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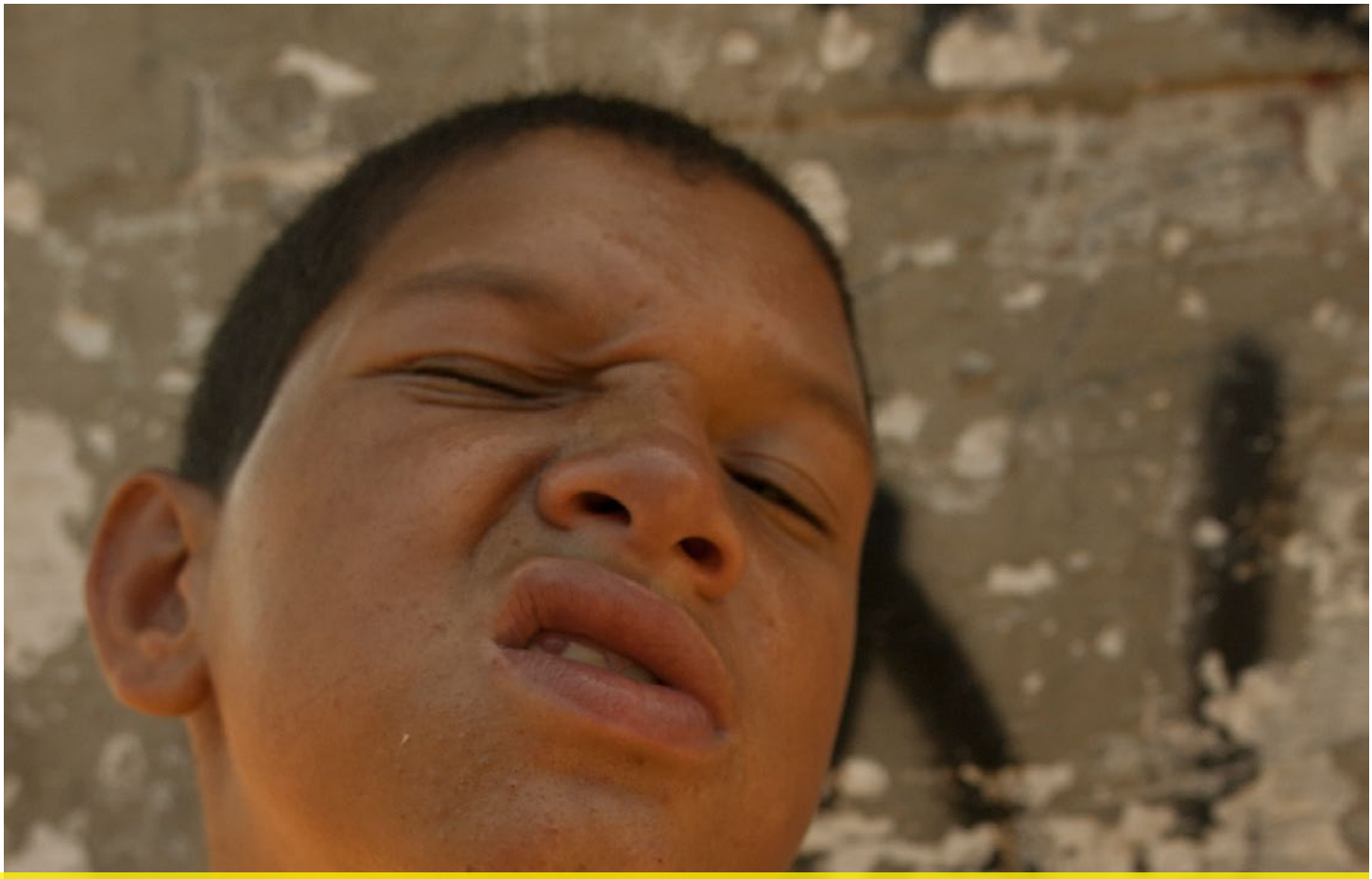

"When Kids Call the Shots"

Testing a Child Security Index in Recife, Brazil

Helen Moestue
Katherine Aguirre
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Photo by Chantal James

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"When Kids Call the Shots"

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Summary

This Strategic Paper describes the first pilot study of the Child Security Index (CSI) and its usage as an open source application to capture children's perceptions on violence. The app was tested in hot spot neighborhoods in Recife, capital city of Pernambuco state in Brazil. The survey-collected data showed that the gender and age of respondents were more important explanatory factors than location. Younger children in particular reported lower levels of insecurity in comparison to adolescents and adults. Gender-based differences regarding perceived levels of insecurity in certain spaces, especially public venues, were also noted among teens, with girls expressing more fear of outside spaces than boys. The experience in Recife demonstrated that the CSI as a digital survey app can be used as a rapid security assessment technology which can also be adapted to other research questions and contexts.

Introduction

The Child Security Index (CSI) is a comprehensive assessment of children's perception of everyday violence. It consists of a digital survey that registers their fears, hopes, thoughts, beliefs and day-to-day experiences. The CSI is an open source application and online dashboard that spatially and temporally maps survey-collected data. The CSI was designed to identify the views of children between 8 and 12 years old, and for younger children through the use of adult proxy informants. It offers a platform to facilitate children's participation in understanding how they experience insecurity. The goal is to shine a light on the scale of the problem in low-income settings.

In 2014, the Igarapé Institute partnered with the Brazilian non-governmental organization Shine-a-Light and the University of Pernambuco to test the CSI. The goal was to test its feasibility in hot spot neighborhoods of Recife in north eastern Brazil. The intention was to put the CSI tool through its paces – first, by assessing its capacity to collect perception data from (and about) young children, and second, by determining its potential applicability for impact evaluations through active tests of Shine-a-Light's "Favela News" project. This Strategic Paper summarizes the experiences and results of the field tests, and potential for replication in others parts of the world.

In order to test the CSI, a cross-sectional study was administered in three neighborhoods (one treatment and two control areas) with a sample of 1,032 adults and children. Among the more important findings are that:

- The CSI app can be used to undertake rapid assessments in insecure areas, mapping perception data for children as young as 8. There are several technical, ethical and security challenges that merit careful consideration;
- The CSI revealed how demographic factors (i.e. age and gender) were more important than geographic location when predicting levels of perceived child security;
- Specifically, reports of 'fear' decreased with age: school-age children reported feeling safer and more secure than adolescents, while parents of young children had the highest levels of perceived insecurity across all age groups;
- There is a significant difference between adolescent boys and girls in how they perceived their own safety in public spaces. Girls are much less likely than boys to report feeling safe on the street or having a sense of being protected by neighbors;
- Differences between intervention and control sites were small and inconsistent for all variables, including variables assessing the effectiveness of the Favela News project. The finding is to a certain extent expected since the survey constituted a baseline study; and
- The use of the CSI to measure social policy interventions will require a robust radomized sampling methodology. The field study adopted convenience sampling owing to serious security concerns in the field.

