



## SHORT RESEARCH REPORT

### Piloting an Educational Response to Violence in Uganda: Prospects for a New Curriculum

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#### ABSTRACT

*This pilot study assessed Mato-Oput5 (hereafter the curriculum), a new peace education curriculum, for indications of beneficial efficacy, specifically the capacity to reduce negative attitudes towards conflict and violence, and injury and violence rates. A cluster randomised control design was used. Three of the six purposively selected schools were exposed to the curriculum. Mato-Oput5 is a value-based, formalised curriculum taught by specifically trained teachers. Its learning areas include conflict, conscience, violence, non-violence, impulse control, anger management, kindness, forgiveness, empathy and reconciliation. The results showed the baseline and post-intervention bio-demographic characteristics of the treatment arms to be comparable, thus suggesting baseline group equivalence and randomisation success. The follow-up loss was 9%. The mean pre- and post-intervention intentional incident rates of the intervention and control groups were 270/1000 and 370/1000, and 190/1000 and 350/1000, respectively: these differences were not significant. The intervention had no effect on post-intervention intentional incident rates. There were indications of beneficial efficacy in the curriculum, especially its ability to cause attitude shifts in support of non-violence. Statistically significant behavioural effects were not detected although a downward rate trend was seen in the intervention group.*

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## INTRODUCTION

Violence is a global public health priority (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002). It continues to deny millions of ordinary people across the globe dignified livelihoods daily. By definition, violence refers to the intentional use of physical force or power, whether threatened or actual, against oneself, another person, group or community that results in or has a high likelihood of resulting in injury, psychological harm, mal-development or deprivation (Krug et al. 2002).

Northern Uganda has been in a state of war for 20 years. Prolonged exposure to war has been shown to entrench violence as normative. An obvious health consequence of the prolonged exposure to violence is the region's high injury and violence rates. A 1998 study showed an excess regional injury mortality of 834 above a similar, but peaceful, Southern District (Lett, Kobusingye, & Ekwaru, 2006). While facility data have shown a general increase in violent injuries (Kobusingye, Guwatudde, Owor, & Lett, 2002), the increase was highest in war-affected Northern Uganda. In addition, schools were shown to be common locations of fatal violence in Northern Uganda. War-related psycho-trauma is widespread in the region's childhood population (Derluyn, Broekaert, Schuyten, & Temmerman, 2004; Magambo, & Lett, 2004). If not addressed, the violent culture could relegate the region to a state of perpetual violence.

While the full psychosocial, economic and physical consequences of the war have yet to unfold, the region's welfare indices are suggestive of a poor outlook: its proportion of people who are unable to meet their basic needs has lingered at over 60%. Its infant mortality rate (IMR) is estimated at 40–45% (UBOS, 2007) compared to the national average of 13.7%; maternal mortality (MMR) at 650/100 000 live births compared to the national average of 880/100,000; HIV prevalence at 9% compared to the national average of 6%; literacy level at 33% compared to the national average of 77% for males and 57% for females; life expectancy at birth at 44.3 years compared to the national average of 48 years (45.4 for males and 46.9 for females); and clean water access at 52% compared to the national average of 60% (UBOS, 2007).

Early intervention has been shown to be beneficial (Coben, Weiss, Mulvey, & Dearwater, 1994). Education institutions provide ideal entry points for rapid population-wide intervention dissemination (Mutto, 2006). Universalised basic education expands such access opportunities making it possible to reach millions of children and households who would otherwise not be reached. Schools promote long-term knowledge, attitudes, values and skills development as part of children's general social development.



While school-based primary prevention is recommended, few tested programmes exist; others are under review (Aber, Brown, Chaudry, Jones, & Samples, 1996; Embry, Flannery, Vazsonyi, Powell, & Atha, 1996; Flester, Nathanson, Vasser, & Martin, 1996; Haynie, Alexander, & Walters, 1997; Krug et al., 2002; Larsen, 1994; Powell, Dahlberg, & Friday, 1996; Tolan & Guerra, 1994); others lack external validity; still others have contradicting conclusions. Firstly, teaching resistance and negotiation skills is assumed to positively influence knowledge, attitude and behaviour (Coben et al., 1994; DuRant, Treiber, Getts, McCloud, Linder, & Woods, 1996; Gainer, Webster, & Champion, 1993; Hausman, Spivak, & Prothrow-Stith, 1994; Thornton, Craft, Dahlberg, Lynch, & Baer, 2002), but little is actually known about the behavioural effects thereof (Aber et al., 1996; Grossman et al., 1997; Hausman, Pierce, & Briggs, 1996; O'Donnell et al., 1999; Powell et al., 1996). Secondly, transferability of effective programmes is often unclear or costly. Thirdly, the choice between unclear options, such as the violence prevention curriculum for adolescents and the conflict resolution curriculum for youth providers, which both claim effectiveness in reducing three violence indicators, poses challenges.

