

Abstract Title Page
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Title: Cluster randomized trial of a large-scale education initiative in the Democratic Republic of Congo: Pilot year impacts on teacher development

Authors and Affiliations:

Sharon Wolf
Steinhardt School of Culture, Education and Human Development.
New York University
246 Greene Street, Room 416E
New York, N.Y. 10003
Tel: 212-992-9401
email: sharon.wolf@nyu.edu

John Lawrence Aber, Ph.D.
Steinhardt School of Culture, Education and Human Development.
New York University
Kimball Hall, Room 417E
246 Greene Street
New York, N.Y. 10003
Tel: 212-998-5410
email: lawrence.aber@nyu.edu

Catalina Torrente
Yale Center for Emotional Intelligence
Yale University
340 Edwards Street
New Haven, CT, 06520
Tel: (614) 313-6262
Email: catalina.torrente@yale.edu

Damira Rasheed
Research Associate
CARE for Teachers NYC
Department of Psychology
Fordham University
tel: 718-817-0149
drasheed@fordham.edu

Marissa McCoy
Yale Center for Emotional Intelligence
340 Edwards Street
New Haven, CT 06511
marissa.mccoy@yale.edu

Abstract Body

Limit 4 pages single-spaced.

Background / Context:

Description of prior research and its intellectual context.

A wealth of research, primarily in high income countries, has accumulated in recent years evaluating teacher effectiveness and the processes through which teachers' performance and job satisfaction can be improved (e.g., Pianta, Mashburn, Downer, Hamre & Justice, 2008; Ross, 1992; 1995). Much less is known about how these processes operate for teachers in low-income countries, where schools may be located in high conflict areas with low resources that can pose strains on teachers, students and their interactions. In the past several years, there has been a growing interest in rigorous evaluation research in developing countries to help inform policy and practice. This paper applies rigorous methodology to consider the question of whether and how an intervention can improve teachers' motivation, job satisfaction and professional development in the Democratic Republic of the Congo (DRC).

The current study is part of OPEQ (Opportunities for Equitable Access to High Quality Basic Education), a 5-year project aimed at improving teachers' motivation and performance, and elementary school children's numeracy, literacy and socio-emotional wellbeing in 3 provinces of the DRC (i.e., Katanga, North Kivu and South Kivu), through curriculum development, teacher training and community mobilization. The cluster randomized trial of OPEQ presents a unique opportunity to make valuable contributions to the knowledge base on education broadly, and teachers and teaching practices in DRC specifically.

Purpose / Objective / Research Question / Focus of Study:

Description of the focus of the research.

The main purpose of the current paper is to better understand teacher practices and classroom processes in low-income, war- afflicted countries such as the DRC. First, this paper will present baseline information on teachers' criticism of school, burnout, motivation and job satisfaction in order to add to the small body of existing anecdotal research currently available on teachers in low- and middle-income countries (Bennell & Kyeampong, 2007). Second, it will examine how these processes can be affected by an intervention that targets teachers' and students' social emotional needs, and provides instructional support to teachers in math and reading. The paper will present preliminary impacts on teachers' burnout, motivation and job satisfaction after one pilot year of program implementation.

These questions are particularly important in a context in which there is a dearth of background information on how school conditions affect teacher practices and performance. Specifically, we ask:

1. What are average rates of teacher criticism of school, burnout, motivation and job satisfaction in the Katanga province of DRC?
2. Does OPEQ decrease teacher criticism of school and burnout, and improve motivation and job satisfaction after one year of implementation of a partial pilot program?

Setting:

Description of the research location.

Data for the current study come from 84 schools spread across 6 educational subdivisions in Katanga, one of the largest provinces of the DRC. DRC has the second lowest human development index in the world and has been afflicted by periods of violent conflict for the past three decades. Though education continues to expand, due in part to community, religious and private investments, approximately 31% of school-aged children have never set foot in school. Compared to national averages, children in Katanga and the other provinces served by OPEQ are less likely to be enrolled in primary school and are more likely to be orphaned or otherwise vulnerable (UNICEF, 2008).

Population / Participants / Subjects:

Description of the participants in the study: who, how many, key features, or characteristics.

Eighty four schools were randomly selected to participate in data collection for the evaluation from a total of 203 schools grouped in 54 geographically-defined clusters of 2 to 6 schools. School size ranged widely from 78 to 1,240 students. While in this study we focus on teachers, the schools, children and teachers are part of an ongoing, longitudinal cluster-randomized evaluation of OPEQ.