This Strategic Paper is divided into five sections. It first indroduces the CSI project, providing background on its origins and purpose. The second section outlines the methodology and research design of the pilot study in Recife. The third section analyses the results of the survey and discusses demographic and geographic factors that may or may not affect perceived levels of insecurity. The fourth section offers an assessment of lessons learned and includes suggestions for improving the tool in subsequent phases. The concluding section proposes future uses of the CSI for addressing violence against children in Brazil and elsewhere.

Background on the Child Security Index

The CSI is a new technology to understand the subjective dimensions of violence against children in fragile settings. A better understanding of the personal experiences and perceived vulnerabilities of children in fragile and conflict-affected settings is urgently needed. Such data is often missing from conventional surveys. Children and youth are seldom asked for their opinions and perceptions other than for discrete anecdotal and illustrative purposes. In Brazil – as in many parts of Latin America, Asia and Africa – there is

a relative lack of data and empirically-based studies with which to inform policies and support violence prevention interventions.[1] Fortunately, digital tools can help fill this gap as has been shown internationally and in Brazil.[2]

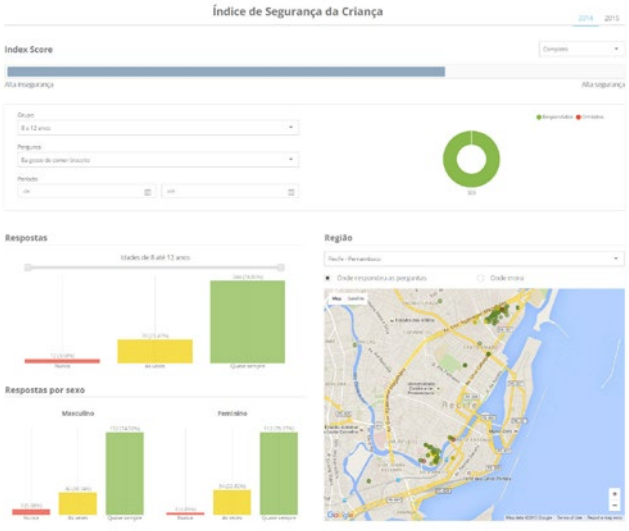
The CSI applies open source tools and is in constant evolution. On the basis of a conceptual study of the many factors shaping children's "experience" of insecurity, the Igarapé Institute began developing the CSI prototype in 2012. The goal was to create a simple digital tool to track perceptions of safety and security among young people.[3] The app itself is based on an extensive review of existing guidelines, standards and peer-review research. Technically, it borrows from Open Data Kit[4] to create a single digital platform that collects, transmits, stores and retrieves data. During 2013 and 2014 the app was improved on the basis of field-tests in selected favelas of Rio de Janeiro, including Maré and City of God.

Substantively, the CSI is comprised of 30 questions – formatted as simple statements – divided into six basic modules. The CSI seeks to avoid the possibility of re-traumatizing children by not asking explicit personal questions about violence, but rather how insecurity is understood more generally. Each of the CSI modules approaches the topic from a different angle, be it the community, the school, people, spaces and the interpersonal. Once tested, additional modules can be added according to partner organization's primary interests. Most CSI statements are worded positively. Any statements alluding to violence (negative) are preceded or followed by more positive declarations such as "I like being at school" or "I like living at home" (see Annex 1 for the complete list).

The CSI also presents the data in a visually compelling manner. The CSI includes an online dashboard that displays findings (see Figure 1 for a screenshot). The dashboard offers a way of making information accessible to the general public, specialists and policy makers alike. The interface facilitates an intuitive and interactive experience in which information is presented visually through maps and figures. Data is encrypted to ensure the confidentiality of respondents and sensitive information. The CSI can be adapted easily to different age groups and varied contexts in Brazil, Latin America, Africa and Asia. In addition to Recife, the Igarapé Institute is proposing to expand the testing of the CSI with partners in Rio de Janeiro, São Paulo, Natal, Mossoró, Catolé do Rocha, Fortaleza, Salvador, Jaboatão dos Guararapes, Maceió, Canapi, Manacapuru, Nova Iguaçu, Itinga and Barra Velha.

There are a number of ethical risks that merit consideration when gathering and disseminating data on violence against children. Indeed, participants are by definition from a vulnerable group (children), the subject matter is sensitive (violence) and the interventions where the CSI is being applied are often located in challenging environments (underserviced, marginalized and violence-prone communities). In order to address these ethical and logistical challenges while guaranteeing that the research is carried out in accordance to high academic standards, the Igarapé Institute has developed ethical guidelines and produced a training manual and checklist to support the CSI testing process. The guidelines are based on the principles of 1) protection (ensuring that neither children nor adults come to any harm as a result of the research); 2) informed consent (subjects fully understand that they are taking part); and 3) confidentiality (guaranteeing privacy during data collection and ensuring that researchers and anyone else with access to the collected data keep this information confidential).

Figure 1: A screenshot of the CSI dashboard



1 A recent multi-country study showed that in Brazil "child maltreatment prevention readiness" is "alarmingly low" and that "the lack of scientific data, low will, along with very low human and technical resources, are the main challenges. As a result, awareness of the scope and scale of VAC in Brazil is low and there is a deficit of solid information to inform strategic planning, program interventions and advocacy campaigns (Cardia et al 2012). See Pinheiro (2006) and SRGS (2012) for global overviews.

2 See Moestue and Muggah (2014) for a full review of ICT tools for the prevention of violence against children in the Global South. Also for use of ICT in development and violence prevention more broadly, see IOM and NRC (2012), Mancini (2013), Muggah and Diniz (2013), and UNICEF 2011.

3 The project has received support from the Bernard van Leer Foundation and Google Brazil. See Google's video on CSI at https://www.youtube.com/watch?v=HBZrvQGUxVc.

4 ODK provides a solution for users to build data collection surveys, collect the data on a mobile device and send it to a server, and finally aggregate the data and extract it in useful formats. See: www.opendatakit.com.

Piloting the Child Security Index in Recife

Recife is recognized for suffering from high rates of violence. With a homicide rate of 52 per 100,000 inhabitants, the city the city has twice the national homicide rate of Brazil.[5] Notwithstanding this reputation, the capital city of Pernambuco state has also generated positive lessons associated with violence prevention in recent years, mainly due to the comprehensive Pacto pela Vida (Pact for Life) initiative. In fact, in the past 10 years its homicide rate has fallen by 42%. There are pockets of acute urban violence in Recife which make it ideally suited as a candidate for the CSI pilot. In June 2014, the tool was tested using a cross-sectional design, sampling across three geographical sites in the city where a new and innovative violence prevention initiative involving children and youth was being launched.

