television show affect children's gender beliefs?" First, we needed to discover what Haitian children thought about male and female characteristics and roles; that is, "What were Haitian children's gender beliefs?". As no data were available on Haitian children's attitudes, our research team began by collecting data on gender perceptions and examining whether these varied by the child's sex, age, or region. With this knowledge, we could then address our primary question of whether exposure to an educational television program overtly featuring counter-stereotypical gender roles could alter Haitian children's perceptions. Given that gender schema, social cognitive, and cultivation theories all suggest that media can affect children's development of gender stereotypical beliefs, we expected that children who were assigned to watch the *Lakou Kajou* program and had higher receptivity to the characters would shift their beliefs around gender roles.

Method

Sample

Our sample began with 899 Haitian children (469 girls and 430 boys). These children were either 6 or 7 years old and were students attending Grade 1. We chose to conduct this study in private schools, as 92% of Haitian schools are privately owned (Luzincourt & Gulbrandson, 2010, p. 2). To facilitate entry into the schools, we approached schools located in three distinct geographic regions where a member of the research team already had some type of affiliation or connections. After meetings with a school contact, our team distributed information about the study to the administrators. All but three of the 18 contacted schools agreed to participate. To have similarly sized groups by location, we worked with two urban schools in Port-au-Prince, four peri-urban schools in Leogane, and eight rural schools in Nippes. Among the recruited schools, the mean annual tuition was US $225 for the urban, $180 for the peri-urban, and $50 for the rural schools.

Procedures

The University of Maryland Committee on Human Subjects Research reviewed and approved the procedures for this study. The design and instruments underwent rigorous development. We began by modifying instruments that had been used in similar evaluations of children's media (Borzekowski, 2018; Borzekowski, Lando, et al., 2019; Borzekowski, Singpurwalla, et al., 2019) and then circulated survey drafts to educational advisors affiliated with Blue Butterfly Collaborative and their partner, University Quisqueya (located in Port-au-Prince). We then pilot-tested the procedures and instruments, with 10 6-year old children from Port-au-Prince. It was critical to create culturally relevant and age-appropriate measures, and the expert review and pilot-testing resulted in adjustments in terms of wording, images, and question order. To maintain the participating children's attention, we designed the interviews to take under 30 minutes to complete.

Our team held sessions at the schools in order to offer information about the study to the community. We then obtained written consent from the parents and oral participant assent from the children. In the school setting, but outside of the child's classroom, researchers did one-on-one interviews with each child. The interviews, which were conducted in Haitian Creole, lasted around 25 minutes on average.

After the baseline data collection, researchers randomly assigned children into either the experimental or the comparison group within each school. Children could potentially see 21 screenings of a show; the experimental group watched three screenings of seven episodes of *Lakou Kajou* in Haitian Creole, while the comparison group watched *Dora the Explorer* in French. We were extremely limited in viewing options for the comparison group. As the study was being done in schools, we needed an educational program appropriate for young children that administrators would agree to show. Interestingly, Haitian administrators show a strong preference for material in French; French is the primary language of Haitian instruction despite most of the population speaking Haitian Creole in their homes (Hebblethwaite, 2012; Felicien, 2019). *Dora the Explorer* was the only option that met the criteria of being acceptable to the school administrators and being in either Creole or French. An exciting aspect of this study is that while both *Lakou Kajou* and *Dora the Explorer* tackle gender issues and stereotypes, *Lakou Kajou* uses culturally relevant situations and settings and a combination of animation and live action segments, while *Dora the Explorer* employs a more universal background and is completely animated.

The research team provided the schools with identical media technology (Fuzio Smart TV with LED 32-inch screen and Bluetooth, WiFi, USB, and HDMI ports, and 100 watt solar energy equipment kits). Screenings happened in a semi-darkened room, but not the children's usual classroom, to reduce distractions and better control who was present. Viewing occurred between November 2020 and January 2021, with three weeks off for the Christmas and New Year's holidays.

After the 10-week screening period, the team collected data from 862 children using the same survey that enumerators had used during the baseline data collection. Although it proved difficult to contact all of the participating children, the research team was able to reexamine 95.9% of the original sample.

