



Road Safety Evaluation: **The use of mixed methods in the Botnar Child Road Safety Challenge**

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Introduction

Non-governmental organizations (NGOs) play an important role in planning and implementing road safety programmes and advocating for safe systems locally, nationally and internationally. Being able to carry out research as part of their work will enable NGOs to strengthen their service delivery and garner support from governments and donors. However, the capacity to carry out robust research varies among NGOs, particularly with regards to conducting mixed methods research and incorporating more innovative, qualitative ways of evaluating programmes such as the use of [Photovoice](#).

The [Botnar Child Road Safety Challenge](#) (BCRSC), hosted by the [Global Road Safety Partnership](#) (GRSP) with financial support from [Fondation Botnar](#) has been playing a leading role over the last five years in enhancing the capacity of NGOs to conduct road safety programmes. [The George Institute for Global Health](#) (TGI) has worked with GRSP to further augment the capacity of NGOs in monitoring and evaluating their programmes through an armoury of different research methods.

Why evaluate?

- To gain direction for improving projects as they are developing
- To determine a project's effectiveness after they have had time to produce results

What is mixed methods research?

Design for collecting, analysing and mixing both quantitative and qualitative data in a single or series of studies to understand an evaluation problem (adapted from Creswell & Plano Clarks, 2007).

To read more about the full BCRSC project go to this [blog](#)

Types of Quantitative and Qualitative data collection:

Numerous methods have been utilised in road safety research to monitor and evaluate programmes. The most common quantitative methods include observation studies, knowledge, attitude and practice (KAP) surveys, mobility surveys, checklists etc. Qualitative approaches can include in-depth interviews, focus group discussions and the use of Photovoice to offer a visual understanding of the context.

The collection of such data can be done simultaneously where both the quantitative and qualitative data leads to insights and results or sequentially where the results feed into each other and can alter/augment the tools or focus of the research depending on the findings.

The following case study highlight examples from across five countries involved in the BCRSC where NGOs have utilised different components of quantitative and qualitative research to evaluate and demonstrate the impact of their projects.

Model 1: Qualitative informs development of quantitative instruments

Qualitative → Quantitative

Model 2: Qualitative helps explain quantitative findings

Quantitative → Qualitative

Model 3: Combined approach

Qualitative → Quantitative → Qualitative

Observation Studies - Pedestrian counts and Speed surveys:

Lessons from Tanga, Tanzania

Observing road user behaviour is an increasingly popular way of identifying what safety measures could be implemented and how effective such measures may be by carrying out “before/after” studies (where measurements are taken before and after an intervention to assess changes).

In Tanga, Tanzania, the NGO [AMEND](#) undertook work to improve the infrastructure around five schools in the area as part of their School Area Road Safety Assessments and Improvements (SARSAI) programme. Through a series of road safety assessments and baseline observation studies (pedestrian, speed surveys and traffic counts) carried out along the roads surrounding the school, the team identified the need to extend the pedestrian footpath and provide zebra crossings, speed humps and road signs. Following the completion of the work in March 2021, the team evaluated the impact of the work by repeating the observation studies one month after implementation.

These surveys found that:

- There had been a general increase in the proportion of pedestrians using the new zebra crossings after the improvements were done, as compared to the 'before' scenario.
- The walking patterns of pupils and other pedestrians were observed to be redirected toward the zebra crossings and footpaths that had been installed.
- More pupils appeared to be walking along the paved footpath than were walking along the unpaved path off the road before the improvements.
- Although quite a significant number of pupils were still walking on the carriageway, the general decline indicated the positive impact of the paved footpath that had been provided. This helped in reducing their exposure to the risk of being injured on the road.
- Average speeds and 85th percentile speeds (the speeds at or below which 85% of all vehicles travel) had dropped to 30km/h or lower. The highest speed measured was a motorcycle moving at 39km/h - a significant decrease from 60km/h (85th percentile speed) before the infrastructure was installed.



Knowledge, Attitude and Practice (KAP) Surveys – Plan International Vietnam - Creating a Safe and Child-friendly Road Environment



As part of *Plan International's* remedial work to improve the infrastructure around 4 schools in Thai Nguyen City and improve helmet wearing rates among parents and students using motorcycles and bicycles, they carried out a series of studies that involved observation studies, KAP surveys and in-depth interviews to compare before and after. The post-KAP survey at the four schools in May 2021 engaged 192 primary school students, 202 secondary school students and 147 parents of primary school students:

- 52.6% of primary school students found their way to school “very safe” in the post-KAP assessment, compared to 18.8% in the pre-KAP survey.
- 42.1% of secondary school students thought the road to school was “extremely safe” in the post-KAP compared to 6.7% in the pre-KAP.

As part of the road safety education campaign, students had been taught safe traffic skills when walking on the roads and when crossing the road through civic education lessons, living lessons and extracurricular lessons at schools, or through lessons organized by the Traffic Police, propagating knowledge about traffic safety at the beginning of the school year. Questions pertaining specifically to the skills taught were asked:

- 85.4% to 96.4% of students correctly answered 4 safe crossing skills questions in the post-KAP survey, compared with 11.9% to 64.4 % of students in the pre-KAP survey.

Star Rating for Schools (SR4S) - 2* to 5* in Pleiku City, Vietnam

Star Ratings for Schools (SR4S) is a mobile app that was developed by the [International Road Safety Assessment Programme](#) (iRAP) as a tool for measuring, managing and communicating the risk that children are exposed to on school journeys. By rating roads from 1 star to 5 stars, the app can be used to help guide necessary modifications and evaluate the post-intervention impact of infrastructural changes which can then in turn be used to influence governmental bodies. Vietnam's [AIP Foundation](#) (AIPF) effectively utilised this tool during their Slow Zones, Safe Zones campaign in Pleiku City.