The Favela News project, coordinated by Shine-a-Light, began in September 2013 and is scheduled to run through September 2016. It aims to improve the real and perceived quality of life by featuring local news stories on experiences and innovations that are taking place in selected areas. Young community reporters are trained to collect and write stories, which are then shared and easily accessible to those living in the area.[6] This is in turn expected to improve awareness while providing a sense of unity among communities dominated by rival gangs. Favela News operates in relatively new informal settlements developed during the 1990s (a total catchment of some 50,000 people). These communities were hit particularly hard by drug-related violence from 2006-2012, prompting the intervention of Shine-a-Light to identify means to improve safety and security through new media.

In June 2014, the Igarapé Institute conducted a rapid assessment in Recife, carried out in collaboration with Shine-a-Light and Pernambuco Federal University's (UFPE) Center for Studies and Research in Crime, Violence and Public Security Policies (Núcleo de Estudos e Pesquisas em Criminalidade, Violência e Políticas de Segurança Pública, NEPS). The pilot was intended to determine whether the CSI effectively (1) captured the nature of real and perceived insecurity to children (including temporal, spatial and demographic variations); and (2) could be used in future impact evaluations. As the Favela News project was running for nine months prior to the CSI pilot program, the aim was to provide Favela News with baseline data, as well as descriptive data on the extent to which communities were relying on local media as their primary source of news.

The intervention site, or Site 1, covered the area where Favela News was operating. Sites 2 and 3 were selected as control sites where the treatment (Favela News) was not operating (see Table 1). For each site, a non-probability sampling methodology was used to identify respondents that fit the selection criteria – either within households by knocking on doors or on the streets by approaching people directly or through a community liaison. The team did not apply a formal sample size calculation in this rapid assessment. It was agreed to sample at least 400 respondents from each site in order to reach a confidence level of 95% and a confidence interval of 3-5% (based on a catchment area of 50,000).[7] Table 2 presents the sample sizes by site. Site 3 was the smallest due to a deteriorating security situation in this area, which prevented interviewers from working on the scheduled days.

Both children and adults were canvassed during the assessment. The CSI app was tailored to four different age groups: (1) younger children 8-12 years old; (2) adolescents 13-17 years old; (3) parents of children under 8 years old; or (4) other adults in the community.[8] Children and teenagers reported on their own perceptions, parents of 0-7 year olds reported on behalf of their oldest child in this age range (proxy) and other adults reported on behalf of children generally in their community (also proxy). Minor adjustments to the wording of the statements were necessary to account for variation in the reference child.

Igarapé Institute provided enumerators with 21 mobile handsets (Android) with the CSI app pre-installed. The mobile app included 30 short perception-based statements that respondents could agree or disagree with on a 3-point scale from 0 to 2, yielding an individual 'CSI score' from 0 to 60 (see Annex 1). The CSI score was then categorized into 'low insecurity' (0-19), 'moderate insecurity' (20-39) and 'high insecurity' (40-

5 See homicide.igarape.org.br.

6 Favela News is funded by the Bernard van Leer Foundation. For more information, see Shaw (2007), da Silva and Shaw (2011) and Shine-a-Light (2011), as well as the Favela News website: http://www.favelanews.org.

7 A random selection of respondents was not feasible due to security concerns. The sampling methodology was therefore altered from a probability design to a convenience design, meaning that the resulting data is not stricly representative of the intervention and control sites. Also, since the settlements are geographically close – and because the media stories are shared online in real time – it is likely that there is a positive spillover effect from intervention to control sites, making differences between the areas harder to capture.

8 The wording of questions varied slightly between age groups. For example, younger children and adolescents would be given the statement: "I feel safe at school". The same statement to a parent would be "My child feel safe at school" and to another adult in the community would be "Children and teenagers in my community feel safe at school". While technically comparable, between-group comparisons should be undertaken with caution.

60). The questions are unweighted. The statements were worded positively (20) and negatively (10), and coded to ensure consistency in the scoring system ("0" = best/safest option). Respondents could also select "don't want to answer" and "not applicable". The last module, containing six statements, focused exclusively on Shine-a-Light's Favela News intervention and its impacts.

In addition to the 30 CSI questions, the Igarapé Institute included two test questions for quality assurance purposes, along with key background variables such as age, sex, site and GPS coordinates. Moreover, a "Favela News" component consisting of 5 questions was added to generate more detailed baseline data and information about possible project effects. Each interview took around 7 minutes to complete, administered by a trained enumerator. The data-cleaning process reduced the sample from 1,059 cases to 1,032, less than 3% of the sample. The large number of missing values (some legitimate and others due to data entry error) complicated the task of creating a total "CSI score". All variables were tabulated by site, age-group, age in years and gender; summaries were tabulated by theme (module), providing raw numbers and percentages.

Table 1: A list of selected CSI study areas

Site	Type	Description	Areas
1	Intervention	Favela News constant presence	Arruda, Chão de Estrelas, Saramandaia, Cidade de Deus
2	Control	Favela News occasional presence	Coelhos and Santo Amaro
3	Control	Favela News absence	Favela do Detran

Table 2: Recife CSI pilot sample sizes

	Sex		Site*			Total
	F	M	1	2	3	
Children (8-12 years)	149	177	142	159	25	326
Teenagers (13-17 years)	86	77	89	55	19	163
Parents of under 8 years	267	62	127	158	44	329
Adults (18+)	165	49	68	117	29	214
Total	667	365	426	489	117	1032

*1= intervention, 2,3= control

Preliminary findings from the Favela News project

The assessment yielded an impressive volume of descriptive data and met the basic expectations of the Igarapé Institute and its partners. For one, the CSI generated valuable descriptive quantitative perception data on child security (six modules) on Favela News (one module), and valuable descriptive quantitative insights on the pilot program and the technology itself. This section summarizes the character and quality of the data collected, together with some technical lessons learned regarding the mobile phone app, dashboard and database. It also includes some observations associated with the fieldwork itself, following debriefs with staff and community members. The goal is to improve future applications of the CSI.

It is important to stress at the outset that the non-representative nature of the sample and various forms of respondent and interviewer bias may have influenced the results. For example, as most of the interviews were conducted during weekedays, children who did not go to school (for whatever reason) or adults who did not work (for whatever reason) are likely overly-represented (e.g. stay-at-home mothers). The results presented here are thus tentative, based on descriptive statistics only, though the Institute nevertheless intends to undertake a more rigorous statistical analysis of data.

Likewise, it is worth recalling that the CSI allows an exploration of the nature of perceived child insecurity. By definition, feelings of security and safety (e.g. whether scared, threatended, anxious, safe, protected or sheltered) are subjective and complex notions are not easily captured through quantitative surveys. With these challenges in mind, the CSI employs simple statements about relatively concrete and straighforward events or concepts, recognizing not only that "violence" is a multi-faceted, complex phenomenon but that patterns in perceptions of violence – over time, space, between groups and by children themselves – can give researchers a deeper understanding of how violence impacts children, their families and the communities in which they live.

Taken together, the results presented below are descriptive only and merit further statistical analysis[9]. Results that are summarized by theme (module) should be interpreted with caution as they may be masking variation observed between the six individual questions. Similarly, readers should be cautious not to draw conclusions from direct comparions between themes (e.g. "children feel safer at home than in their community"), as the number of questions for each theme is not sufficiently large to capture child security in each setting.