Measures

Dependent Variable

To assess children's perceptions around gender roles and characteristics, the team adapted the Preschool Occupation, Activity, and Trait-Attitude Measure (POAT-AM; Liben & Bigler, 2002). To measure endorsements of cultural gender stereotypes, children were shown pictures of activities, traits, and occupations and asked if men/boys, women/girls, or both males and females could perform the role. In our study, researchers presented children with five occupations and four activities and traits that would be recognized by Haitian children and were also stereotypically

associated with one sex. The occupations were: (1) tap-tap driver, (2) judge, (3) doctor, (4) football (soccer) player, and (5) schoolteacher. For activities and traits, we asked who was better at: (6) football, (7) math, (8) doing cleaning and laundry, and (9) taking care of a baby brother or sister. Children indicated by pointing to a picture card whether an activity, trait, or occupation could be completed by (a) girls alone, (b) boys alone, or (c) both girls and boys. If the child associated the task or role with the stereotypical assignment, researchers scored the item with a zero (0). If the child offered a counter-stereotypical assignment, researchers gave a score of one (1). For example, researchers showed children a picture of a tap-tap (a vibrantly painted bus used for public transportation) and asked who could drive this vehicle. If the child pointed to the picture of girls or both girls and boys, the researchers assigned a score of one for this item. Accordingly, higher scores reflected less stereotypical beliefs. The Cronbach's alpha for this 9-item battery was .84 at baseline and .85 post-intervention.

Independent Variables

The primary independent variable in this study was the child's assignment to the experimental group (viewing *Lakou Kajou*) versus the comparison group (viewing *Dora the Explorer*). Additionally, the research team kept a record of each child's attendance throughout the intervention. Each day that a participating child came to a screening session, an intervention team member recorded the child's presence. The team verified attendance logs by taking panoramic photographs of the children in the screening room.

We also measured receptivity to capture children's exposure to and recall of intervention and general media material. As in similar studies examining media impact in low- and middle-income countries (Borzekowski, 2018; Borzekowski, Lando, et al., 2019; Borzekowski, Singpurwalla, et al., 2019), we presented picture cards with images of various media characters. A researcher pointed to each image and asked the child the character's name. A point was given for a fully correct name. We used four characters for *Lakou Kajou* receptivity (Zando, Tilou, Leyon, Lili). We also created a general media receptivity score to assess and control for the child's ability to name characters. The general media receptivity measure used six characters (Mickey Mouse, Spongebob Squarepants, Ben Ten, Tintin, Dora the Explorer, and Tom & Jerry). The receptivity card included two foils, an image of a dinosaur and an image of an octopus, so the research team could do a check on data collection. Receptivity is a reliable and valid way to capture not only what a child has been exposed to, but also what is salient enough for the child to remember (Borzekowski, 2018; Borzekowski, Lando, et al., 2019, Borzekowski, Singpurwalla, et al., 2019). By having both *Lakou Kajou* and general receptivity in the analyses, we are able to distinguish the children's exposure to the experimental media while controlling for children's ability to remember characters' names.

In terms of demographic information, the data collection team acquired the child's sex and age from the participating school administrators. We used categories for age (6 versus 7 years) rather than a continuous age variable, given validity concerns and the vagueness of recorded ages (some

school records only had only the student's birth year). The location of the school was used to assign the child to an urban, peri-urban, or rural location.

Data Analyses

The team used STATA 16.1 to analyze the data. The analyses began by examining the baseline and post-intervention data, calculating univariate statistics for every item and measure. We then used chi-squared tests and Student's *t*-tests to see whether there were significant differences between the groups (experimental, *Lakou Kajou*; comparison, *Dora the Explorer*) at baseline and post-intervention. We also explored the attendance and receptivity variables. We then estimated hierarchical linear regression models (HLM) to account for potential effects of nesting this study within different schools. In these models, we controlled for sex, age, location, and baseline scores.

Results

Our final sample included 862 children: 412 boys (47.8%) and 450 girls (52.2%; see Table 1). Children were 6 and 7 years old; 300 lived in urban areas, 304 in peri-urban, and 295 in rural. There were no significant differences by sex, age, or location for the 430 children in the experimental group versus the 432 children in the comparison group.

Attendance was near perfect. For both the experimental and comparison groups, there was a total of 21 screenings, with three sessions in each of which children saw seven episodes. On average children attended 19.6 screenings with no significant difference between the two groups. Since the variable lacked variation, we dropped attendance as a predictor.

With regard to the media receptivity of *Lakou Kajou*, children could name a mean number of 0.02 ($SD = 0.18$) characters at baseline. While not different before the intervention, scores for those in the experimental and comparison groups were significantly different afterwards ($M = 1.44$, $SD = 1.4$ vs. $M = 0.02$, $SD = 0.18$; $t = -21.28$; $p < .001$). At baseline, the general media receptivity score was a mean of 0.80 ($SD = 1.0$), with no differences by group. After the intervention, those in the experimental and comparison groups could name an average of 1.07 ($SD = 1.1$) and 1.50 ($SD = 0.76$) characters, respectively ($t = 6.90$, $p < .001$). We believe this difference was driven by an increased ability to name Dora after the intervention (32% in the experimental group vs. 99.6% of the comparison group).