In addition to KAP surveys and speed observations, AIPF carried out baseline assessments of the roads around the selected pilot schools. Schools such as Phan Dang Luu and Nguyen Luong Bang were rated as 2- and 3-star respectively.

Working with the provincial government and following the recommendations of GRSP and the World Resources Institute, AIPF carried out infrastructural changes which included:



Six zebra crossings/
raised crosswalks



Eighteen road
markings



Six speed bumps/
rumble strips



Sixteen
traffic signs



Two traffic
warning lights



1,002.78 m²
of sidewalks

Results from the mid-term review demonstrated that not only was there an increase in the knowledge of parents about the speed changes, but there was a marked reduction in the speed observations around the schools and the star rating of both school sites increased to 5*. These findings helped AIPF to increase the reach of their work to a further 29 schools in Pleiku City.



Pre- Intervention



Post Intervention

Focus Group Discussions – Understanding modes of transport in Rohtak, India

As part of a wider initiative to prove access to safer mobility for youth in Rohtak, India, the [India Resource Trust](#) (IRT) (the Indian chapter of World Resources Institute) needed to first understand the modes of travel currently used by youth and what their



perceptions were towards the safety of their chosen transport means. In addition to quantitative mobility surveys, the team felt that they needed to explore in further depth the perceptions of safety felt by the youth and what barriers this group were facing in accessing safe modes of transport. By conducting focus group discussions they could delve deeper than a mobility survey to understand how the youth were traveling, why they were choosing one mode over another, where they preferred to gather socially and what their challenges and aspirations were with regards to accessing safer modes of transport (thereby going into “focus topics”, hence the name of the method). In addition, IRT held group discussions with adults working within the transport sector to gain an understanding of how the transport system itself functioned, what regulatory frameworks were in place, and whether there was any focus on youth-centric strategies to make them feel safer.

“We prefer to travel by scooty (two-wheeler) as we are sometimes required to stay late in college, and having a personal vehicle to commute at odd times feels safer.

Female youth response ”

“Due to lot of hinderances on footpath we have to walk on road which is very unsafe. The footpaths and walkways in the city are encroached by the parking hence forcing us to walk on the carriage way.

Male youth response ”

In-depth Interviews – perceptions of parents around helmet use in Vietnam

According to Government reports from Vietnam, children account for 6.81% of the total number of deaths caused by traffic crashes every year nationwide and up to 49% of child deaths are mostly related to not wearing a helmet. Plan International implemented several interventions in Thai Nguyen City to increase helmet wearing rates among motorcyclists and bicyclists, such as by increasing the awareness of the importance of helmet wearing and improving enforcement efforts. As part of a mixed methods study which involved the quantitative use of a helmet observation study, Plan International also carried out in-depth interviews of parents to explore in more depth the factors influencing their behaviour of helmet wearing practices amongst their children. Parents were asked about helmet-wearing practices of their children including criteria that may have been influential in their choice such as appearance, cost, quality etc. Knowledge about existing laws and perceptions about what barriers there may be to use of helmets were also explored.

Most parents when asked said that wearing helmets for their children is “very necessary”. The common reason they give is to ensure the safety of the child’s body, especially the head when an accident occurs on the road. Some parents gave a more accurate view of the percentage of students wearing helmets at school stating that short travel distances and laziness were among the reasons for poor usage rates. One of the crucial elements of the in-depth interviews was Plan’s ability to explore the impact that COVID-19 had had on the children and their ability to absorb information on road safety through the awareness raising campaigns as perceived by the teachers.

“Because children are very fragile and collisions on the road are unpredictable, so it is important to protect children at all times, especially when they are on a motorcycle.
Parent LVT 2021 ”

“Some people near the school often don’t wear helmets, if they are 4-5km away from home, only then they wear. Honestly, the helmet wearing rate at this school is only 40-50%.
Parent LVT 2021 ”

“The epidemic broke out so students could not go to school, programs and projects also had to adjust and switch to students’ online sessions to ensure that information could be sent to them.
Teacher SC 2022”

“The rate of wearing helmets is relatively high, although during the COVID epidemic, students rarely attended school, had a little problem, but now it is stable.
Teacher DL 2022”

A Picture is worth a thousand words: Perceptions from Vietnam



The unique ability of photographs to communicate across cultures, language barriers and age gaps means that it can offer marginalised groups the opportunity to express their perceptions and voices and highlight daily challenges and struggles. Photovoice has emerged as a popular qualitative method of participatory research particularly among children. Not only are the photos themselves and the stories behind them of importance but the mere process of taking the photos, discussing and sharing them can be equally as powerful, raising the awareness of the target group and empowering them to feel part of the solution process.

Save the Children utilised this novel qualitative approach to ask five school children to capture their journeys to school before and after interventions to improve the school zone were implemented. The children were trained in how to use the cameras and given broad instructions about the premise of the project and the importance of their viewpoint. The children, supervised by teachers and parents, took a series of photos which were then uploaded online by the project team. The children were then given the opportunity to discuss these photos as a group, outlining why they had chosen to capture that image and what it meant to them in terms of road safety.



Conclusions

These case studies from across the grantees of the Botnar Road Safety Challenge highlight the mix of methods being utilised by NGOs to monitor and evaluate their various projects. The quantitative studies demonstrate, with hard-hitting numbers, the impact that the projects have on making visible changes in speed reductions, or helmet wearing rates. Combining these with the qualitative aspects allowed for a much deeper understanding of the road safety context within their settings, enabling differing perspectives to be explored and providing insights into challenges and barriers that may not have been captured through surveys or observation studies alone.



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