The acceptance and normalization of violence

The lack of variation in responses across interviewed groups is notable. Across age-groups, gender and sites, respondents said that their communities were dangerous places and that their neighbors were not necessarily to be trusted, though they were nevertheless happy living there. The majority agreed that "there are some dangerous people in my community" (64-70% for the four age-groups), and also that "I like to live in my community" (77-81% for the four age-groups).

The sense of trust in the community and commitment to protecting its children also appears to be low. Just 40-51% of respondents agreed that their children were protected by their neighbors (Figure 4). Despite the violence and distrust, there was also a strong sense of hope among the children themselves. Most younger children said that there are safe places to play or hang out in their community (65%), though this opinion was less common among teenagers (31%).

Igarapé Institute researcher testing the CSI with Recife resident. Photo: Igarapé Institute

9 The analysis presented here is based on a preliminary assessment of summary data only. Further work will include a statistical analysis of the raw database using cross tabulations of variables, statistical significance tests between groups and multivariate regression modeling to isolate effects. Analysis is also needed of the individual CSI score, to determine its population distribution and explore new ways of generating the score that improves its predictability of pre-selected core variables.

With regard to domestic violence, many respondents reported that it is not unusual for kids to be given violent punishment in the home – such as spanking, smacking or being beaten – if they do something (Figure 6). In fact, more than half of the younger children surveyed reported this type of discipline (53%); teenagers reported lesser amounts of corporal punishment, as did parents reporting on behalf of young children (36 and 35% respectively). In contrast to these troubling results regarding corporal punishment, the statement "people in my home hit each other" yielded lower results (11, 14 and 7% for younger children, teens and parents, respectively), suggesting that the physical punishment of children is an accepted disciplinary measure, separate from other forms of violence.

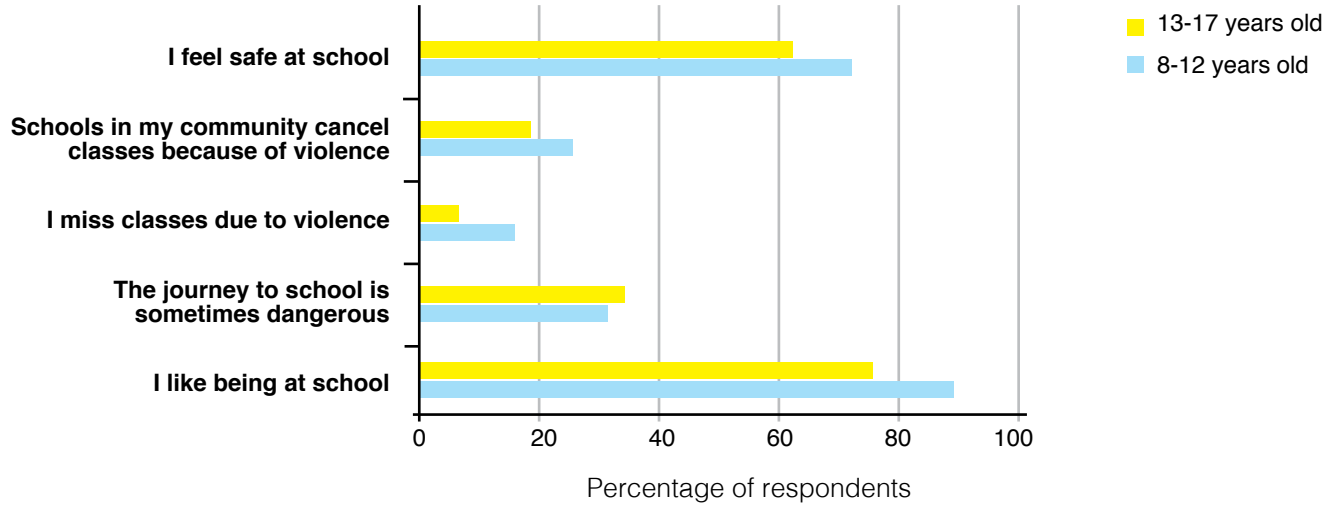
In schools, as in the home and the community, violence is prevalent and yet an accepted part of everyday life. Younger children and teenagers are overwhelmingly positive about being at school: they like being there (88 and 76%) and feel safe there (74 and 64%). Curiously, at the same time, many still agreed strongly[10] that they had missed classes due to violence (17 and 7%), that classes are sometimes suspended due to violence (26 and 18%), and that their journey to school is dangerous (30 and 33%).

The youngest appear to be the most fearless

Perceptions of security tended to decrease consistently with age across all themes and sites, but most clearly for "public" violence as captured by the questions around the "community", "safe people" and "safe spaces". For example, while two-thirds of younger children agreed that "There are safe places for me to play/hang out in my community" (Figure 5), less than half of adolescents did so (62 and 42% respectively). Continuing this trend, parents of young children and other adults were least positive (only 20 and 32% agreed with the above statement).

The majority of younger children and teens agreed that they could safely play or hang out outside their home (64 and 69% respectively), but parents (48%) and other adults (59%) were more divided. These results may suggest that adults worry about children's safety more than children themselves do. It is also possible that children are not comfortable admitting that they are feeling "scared" in front of the interviewer. Another form of age bias may be

Figure 2: Perceived security at school, by age (8-12 and 13-17)



10 Agreeing strongly means that they answer "always true" instead of "sometimes true" or "not true".

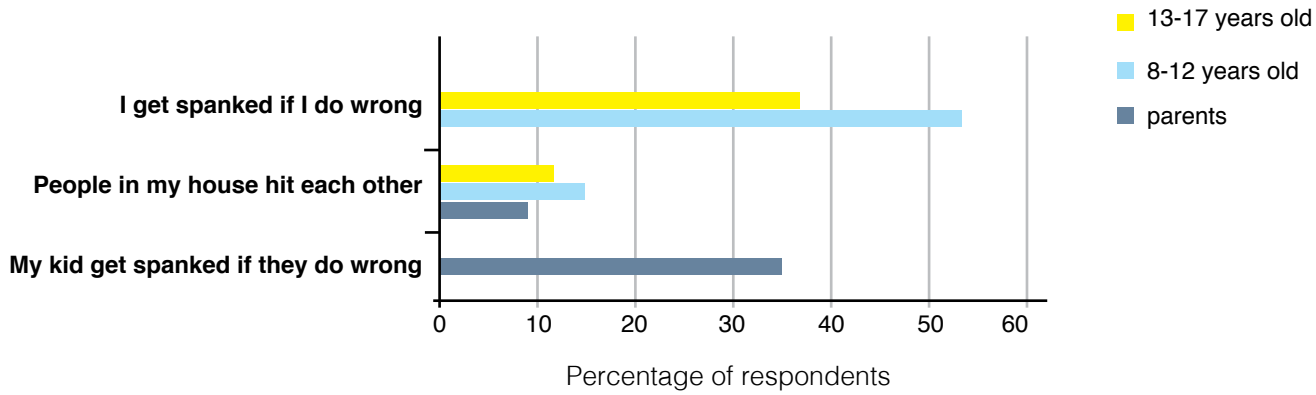
a likely tendency for younger children to want to agree or comply with what is being said, rather than disagree.[11] It is also quite reasonable that as children grow into teens, they want to have greater mobility and freedom to explore, perhaps challenging family and community notions of "where it is safe" and "with whom is it safe". Their lives as adolescents are therefore more likely to be exposed to neighborhood violence than school children or younger kids who tend to stay closer to home. Younger children, on the other hand, may blur the boundaries between "home" and "street", considering the street as an extension of their home.