Exploring children's gender perceptions at baseline, we observed that on a scale from 0 (stereotypical beliefs) to 9 (counter-stereotypical beliefs), the mean was 2.85 ($SD = 2.75$). Scores were positively skewed, with the majority of children holding stereotypical gender beliefs. Less than a third of the sampled children thought that both men and women could do laundry (22.7%), be a judge (29.3%), or play football (30.4%). Boys and girls held similar gender perceptions, but the 7-year-olds had slightly less stereotypical gender perceptions than the 6-year-olds ($t = -2.23$, $p < .05$). We also observed regional differences: children from rural areas had more stereotypical beliefs than did their peri-urban and urban peers ($F(2, 865) = 49.36$, $p < .001$).

Table 1. *Gender Perceptions Among the Participants.*

		Baseline			Post-Intervention		
		Overall (N = 862)	Experimental (n = 430)	Comparison (n = 432)	Overall (N = 862)	Experimental (n = 430)	Comparison (n = 432)
	n	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)	*M* (*SD*)
Girls	450	2.73 (2.77)	2.73 (2.77)	2.73 (2.78)	3.50 (3.02)	4.34 (3.07)	2.75 (2.78)*
Boys	412	3.00 (2.74)	3.10 (2.82)	2.90 (2.65)	3.51 (2.83)	4.06 (2.88)	2.90 (2.65)*
6-year-olds	427	2.65 (2.60)	2.78 (2.73)	2.53 (2.46)	3.34 (2.79)	4.15 (2.87)	2.54 (2.47)*
7-year-olds	435	3.07 (2.90)	3.06 (2.80)	3.08 (2.93)	3.67 (3.06)	4.25 (3.08)	3.09 (2.93)*
Urban	300	3.25 (2.66)	3.27 (2.63)	3.23 (2.69)	3.59 (2.70)	3.95 (2.67)	3.23 (2.69)*
Peri-urban	283	3.89 (2.79)	4.19 (2.91)	3.60 (2.64)*	4.46 (2.67)	5.28 (2.45)	3.63 (2.62)*
Rural	279	1.40 (2.16)	1.26 (1.93)	1.53 (2.38)	2.46 (3.09)	3.38 (3.43)	1.53 (2.38)*

*There was a significant difference between the experimental and the comparison group.

As seen in Table 1, bivariate analyses suggest that, after the intervention, children who watched *Lakou Kajou* held less stereotypical beliefs than those who watched *Dora the Explorer*. This was consistent both within the various demographic groups and overall.

We created hierarchical linear models nesting the data by school to examine the effect of assignment to the experimental versus the control group as well as media receptivity. Table 2 offers three models predicting gender beliefs. Age was not a significant predictor nor was region, and sex was only significant in the first model. In every model, a child's baseline perceptions significantly predicted their perceptions after the intervention.

Looking at Model 1, being in the experimental group significantly predicted counter-stereotypical gender perceptions. Likewise, Model 2 shows that a child's ability to name *Lakou Kajou* characters (receptivity) was significantly associated with reduced stereotypical gender beliefs. For every additional *Lakou Kajou* character a child could name, the model predicted an average increase of 5.5% on the gender perception scale. Model 3 includes both group assignment and media receptivity; we found that both variables significantly predicted counter-stereotypical gender perceptions. Interestingly, above and beyond controlling for being in the experimental group, those children who could name additional *Lakou Kajou* characters had even fewer stereotypical gender beliefs after the media intervention.

Table 2. *The HLM Models Predicting Gender Perceptions, Examining Intent-to-Treat Group Assignment and Lakou Kajou Receptivity.*

	Model 1 *Estimate*	Model 2 *Estimate*	Model 2 *Estimate*
Constant	0.41	0.79	0.42
Sex (boys vs. girls)	-0.27*	-0.10	-0.20
Age (7- vs. 6-year-olds)	0.04	0.07	0.05
Region (reference is urban)			
Peri-urban	0.39	0.07	0.23
Rural	0.19	-0.02	0.13
Baseline perceptions	0.74***	0.73***	0.73***
General media receptivity		-0.16*	-0.02
Intent-to-treat group (experimental vs. comparison)	1.32***		0.96***
Lakou Kajou receptivity		0.50***	0.24*
AIC fit statistic	3639.0	3658.5	3632.5
% gain for being in the intent-to-treat group	14.7%		10.7%
% gain for each additional *Lakou Kajou* character		5.5%	2.6%

~$p < .10$. *$p < .05$. **$p < .01$. ***$p < .001$.

Discussion

This study contributes to the gender schema literature, first by offering novel information on Haitian children and then by exploring whether and how a locally produced educational television program could affect children's beliefs. We found among a large sample of young Haitian children that many held stereotypical beliefs around the activities, traits, and occupations that men and women may suitably engage in. Boys and girls, especially those from more rural regions, were more likely to think that only males could be tap-tap drivers, judges, doctors, and football players, while women were seen as more likely to clean, do laundry, and care for children. This study reveals, however, that media can change children's perceptions. When these same Haitian children watched and attended to an educational television program that purposely incorporated counter-stereotypical messages in familiar settings, boys and girls' beliefs around gender became less stereotypical.