For the present study, participants were 453 teachers nested in 84 elementary schools located in six educational subdivisions in the province of Katanga, DRC. Teachers were selected from all grades in elementary schools (1st to 6th) and on average were 37.9 years old and had an average of 12.5 years of teaching experience. The majority (71.1%) of teachers interviewed were male. The vast majority of teachers (96.6%) had completed some secondary school. Teachers spoke a variety of languages as their mother tongue, including Kiswahili (30.3%), Kiswahili & other (18.6%), other (14.2%), Kibemba (12.4%), Kisanga (11.7%), Kiluba (6.0%), Tshokwe (4/9%) and French (2.0%).

Intervention / Program / Practice:

Description of the intervention, program, or practice, including details of administration and duration.

OPEQ aims to enhance teachers' motivation, the quality of school settings and teaching practices, and children's academic achievement and socio-emotional wellbeing. The intervention has two primary and interrelated components. First, an innovative curriculum which integrates high quality reading and math lessons with IRC's *Healing Classrooms*, a protocol of techniques to create safe and inclusive learning environments for all learners, is built into a teacher training package. Second, a school-based collaborative professional development system of continuous in-service teacher training and coaching is implemented. The structure is based on an historical practice of the DRC's educational system: the Forums of Pedagogical Exchange (FPE). FPE's consist of teacher-learning circles that are designed to meet: weekly at grade level; monthly at school level; and quarterly at school cluster (2-6 schools) level. FPEs enable teachers to collaboratively explore their practices, brainstorm solutions to challenges and identify and celebrate successes. These services are delivered by Master Trainers (MT; one per cluster of 2 to 6 schools) composed of teachers, headmasters, pedagogical advisors, inspectors and key technical staff from the Ministry of Education.

Research Design:

Description of the research design.

A total of 203 schools, nested in 54 geographically defined clusters, were selected to participate in the OPEQ intervention in Katanga. The 54 clusters were randomly split into three groups of 20, 17 and 17 clusters. In 2011-12, OPEQ was piloted in the first group of 20 clusters. The remaining two groups of 17 clusters received the intervention in either 2012-13 or are receiving it in 2013-14, respectively. Thus, the impact evaluation study in 2012-13 uses an experimental wait-list control group design with 20 treatment and 34 control clusters. Randomization to treatment took place within each of the subdivisions. Clusters were assigned to one of three treatment conditions: a Pilot cohort that started receiving the intervention in 2011; a group of 17 clusters that started receiving the intervention in 2012 (Cohort 1); and another group of 17 clusters which began the intervention in 2013 (Cohort 2). Intent-to-treat estimates after one year of the pilot intervention will be obtained by comparing schools in clusters assigned to the Pilot Cohort to schools in clusters assigned to Cohorts 1 and 2.

Data Collection and Analysis:

Description of the methods for collecting and analyzing data.

Out of the 203 schools targeted by OPEQ in Katanga, eighty-four representative schools were randomly selected for data collection as part of the impact evaluation study. Assent and consent were requested from all children and teachers at the time of data collection and refusal to participate was very rare. Parental consent for children's participation was not obtained because parents live very far from the schools and it would have been very difficult to obtain written consent from a representative sample of parents. Also, it is not common practice in DRC to obtain written consents for children to participate in assessments at school, and children are accustomed to taking tests and answering questions without parental consent. The Ministry of Education and field team widely advertised the evaluation in each school and community to ensure that parents were fully informed and had the opportunity to ask questions, raise concerns or opt out.

Teachers were asked to answer a survey about themselves, including their educational background, livelihoods, job satisfaction, burnout, motivation and teaching experiences. The maximum time slotted for teacher interviews was 90 minutes. Teacher and child interviews and assessments were conducted in French (the official language) and Kiswahili (the most common local language) by local staff trained in data collection procedures by the OPEQ team.

To accommodate the nested nature of the design, estimates of impacts on teacher outcomes will be calculated using a series of 2-level hierarchical linear models with in HLM 6.02. In these models, Level 1 will represent teachers, Level 2 will represent schools, and dummy indicators for the subdivisions will be included at Level 2.

Findings / Results:

Description of the main findings with specific details.

Baseline descriptive statistics indicate that on average, teachers reported high levels of motivation and low levels of dissatisfaction with their job. Interestingly, they also reported being highly critical of their school's approach to teaching and report moderate levels of burnout (see Table 1 for descriptive statistics). These results suggest that while teachers are satisfied with their decision to join the teaching profession and are eager to help children learn, they are highly critical of the specific pedagogical approaches taken by their schools.