Community feedback complemented the quantitative analysis, drawing important distinctions between public and private spaces. Community members explained differences between the main road, where cars are able to pass, and smaller pedestrian walkways or alleyways ("becos" in Portuguese). These often tight, unpaved paths which connect residences in favelas are seen as an extension of the home, rather than the street. Some of the youths pointed to the fact that parents would often allow them to play in the "becos" but not in the street and that the danger of the streets was more related to gang activity and confrontations with police, as well as increased dangers of playing near heavy vehicle traffic.

Despite their exposure to and relative acceptance of daily violence, a careful analysis of the "resilience" module (see Annex 1) shows that children and teenagers had few concerns about what lies ahead, with only 1% and 4%, respectively, saying "never true" to the question "I feel positive about my future". Although adults were not quite as positive as youths (6% and 15% for parents and other adults), the results suggest a high degree of optimism in these neighborhoods, an important element of any community program.

The results raise interesting questions about perception data: how important is perceived happiness, health and optimism to the experience of daily violence, and to what extent does fear or concern about violence represent true exposure? Moreover, how can we accommodate age bias in order to more meaningfully compare the results between the age-groups and genders of respondents? From a methodological perspective, age differences are less evident when results are averaged by theme (Table 2) than when presented for individual statements (Figure 6). This is due to the dilution effect caused by the inclusion of the introductory "ice breaker" questions that preceeded the more direct questions on violence (e.g. "I like being at home", "I like being at school", "I like living in my community"). These questions are somewhat superflous to the variable of interest (violence) although they naturally do provide some additional data on attitudes.

Figure 3: Corporal punishment, by age (1-12 or 13-17 year olds and parents)



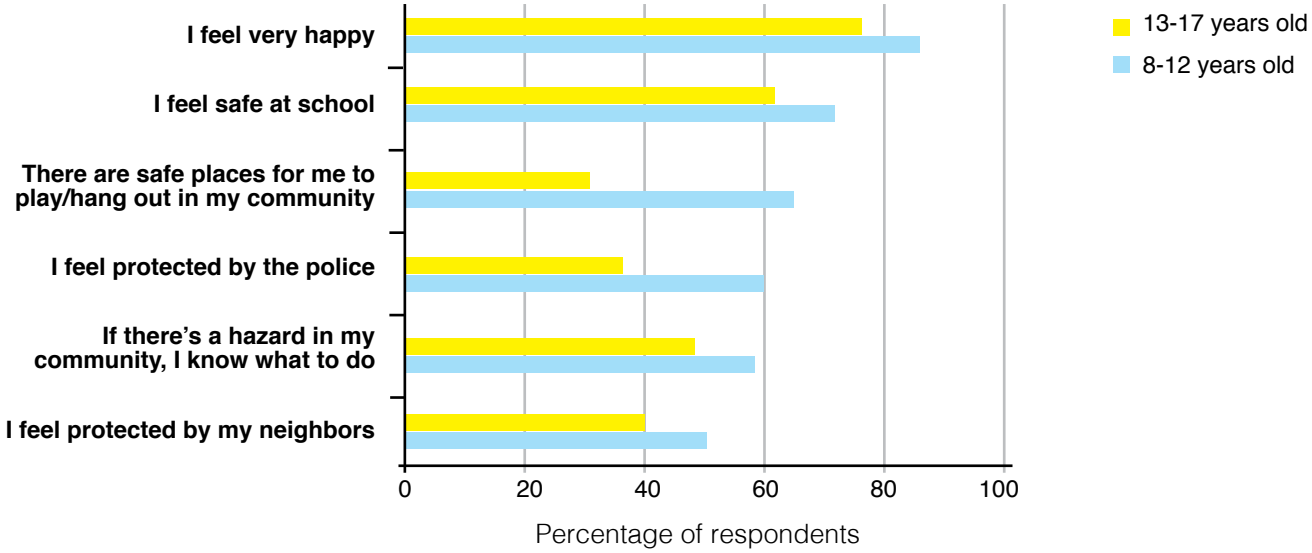
11 In-depth analysis, including crosstabs of positive versus negative statements, is necessary to explore this phenomenon. Such an endeavor would ideally be complemented with a qualitative analysis.

Table 3: Percentage of respondents who reported "low child insecurity"* by theme and age-group

	8-12 years	13-17 years	Parents of 0-7 year olds (proxy)	Other adults (proxy)
Community	56	55	38	36
Home	78	80	82	52
School	68	79	64	63
Safe Spaces	45	41	27	32
Safe People	45	33	29	21
Resilience	86	87	82	58

* Each response (score 0-2) is summed by theme (score 0-10) and then categorised into "low" (0-3) "medium" (4-6) and "high" child security (7-10).

Figure 4: Levels of security by responding "always true" to positive statements, by age (8-12 or 13-17 years)



Teenage girls more insecure in public than boys

Gender differences emerge across age groups when it comes to mapping for perceptions of safety in the community. This was more evident in the anaysis of individual statements (Figure 5) than summaries by theme (Table 4). While there is little difference between younger boys and girls, there is a clear gender gap among teenagers – with girls reporting feeling substantially less safe than boys. Girls reported feeling more fearful of being on the street than boys and feeling much less protected by neighbors than boys. Gender differences regarding violence in the home or at school were less clear. These findings suggest additional avenues of inquiry. One might hypothesize that teenage girls are more vulnerable to sexual harassment and violence than their male counterparts, and that this may explain their increased anxiety about public space. It is also possible that girls feel more comfortable in admitting feelings of insecurity than boys, and are more likely to speak frankly about their emotions.