Stereotypical beliefs undermine children's potential (Martin & Phillips, 2019; Rudman & Phelan, 2010). In Haiti, it is critical to reduce educational discrimination and encourage girls to stay in school (Schuller, 2015). Disempowering women and minimizing their roles within Haitian society contributes to widespread poverty and unstable economic development (Tøraasen, 2020). This study shows that when children are exposed to, and receptive to, programming that features counter-stereotypical messaging, their beliefs can change. This educational media program (produced and edited in Port-au-Prince) can be part of the solution by helping to persuade Haitian children that girls and women can pursue educational and professional goals and that men can be involved in housework and child care.

This study indicates that exposure to *Lakou Kajou* was associated with significant changes in children's gender schema, but what remains unknown are the mechanisms for this shift. Anecdotally, we know children enjoyed the program but from this study's results we cannot say why the overall program was effective nor which show elements prompted the observed change. One explanation may involve the fact that this is the first educational children's show created in Haiti by Haitians. To the researchers, *Lakou Kajou* appears somewhat heavy handed with its lessons and gender messages. The Haitian culture is extremely prominent; children would know, based on clothing, music, and local accents, that the conveyed messages are about their own communities and culture. It would be easy for the participating children to recognize the depicted settings and identify with the presented characters. The producers actively addressed gender stereotypes in the Haitian environment: animated storylines and live-action pieces explicitly showed girls problem-solving and both sexes engaging in counter-stereotypical activities.

The comparison show, *Dora the Explorer*, also addresses gender stereotypes (Keys, 2016; Ryan, 2010). Dora, an animated character who pursues the solution to an episode-long puzzle, inhabits a brightly colored environment. *Dora the Explorer's* setting is purposely ambiguous, allowing the franchise to have over 30 international language adaptations (Wikipedia, 2022). In some episodes, Dora takes charge and solves problems; in others, she is more vulnerable and needs the help of others (Keys, 2016). While *Dora the Explorer* offers a female protagonist, the program does not overtly make statements about what girls and boys can do. We suggest that *Lakou Kajou*'s greater impact was due to cultural familiarity and to the number, diversity, and directness of stories addressing gender roles. Additionally, through the use of live action segments, *Lakou Kajou*'s messages may be perceived as more realistic and relevant. Research shows that animation captures young children's attention, but does not ensure that they comprehend what they see or apply it to their own environments (Courage & Setliff, 2010). Infants as young as 6 months old show a preference for information presented in their native language (Marno et al., 2016). The fact that *Lakou Kajou* employs overt and realistic messaging delivered in a culturally familiar manner may explain this study's findings.

In designing this study, we faced a major limitation. As we were conducting the study in schools, it was critical that our comparison show also be educational. Before the production of *Lakou Kajou*, the only age-appropriate educational program available in Haiti was *Dora the Explorer*. Notably, these programs use different languages. It is possible that the observed significantly different impact on children's gender stereotypes was due to *Lakou Kajou* being in Haitian Creole while *Dora the Explorer* was in French. In Haiti, children know both languages, so the observed difference in outcomes can probably not be explained in terms of a difference in understanding the content of the shows. However, Haitian Creole is the language children use casually and more comfortably (Felicien, 2019), so participants may have enjoyed the informality of *Lakou Kajou* and, as a result, been more willing to accept its messages.

This 10-week school-based intervention successfully changed beliefs, but our study can say nothing about *Lakou Kajou*'s long-term influence on children's gender schema. Can media

messages seen by 6- and 7-year-olds have an enduring impact? Longitudinal media effects studies of other programs suggest long-term impacts are possible; for instance, young children's viewing of *Sesame Street* and other educational programs has been found to be associated with positive outcomes and behaviors among elementary and high school students (Cole & Lee, 2016; Anderson, 1998). When economists considered geographic broadcast transmission disparities in the United States, they saw small but significant long-term effects of educational media on school performance, educational attainment, and labor market outcomes (Kearney & Levine, 2019).

The literature on media effects in low- and middle-income countries typically explores whether and how exposure to educational media affects children's learning outcomes. This is one of the first studies to offer information on whether a program can affect gender schema beliefs among girls and boys living in a challenging and resource-poor environment. As seen in high-income countries, media consumption is one of the cultural factors shaping gender beliefs (Bem, 1981, 1983). In Haiti, where children seem to hold stereotypical perceptions on activities, traits, and occupations, this study provides evidence that a creative, locally produced educational media initiative can alter their beliefs about what is possible for Haitian boys and girls.

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