Other programmes, like school-based peer-led programmes, including peer counselling, peer mediation, and peer leaders, are outright ineffective (Foshee, 1998). A meta-analysis of these programmes has confirmed this, further showing adult-led programmes to be as, if not more, effective in reducing youth violence and related risk factors than peer-led programmes (Community Board Program, 1990; Mytton, 2002). The slow pace in the development of interventions has contributed to the continued use of questionable interventions.

Mato-Oput5 (Owor, Bbosa, & Ocan, 2002), a school-based violence prevention curriculum, was developed in 2001–02 in response to Uganda's perennial violence. The curriculum was named using the Acholi tribal concept for the reconciliation of grievous conflicts, although it does not teach this practice. Mato-Oput5 is an individual level intervention that addresses those values and assumptions underlying individual responses to conflict and provocation. It provides alternatives to violent responses. The intervention posits attitudes-mediated reductions in conflict and violence, and injury and violence rates among children consequent to their exposure to the curriculum. The attitudes-behaviour relationship debate, however, remains inconclusive.

The curriculum is formally integrated into teaching and learning covering the following themes: conflict, conscience, violence, non-violence, impulse control, anger management, kindness, forgiveness, empathy and reconciliation. Specifically trained class teachers prepare schemes and lesson plans for the curriculum under the supervision of their respective head teachers. At least two 40-minute weekly lessons are taught. Similar past educational interventions have been shown to produce mixed results: Safety City – a half-day programme taught in the United States (US), for example, reportedly failed to achieve

its desired changes in safety knowledge among participants. Its attempt to convey a large amount of relatively complex information to young children in a brief period was partly blamed for the limited effect. The Mato-Oput 5 curriculum, however, is supervised over the period of a school term.

In order to assess its effectiveness, an integrated conflict and violence scale (ICVS) and school-based injury and violence surveillance form were developed. The schools injury and violence surveillance instrument was developed from ones that had been successfully piloted in South African and Ugandan Schools. ICVS items were developed after a series of focus group discussions with children and parents in non-intervention Northern Ugandan schools. The discussions focussed on conflict resolution and disciplinary methods commonly used by children, teachers and parents in Northern Ugandan schools and homes. At the time, corporal punishment was common practice in Ugandan schools and teachers often gave girls less heavy punishments than boys. When judged to have committed a major offence, boys often had to dig out anthills.

It was unclear how the curriculum would be integrated into current school programming and how the hypothesised attitudinal and behavioural effects could be validly tracked; this study, therefore, set out to determine the curriculum's initial beneficial efficacy and utility indications regarding hypothesised attitudinal and behavioural effects (injury and violence rate reductions).

## **METHODS**

### **SETTING**

The study was conducted in Northern Uganda. This is a deprived, war-affected region with poor health and socio-economic indicators: its IMR is estimated at between 40–45% compared to the national average of 13.7%; MMR at 650/100 000 live births compared to the national average of 880/100 000; HIV prevalence at 9% compared to the national average of 6%; literacy level at 33% compared to the national average of 77% for males and 57% for females; life expectancy at birth at 44.3 years compared to the national average of 48 years (45.4 years for males and 46.9 years for females); and clean water access at 52% compared to the national average of 60%. Over two thirds of the population is internally displaced. War has significantly contributed to these poor indicators, which in themselves are also independent risk factors for violence.

### **DESIGN**

A cluster randomised control design was used. This design was selected for its efficiency in dealing with potential contamination in such trials. It also allowed the teaching and learning to take place in the natural setting.



## **SAMPLE AND SAMPLING STRATEGY**

A purposive sample of six primary schools was selected by local education officials. Eligibility criteria included accessibility, safety, location in original setting, mixed gender schools, and parents', teachers' and district education's authority consent. Exclusion criteria included single gender schools and participation in or presence of other similar interventions. Three of the six schools were randomised to the intervention group and the rest to the control group. Entire grade five (primary) classes from the intervention group were taught the curriculum. Respective class teachers received training from the authors before conducting the lessons.