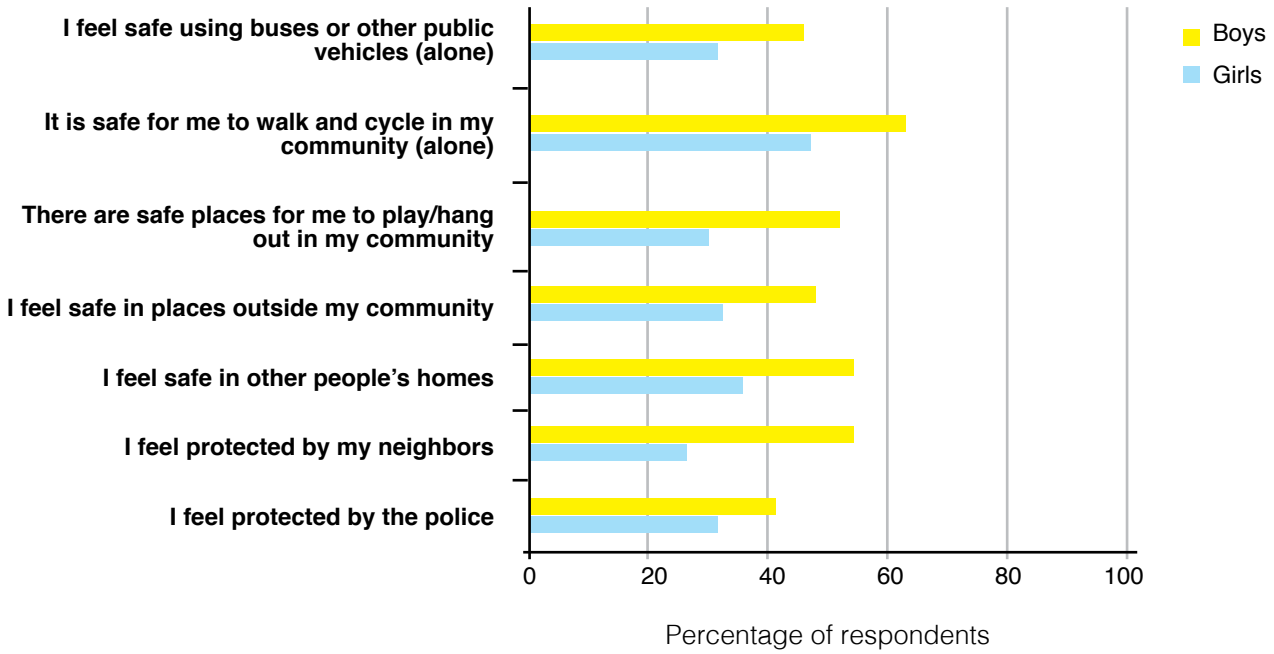
During focus groups and interviews, girls reinforced the sexual harrassment hypothesis and shared some of their personal experiences. Most referred to inappropriate looks and verbal comments directed their way while out on the street. At the same time, boys raised the possibility that girls are more likely to be scared because they often spend more time at home rather than outdoors. Participants also noted that perceptions between boys and girls on the role of neighbors as protectors could be quite different. As the separation between public and private spaces tend to be blurred in these communities, it is relatively easy for neighbors to spy on girls while they are changing clothes or simply relaxing in their homes. Favela News representatives considered that focused interventions in the future should have a gender component in order to address some of these issues.

Table 4: Perceptions of male and female respondents who reported "low child insecurity"* by theme and age-group

		8-12 years	13-17 years	Parents of 0-7 year olds (proxy)	Other adults (proxy)
Community	F	54	50	35	35
	M	58	60	50	41
Home	F	75	83	81	53
	M	80	78	85	49
School	F	70	81	63	61
	M	67	75	65	70
Safe spaces	F	42	31	27	32
	M	47	52	31	35
Safe people	F	44	30	29	20
	M	47	35	26	24
Resilence	F	85	88	83	59
	M	86	85	76	57

* Each response (score 0-2) is summed by theme (score 0-10) and then categorised into "low" (0-3) "medium" (4-6) and "high" child security (7-10).

Figure 5: Levels of perceived security by sex, 13-17 years old



Child security is perceived similarly in intervention and control sites

This section disaggregates the data by intervention site (Site 1) and control sites (Sites 2 and 3). It includes both the analysis of the 30 core CSI statements, as well as the added 5 statements for Favela News. While only indicative of impact[12], the results provide useful background and baseline data. They suggest that there are very few clear and consistent differences in perception of children's security and safety between intervention and control sites (Table 5). Differences were small and rarely consistent across age, gender and thematic area with no clear patterns or trends (see Figure 6).

There are several possible explanations for the apparent absence of geographical variation. The study took place in a small area. It is likely that any impact of Favela News may not be detected at such an early stage of implementation. Moreover, the sampling method did not yield results that were representative of the different sites and therefore do not capture a 'true' picture of child security. Finally, the lack of geographical variation might be explained by the natural spillover effect between the areas benefitting from the Favela News project – both in physical space (as some communities located next to each other) and in virtual spaces online (as Favela News relied on stories being shared on the internet).

Table 5: Percentage of respondents who report "low child security"**, by age-group, theme and site

	Site*	8-12 years	13-17 years	Parents of 0-7 year olds (proxy)	Other adults (proxy)
Community	1	52	56	29	31
	2	60	56	49	39
	3	48	42	25	34
Home	1	74	78	76	47
	2	79	82	87	53
	3	88	89	80	59
School	1	65	80	65	53
	2	70	78	59	69
	3	76	74	75	59
Safe places	1	42	45	22	33
	2	49	36	35	30
	3	32	37	16	41
Safe people	1	43	38	28	24
	2	48	29	30	20
	3	36	16	27	21
Resilience	1	90	85	79	51
	2	84	89	87	61
	3	76	89	73	61

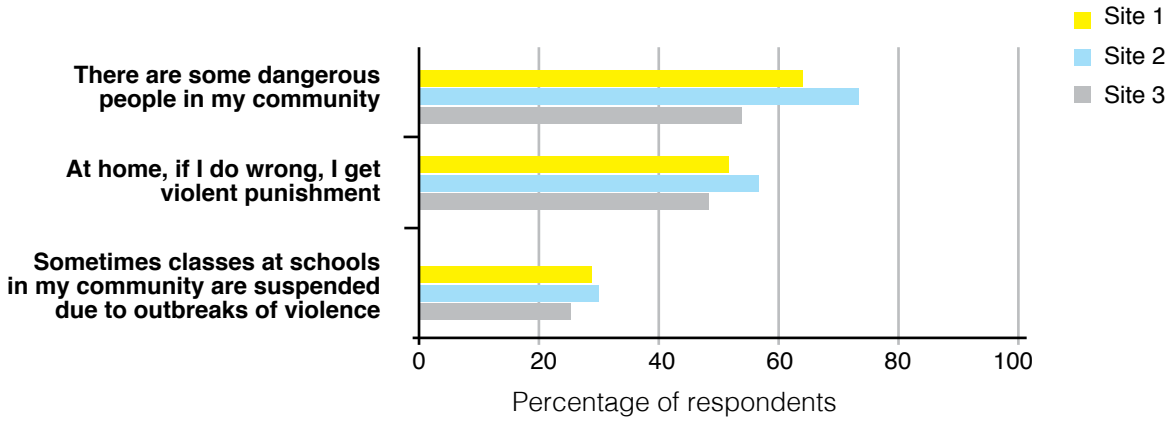
*1=intervention, 2,3=control

** Each response (score 0-2) is summed by theme (score 0-10) and then categorized into "low" (0-3) "medium" (4-6) and "high" child security (7-10).