It is important to note, however, that there is substantial variation between teachers and between clusters in all 4 constructs (see Figure 1), and large variability between subdivisions regarding teacher criticism of school (39.9%), but not teacher motivation (5.7%) or job dissatisfaction (1.7%). Thus, whereas in all cases the largest percentage of variance in teachers' attitudes (motivation, criticism, dissatisfaction) is attributable to differences in teachers' individual characteristics, there is a large proportion to be explained by factors at the school, cluster and subdivision levels. While most of the variability in burnout (78.6%) lies between teachers, there is an important amount of variation that can be accounted for by differences between clusters (11.4%) and subdivisions (9.9%).

This highlights the fact that in addition to working with individual teachers, there is a lot that can be accomplished by targeting the school, cluster and subdivision levels. While impact estimates in year 2 have not yet been estimated, and will be presented for the first time at the conference, the baseline variability in school, cluster and subdivision levels strengthen the hypothesis that a school-based intervention can be effective in increasing teacher practices and performance.

Conclusions:

Description of conclusions, recommendations, and limitations based on findings.

Notwithstanding significant variation between teachers, baseline results show that on average, teachers in Katanga report being motivated to help children learn and grow, are fairly satisfied with their job, and feel that their work is meaningful. These positive attitudes can be used to the advantage of programs like OPEQ, inasmuch as they can serve to engage and maintain teachers' interest in learning new techniques and contents, both of which take effort and perseverance, particularly as OPEQ does not provide monetary or in-kind compensation for time spent in these activities. In spite of the overall favorable picture, the wide variation between teachers has significant implications for school-based interventions and for the impact analyses.

While not presented in the abstract, our analyses show that there were also factors at the school level, such as accountability and the quality of supervision provided by school directors that were associated with teachers' motivation and level of job satisfaction. Our results suggest that improvements in these aspects of school culture can result in improvements in teachers' motivation and satisfaction. As the OPEQ project specifically aims to improve the quality of supervision provided by school directors, we could expect to see improvements in teacher motivation and satisfaction.

The findings from this paper will provide a fuller picture of teachers' experiences in DRC schools and how interventions can improve professional development, job satisfaction, motivation and performance. Findings will add important constructs of teacher professional growth and development to the current discussion of improving school accountability and management as a means to improve education in low- and middle-income countries, certainly a critical component of shifting the international agenda from Education for All to Learning for All.

Appendix A. References

References are to be in APA version 6 format.

Bennell, P., & Kyeampong, K. (2007). Teacher motivation in sub-Saharan Africa and South Asia. *DFID Educational Paper No. 71*. London: DFID. Retrieved from: <http://www.dfid.gov.uk/R4D/PDF/Outputs/policystrategy/researchingtheissuesno71.pdf>

Pianta, R. C., Mashburn, A. J., Downer, J. T., Hamre, B. K., & Justice, L. (2008). Effects of web-mediated professional development resources on teacher–child interactions in pre-kindergarten classrooms. *Early Childhood Research Quarterly*, *23*, 431-451.

Ross, J. A. (1992). Teacher efficacy and the effects of coaching on student achievement. *Canadian Journal of Education/Revue canadienne de l'education*, *51-65*.

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Appendix B. Tables and Figures

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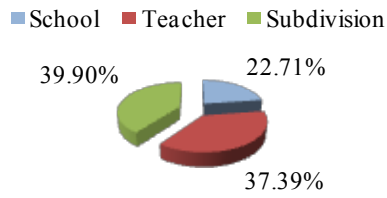
Table 1. Mean baseline scores for teacher criticism of school, burnout, motivation and job dissatisfaction

	Criticism of School	Burnout	Motivation	Job Dissatisfaction
Descriptive statistics				
Mean	3.02	2.76	2.49	1.95
Standard Deviation	1.12	1.29	0.52	1.08
Minimum	1.00	0.00	0.78	1.00
Maximum	4.00	6.00	3.00	4.00
Intercorrelations				
Burnout	0.231**			
Motivation	-0.102*	-0.131**		
Job Dissatisfaction	-0.002	0.041	-0.155**	

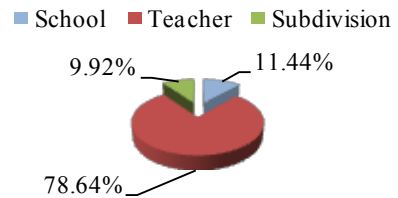
** $p < .01$. * $p < .05$.

Figure 1. Variability in baseline scores of teacher criticism of school, burnout, motivation and job dissatisfaction across levels

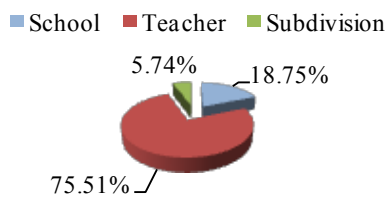
Variability in criticism across levels



Variability in burnout across levels



Variability in motivation across levels



Variability in job dissatisfaction across levels