## **DATA COLLECTION INSTRUMENTS**

In order to track the hypothesised attitudinal and behavioural effects, the ICVS and school-based injury and violence surveillance form were developed. Lack of contextually appropriate validated scales and specific curriculum needs motivated their development. Several focus groups and key informant discussions had been held with school children and teachers to define scale items. Negative attitudes were inferred from responses judged to reflect inappropriate conflict perception or support for or promotion/suggestion of violence. The scale was then used to measure attitudes before and after intervention. Further structural validation and reliability testing was planned. The injury and violence surveillance instrument was adapted from scales previously used in South Africa and Uganda, to capture bio-data, incident characteristics, severity and outcomes. Teachers were trained to record the injury and violence incidents.

## **STATISTICAL ANALYSIS**

Factor analysis was used to assess the ICVS for initial validity; items with low factor loadings were removed. Pre- and post-intervention attitude scores on aggregated item scores within each factor were compared using adjusted Pearson  $X^2$  tests. Effect sizes of the significant differences in attitude were quantified using crude odds ratios (OR).

Injury and violence rates were calculated for each group and compared for post-intervention group differences using generalised estimation equation modelling.

Permission for the study was granted by the Gulu District Local government, Gulu District Education Office, participating schools and their parent representatives. Children also gave their assent to participate in the study. The project also received clearance from the University of Witwatersrand's Committee for Research on Human subjects (Clearance Certificate NoR14/19).

## RESULTS

### SAMPLE CHARACTERISTICS

A total of six schools with 1 027 grade five children (on average, 171 per school and 100 per class) participated. The overall sample baseline mean age was 12.3 years (SD = 1.2, Range = 9–18 years); the intervention and control group mean ages were 12.4 years (SD = 1.2, Range = 9–16 years) and 12.3 years (SD = 1.3, Range = 9–18 years) respectively; 47% of the sample was female. The male: female ratios of the intervention and control groups were 117: 100 and 104: 100; the age and sex differences were not statistically significant ( $t = -0.4334$ ,  $p$ -value = 0.6648 and  $X^2 = 0.5341$ ,  $p$ -value = 0.465) respectively. Losses to follow-up were 9% (93) and inconsequential to group demographic profiles.

### FACTORIAL STRUCTURE

Two principle factors accounting for 99% of variability in conflict and violence responses emerged. Variables with a factor loading of  $\geq 0.30$  included the following and were used to evaluate baseline and post-intervention group differences (see Table 1 below).

**Table 1. Scale items with a factor loading above 30%**

#	Scale items
1	A bully should be forgiven
2	Boys should not touch girls' breasts
3	If my friend steals my book and returns it, I shall forgive him/her
4	If someone ambushes my friend, I will report him/her to the teacher
5	Even if someone kicks me, I will not fight back
6	If someone pinches me, I will try to get my bigger brother or sister to beat him/her
7	If my friend abuses me, I will forgive him/her
8	If my friend tells a lie about me, I will fight him/her
9	If my friend steals my pen, I will fight him/her
10	I feel sad for a pupil who is beaten
11	Girls should be made to uproot anthills, like the boys, if they do wrong; I abused someone this week
12	People who have a quarrel should solve it by force

### INTERVENTION EFFICACY REGARDING ATTITUDES

The two groups had similar baseline attitudes scores. After intervention, the intervention group tended to support forgiving a bully ( $p$ -value = 0.04); forgiving a friend who returns a book he/she had stolen ( $p$ -value = 0.036); and not fighting a friend who lies about one, to

a higher degree than the control group. The intervention significantly contributed to these post-intervention differences (regarding bullies: OR = 3.6, *p*-value = 0.010; a person who abuses one: OR = 2, *p*-value = 0.002; and a person who returns a book he/she had stolen: OR = 3, *p*-value = 0.020). “Boarder-line” effects were also detected in teacher involvement in resolution of quarrels among children (OR = 1.3, *p*-value = 0.076) and self-reporting of verbally abusing others (OR = 0.4, *p*-value = 0.027) (see Table 2 below).