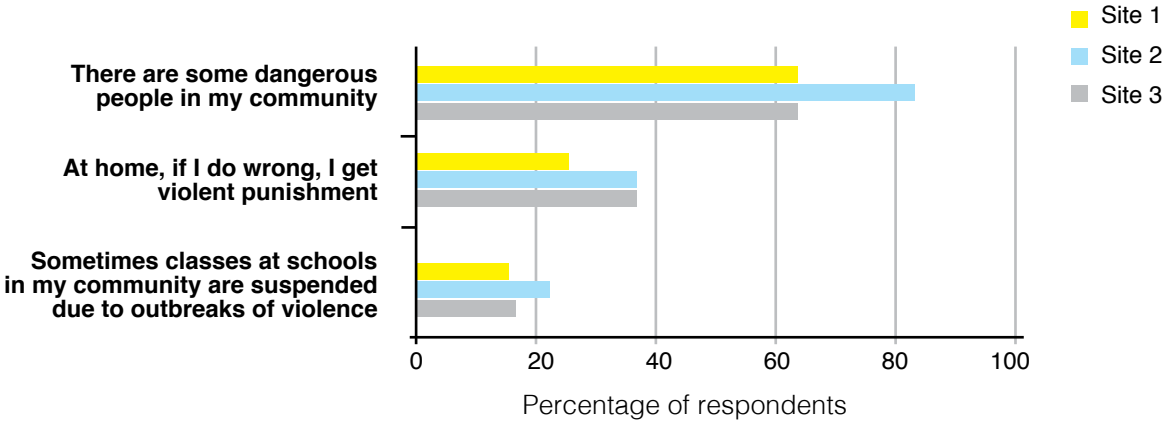
12 The study was cross-sectional, meaning that results are 'associational'. In order to use the CSI as a valid scientific impact evaluation, it will be necessary to apply statistical methods to define samples and carry out experimental or quasi-experimental impact evaluations.

Figure 6: Levels of child insecurity by responding "always true" to negative statements, by site among (a) schoolaged children and (b) teenagers

a) Younger children (8-12 years)



b) Teenagers (13-17 years)



Favela News: role of television similar in intervention and control sites

An analysis of Favela News statements yielded useful background and baseline information and demonstrated a general homgeneity in attitudes. Across all age groups and sites, respondents felt that their communities were portrayed negatively on television, but that these TV reports were generally an accurate representation (see Table 6). The majority of respondents indicated that television was the primary means by which information is shared about their communities, supporting a basic assumption on which the Favela News is based.

UFPE researcher testing the CSI with Recife resident.
Photo: Igarapé Institute

Table 6: Percentage of respondents who agreed with the statements, by age group and site

	Site*	8-12 years	13-17 years	Parents 0-7 years	Other adults
My community is portrayed on TV	1	35	31	39	41
	2	53	47	49	33
	3	44	58	73	55
I have seen good things about my community on TV	1	19	19	17	16
	2	32	24	23	21
	3	20	11	2	10
The things they say about my community on TV is true	1	57	54	53	47
	2	62	68	64	64
	3	60	42	68	66
I am aware of the things that happen in my community	1	56	62	60	68
	2	57	51	61	77
	3	64	58	68	76
The TV is the main means of information in my community	1	89	65	73	63
	2	92	58	71	74
	3	96	58	78	83

*1=intervention, 2,3=control

Descriptive findings and lessons learned

There were several lessons emerging from the CSI tests in Recife. For one, the use of mobile and digital research tools increases the speed and lowers the costs of survey-based research. It integrates the process of data collection, storage, management and analysis. Second, such tools can help visualize information, including geo-spatially, in ways that improve the presentation of findings. This is not just cosmetic: the mapping functions add an important and relevant perspective. The ability to visualize data packaged in a range of graphics and figures is also an incentive for policy makers and practionters to more proactively engage with findings.

The pilot studies also unerlined a number of weaknesses in the CSI tool and the study design. With regards to the CSI tool it self, there were some important functions missing (skip functions, range checks or other alarms or controls which could prevent simple data entry errors) and the GPS and calendar function were not working optimally. Informed consent forms should also be integrated into the digital survey in future interventions. What is more, the CSI score calculation should be reassessed. The Institute still needs to perform a cost-benefit analysis of weighted versus non-weighted scores and how to deal with (legitimate) missing values (as the non-legitimate missing values should be avoided through design updates).

As for the survey design, a number of well-known challenges emerged regarding the interpretation of questions, the translation of the survey (from English to Portuguese), the framing of questions, the use of leading questions, and also omissions, including registering the age and gender of the parents of children who were interviewed. The selection criteria for parents of young children needs improvement. As parents act as proxy informers, it is essential that their child is old enough to have perceptions about safety and security. Our recommendation for this age floor is 3 or 4 years old. These and other issues will be remedied in subsquent rounds.

With regard to sampling, the CSI lends itself to a cross-sectional survey, ideally repeated over time.[13] In poor and insecure settings, it is difficult to obtain reliable data on which to base a sampling frame for indexing units in the population from which the sample is selected. Fortunately, there now exist tried and tested alternatives, such as the EPI method[14] (often used by the World Health Organization) and the GPS sampling[15] method. Non-probability methods are also feasible, as was demonstrated in the Recife pilot. These tend to be easier to implement and more strategic as they involve selecting interviewees who are relevant to research questions; this said, the results are not representative and cannot be generalized to the wider population.

As expected, the security situation in Recife was challenging for researchers, who carefully followed security protocols and expert advice. As many safety concerns cannot always be prevented or foreseen, developing contingency plans to facilitate rapid and effective decision making on the ground prior to the actual program intervention is imperative. In one of the control sites, changes in the security environment prevented researchers from achieving a sufficient sample size, as they correctly decided to leave the community before any incidents. This experience demonstrates that the team of enumerators should include someone familiar with the local community (such as a resident), as well as an experienced research coordinator, in order to maximize both researcher and respondent safety. These precautions should be taken into consideration for future fieldwork based on household surveys. Finally, the use of smart phones in these settings may also result in unwanted attention, impacting the security and safety of enumerators conducting the research. Enumerators in these situations are at risk of being robbed and a security protocol is therefore in place to guarantee the safest working environment.

As work in the communities got underway another unexpected challenge arose. In under-serviced, marginalized and violence-prone areas, the boundaries between private and public spaces are often unclear (to outsiders and even local residents), making it difficult to identify and guarantee quiet and protective environments for interviewing children. In many instances, being indoors was not necessarily more private than simply conducting interviews outside while keeping a safe distance from onlookers on the street. Despite the practical and security challenges in the field, confidentiality and anonymity should be a priority.

In the future, the Igarapé Institute will consider incorporating technical mechanisms and metrics to improve monitoring of the fieldwork itself (e.g. length of interviews, time alloted to ask each question, number of skipped questions or non-responses, providing digital checklists, etc.). The Institute may also explore the feasibility and use of self-administered techniques, enabling children to operate the mobile device themselves and fill out the digital survey in private. This may be particularly useful when collecting data on sensitive subjects.[16]

Given the lack of a gold standard in the measurement of perceptions, an option for the future is also to conduct a validity study. This study would compare the CSI tool (applying different permutations of the CSI score) with similar tools in this field in order to better assess its strengths, weaknesses and internal and external validity. Even so, during follow-up site visits in which results of the fieldwork were presented, Igarapé's CSI team met with Favela News and UFPE representatives, along with a number of community residents.[17] The feedback received from these groups was essential to validating findings and adding key insights for the qualitative evaluation of some of the results.

13 While sampling methodologies will be adapted according to the specific needs of the implementing partners, Igarapé recommends using community-based two-stage cluster surveys that feature first stage selection with probability proportionate to size (PPS) sampling, and second stage selection with simple random sampling (SRS). The first stage may be skipped if the required study sites are small and uniform.

14 See: http://ije.oxfordjournals.org/content/35/3/751.full.

15 See: http://www.researchgate.net/publication/230831756_Choosing_a_survey_sample_when_data_on_the_population_are_limited_a_method_using_Global_Positioning_Systems_and_aerial_and_satellite_photographs.

16 Questions on particularly sensitive topics may be answered by the respondents in a self-administered manner (i.e. the enumerator hands over the handset and explains to the respondent how to answer the questions), improving data confidentiality and anonymity.

17 The follow up session with Favela News, UFPE and community representatives occurred in April, 2015.

Table 7: Characteristics of the CSI vis-à-vis traditional 'pen and paper' approaches to data collection: some observations from theory to practice

The CSI in theory	The CSI in practice	Suggestions for future use
Less prone to error due to built-in mechanisms (e.g. ranges, skips, etc.) that will help and alert the enumerator.	These functions need careful consideration. CSI Recife was not appropriately programmed, and led to an excess number of missing values in the database.	Pre-program ODK to include skip function and ranges.
Confidentiality and data security: allows for secure data transmission; informed consent easily included; measures of anonymity provided.	Informed consent was not included in the digital form; anonymity is dependent on interview setting and whether enumerator is known by respondent.	Incorporate informed consent into the digital survey (respondents can tap the screen or provide oral consent).
Automated GPS data collection at the time of interview allows for quick spatial visualization (online maps).	Sometimes the GPS did not work. Fortunately, the form includes a text field enabling enumerators to note the address, which we later used to identify the GPS coordinates through an automated script).	GPS functionality needs further testing.
Automated date function: no need to add date manually with calendar function.	Experience showed that accidental touching of the screen led to errors.	Explore technical solution or enter date manually.
Adaptable: The questionnaire design can readily be adapted to other contexts.	The Recife version was mildly adapted, before and during the fieldwork.	The CSI questionnaire design will be adapted according to lessons learned during the Recife field test.
Harnesses youth's interest in ICT: young people are generally adept at using new technology.	Very true in Recife. The app generated much interest among potential respondents.	Consider how children's interest in ICT can be harnessed to improve participation.
Practical and cheap: The method can be used even where there is no internet connection. Investment in hardware is limited.	In Recife 21 mobile phones were used, a one-off cost of about 250 USD. Internet connection was pre-paid and only necessary to upload the data onto the server (and during training).	When online service was unavailable (due to lost signal) a wireless connection was used later. No data was lost due to connectivity. Pre-paid data service and wi-fi connection is enough.
Ideal for sensitive subjects: enumerators may help respondents self-administer certain sections.	This approach was not used in Recife.	Test needed, given concern that youngest children will not be able orfeel comfortable self-administering the survey.
Minimum training of enumerators needed: ODK-based apps are easy to use even for individuals, meaning only basic training is necessary. And the staff's digital skills are enhanced in the process.	Only 1 day of training was used, and this was deemed sufficient. An extra half day testing would be ideal.	During testing, phones must be connected to wireless or 3G networks. Trainners should be able to check if questionnaires are filled out correctly and provide enumerators with feedback.

Concluding comments

The CSI was successfully deployed during a rapid assessment in an insecure area – the city of Recife – and involved children as young as 8, despite a number of technical, ethical and security challenges. Researchers generated and visualized tabular and geo-spacial data quickly and easily, and the outputs of this project have important implications for researchers and policy makers alike, as they represent children's own perceptions on an extremely sensitive and under-researched topic.

The CSI app has continued to improve throughout the pilot project. The lessons learned in Recife will continue to facilitate both the development of the tool, and its use in fragile settings. What is more, the evidence generated is particularly useful for local organizations on the ground for campaigning purposes; we expect to see these data (and the online dashboard) used by local partners in Recife to raise awareness surrounding the issue of violence against children living in the poorest and dangerous communities in Brazil.

The CSI app is not designed to be a stand-alone tool, although it was piloted as such. The Igarapé Institute envisages it being used as one of many components of a mixed method study or evaluation. In the near future, the Institute anticipates that children and youth will play a greater role in the adaptation of the app to the local context, and – with adult guidance and supervision – even put it to use themselves.

Playground in Recife. Photo: Igarapé Institute

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Annex 1: The CSI questionnaire used in Recife: version used for younger children (8-12 years) and adolescents (13-17 years)*

Test: I like sweets/candy
Test: I like doing chores at home
COMMUNITY
1. I like living in my community
2. Kids from my community have a good chance to grow up and be successful
3. I feel scared when out in my community
4. My community is a dangerous place to live
5. I feel safe in my community
HOME**
6. I like being at home
7. Being at home is safer than being outside my home
8. At home, if I do wrong, I get violent punishment
9. The people in my home hit each other
10. I can go and play outside my home
SCHOOL**
11. I like being at school
12. The journey to school that I usually take can be dangerous
13. Sometimes I skip school because there is too much violence there
14. Sometimes classes at schools in my community are suspended due to outbreaks of violence
15. I feel safe at school
SAFE SPACES
16. I feel safe using buses or other public vehicles (alone)
17. It is safe for me to walk and cycle in my community (alone)
18. There are safe places for me to play/hang out in my community
19. I feel safe in places outside my community
20. I feel safe in other people's homes
SAFE PEOPLE
21. There are some dangerous people in my community
22. There are some people in my family who don't protect me
23. I feel protected by my neighbors
24. I feel protected by the police
25. I feel protected by local drug dealers
RESILIENCE
26. If I feel in danger, I know who to ask for help
27. If there's a hazard in my community, I know what to do
28. I feel very healthy
29. I feel very happy
30. I feel positive about the future

FAVELA NEWS
26. My community is portrayed on TV
27. I have seen good things about my community on TV
28. The things they say about my community on TV are true
29. I am aware of the things that happen in my community
30. The TV is the main means of information in my community

*versions used for “parents” referring to their child 0-7 years or for “other adults” referring to children in community, used slightly differing wording but results are still deemed comparable

** sections skipped if child does not have a home or go to school

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