**Table 2: Intervention efficacy by specific attitude item**

Variable	Odds Ratio	T	P-value	95% Conf. Interval
If my friend abuses me, I will forgive him/her	2.0	6.16	0.002	1.52 - 2.76
Even if someone kicks me, I will not fight back	2.8	1.79	0.133	0.64 - 12.66
If my friend steals my book and returns it, I shall forgive my friend	3.0	3.35	0.020	1.29 - 7.05
Boys should not touch girls' breasts	1.3	0.31	0.766	0.14 - 12.42
If someone ambushes my friend, I will report him to the teacher	1.3	1.00	0.363	0.64 - 2.71
A bully should be forgiven	3.6	3.99	0.010	1.56 - 8.33
I feel sad for a pupil who is beaten	0.3	-1.02	0.353	0.02 - 5.72
I abused someone this week	0.4	-3.09	0.027	0.16 - 0.84
If someone pinches me, I will try to get my big brother/sister to beat him	0.7	-0.71	0.510	0.19 - 2.54
If my friend tells a lie about me, I will fight	0.6	-1.15	0.303	0.23 - 1.76

### INTERVENTION EFFICACY REGARDING BEHAVIORAL CHANGE

A total of 511 violent incidents were recorded; the mean intentional incident rates in the intervention and control groups before intervention were 270/1000 and 370/1000 respectively; after intervention, they were 190/1000 and 350/1000 respectively: the differences were not statistically significant ( $t = 1.0416$ , *p*-value = 0.3564 and  $t = 0.8316$ , *p*-value = 0.4524). Post-intervention incident rates did not significantly differ between the two groups (*p*-value = 0.6620).

The Intraclass Correlation Coefficient (ICC) was calculated to be 0.04, on the basis of which a variance inflation factor of 4.96 would be required for adjusting the requisite simple random sample for an appropriately powered cluster randomised control study. This would provide for a minimum of 30 primary schools with an effective sample size of 3 000 pupils in the study.

## DISCUSSION

The study set out to establish the initial efficacy and utility indication of the curriculum, specifically its ability to change children's attitudes towards conflict and violence and reduce injury and violence rates using a cluster randomised control design. Randomisation succeeded in assuring baseline group bio-demographic equivalence, which equivalence was sustained through to the post-intervention period. The similarity of baseline attitude scores and injury and violence rates may have been further proof of randomisation success. Follow-up losses were minimal given the context of war, and this may have been occasioned by the region wide mobility restrictions in the internal displacement camps.

The post-intervention attitude scores tended to suggest a beneficial efficacy of the curriculum. There were definite attitude shifts in support of offender forgiveness and non-forceful response to provocation in the intervention group. This was consistent with earlier findings (Mytton, 2002). The limited number of scale items demonstrating change posed other questions: Could the curriculum design have been strong in learning areas of forgiveness, empathy, fairness and reconciliation, but not in others like conflict and violence, or was the problem with ICVS validity and reliability? It was also not clear how conflict sensitivity and proactivity were addressed. Further, the time lapse between intervention and post intervention measurements was perhaps too short to detect significant changes.

The absence of a significant behaviour change contradicted Mytton's conclusion of immediate beneficial efficacy on aggressive and violent behaviour in at risk children (Mytton, 2002). Although statistically non-significant, a downward trend in intentional incident rates was observed in the intervention group. The limited number of measurement points complicated its interpretation. It was not clear if a longer follow-up could have reached significance. It was also not clear if the findings were an indication of a lack of true behavioural efficacy or if the design and measurement related limitations had concealed effect. It was not possible to assess the validity of a causal assumption regarding the attitude-behaviour relationship.

There was school level clustering of attitude responses implying that children within the same school tended to be alike, but different from those in another school with regard to their attitudes towards conflict and violence. This factor will need adjustment in subsequent studies. This effect of clustering as captured by the ICC tends to push effect sizes towards the null within groups and away from the null among groups. If not adjusted for in design and analysis, significant differences tend to show up where they do not exist. The main limitations of the study were its inadequate statistical power, short follow-up period and the use of an unvalidated attitude scale to measure attitudes towards conflict and violence.

## CONCLUSIONS AND RECOMMENDATIONS

The study found indications of beneficial efficacy in Mato-Oput5, especially its ability to cause attitude shifts in support of non-violent responses to provocation. Behavioural effects could not be detected, although a downward trend was observed. A better powered trial is recommended; a curriculum update is also recommended in order to integrate proactivity in its approach to conflict resolution and conflict sensitivity in programming. The ICVS requires validation, and the long-term attitudinal and behavioural effects of the curriculum need to be monitored.

## IMPLICATIONS FOR PREVENTION

The clear reduction in children's negative attitudes towards conflict and violence after exposure to the curriculum is additional evidence in support of educational strategies – a key message in the *World Report on Violence and Health* (Krug et al., 2002). By showing indications of beneficial efficacy, the study has identified a “candidate” intervention that could be rapidly and cost-effectively replicated in similar settings if proved effective. In the meantime, Mato-Oput5 remains a promising violence prevention intervention.

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