

ASAP Africa Zimbabwe

Bridge the Gap Project Final Report

2005-2009

The goal of the Bridge the Gap Project (BTG) was to improve the teaching and learning of math in 101 primary school in rural Zimbabwe from 2005-2009; a period of hyper-inflation and unprecedented economic and political turmoil. The specific objectives were to:

- i. Improve the academic performance in mathematics of students in the target areas.
- ii. Increase the number of pupils with a positive opinion of Math at primary school.
- iii. Improve teacher's interest in Math at primary and secondary schools.
- iv. Improve instruction and teaching methods/techniques.

Most project schools were located in remote subsistence farming areas where access to piped water, electricity or reliable phone service is rare; bus service, which is the only mode of transport for the majority, is unreliable on the dust roads. A typical rural student walks to school, usually a distance of between 0.5km and 5 km. Project activities were held in clusters of schools 3-6 schools within 5–10 km of one another and usually including a secondary school.

In Zimbabwe conditions in all sectors of the country plummeted during the project. The GDP declined 54% from 2000-2008 as inflation soared to over 79 billion % per month with prices doubling every 24 hours in 2008. Inflation was finally controlled when the economy was dollarized in February 2009. These and other external factors hampered project success. Fuel was in short supply throughout the project period and sporadic shortages of all commodities were experienced including cash.

From 2005 BTG project focused on improving the math skills in the 2009 grade 7 classes; for 5 years, from grade 3 in 2005 through to Grade 7 in 2009, ASAP worked with teachers to improve math skills for this class of students.

A BTG cluster coordinator (CC) was assigned a circuit of 25-30 rural schools. The CC began by working with groups of teachers interested in extra-curricular math activities; helping them to form Teachers Math Clubs (TMCs), on average made up of 7 math teachers from 3-4 primary and 1-2 secondary schools within a radius of 10km. By 2009 there were 30 TMCs; these played the lead role in all BTG activities. Each TMC met regularly and planned and maintained an activities budget to reach the objectives set by the club. ASAP provided funding for approved club activities and the CCs monitored all groups at least monthly, visiting the schools and attending meetings. The key activities were:

Planning and Ministry of Education consultative workshops - held each term with a teacher from the cohort class per school.

Cluster Level Staff development workshops – 1 per term, 3 per year.

Administering Tests - Regular testing provided pupils and teachers an opportunity to progressively monitor and improve performance. This included pretests and post tests at the beginning and end of each term, Grade 7 revision tests, and Form I tests. Teachers also had access to a test paper printing facility.

Student mathematics clubs (SMCs) - To improve interest learning math TMCs formed 97 extra-curricular SMCs – participation was voluntary.

Pupils' competitions - Math competitions were organized at club and cluster level, to help the students develop a positive attitude toward Math. A Math Olympiad at cluster level on an annual basis.

Teaching and Learning Aids competitions – An annual competition to encouraging teachers to identify and use locally available, cost-effective resources as teaching aids to augment learning.

Innovative Teaching Technique Workshop (ITTW) - One teacher from each TMC attended an ITTW each term covering problematic topics identified by TMCs. Participants received a BTG “Mathematics is Fun” tee shirt designed by BTG staff with input from teachers.

Lesson Demonstrations - After staff development workshops and ITTWs, TMCs followed-up in the classroom by conducting lesson demonstrations at their schools.

Schonnel Reading Test - A reading test administered in 2006 suggested that reading ability influenced pupil performance in Mathematics.

With these activities and a teacher-centered approach, the BTG project showed positive results on improving the teaching and learning of math during the 5 year period. Following is the progress documented on achieving the four project objectives.

Improve the academic performance in mathematics of students in the target areas.

Change in academic performance, was measured by comparing the change in pass rates on the external ZIMSEC math exams, which serves as the entry exam into secondary school. Math pass rates before the BTG project commenced in 2004 served as a baseline. These were compared to pass rates in 2009, which declined by 38.7% nationally. Results were available for 97 of the 101 schools in the project. In 88.7% of the BTG schools the change in the ZIMSEC math pass rates was superior to the national trend. In 65 schools (64%) passrates actually showed improvement over the 5 year period. An increase of greater than 100% over 5 year period was reported in 29 of the BTG schools.

From 2004 to 2009 the math pass rates in the 86 Nyanga area schools improved by an average of 58.3%; the 15 Chibwe area schools experienced a decline of 45.1%. Nationally, the math pass rates declined by 38.7% during this period. Contributing factors to the poor performance in Chibwe area may have been (1) the large number of productive commercial farms redistributed in the area during the project (Nyanga area is mainly Tribal Trust Land)(2) greater % of male teachers (3) closer access to South Africa for economic opportunities (4) greater poverty.

The table below summarizes the number and percentage of schools in each district that performed better than the national average each year.

Table 1: National ZIMSEC and BTG school math passrate from comparison 2004 - 2009

Number and Percentage of BTG 5 Year Project Schools with Pass Rates Greater than the National Average by District														
Year	2004		2005		2006		2007		2008		2009		2004 - 09	
# of 101 schools	94		na		95		97		93		95		97	
Nat'l Pass Rt:		38.8%		40.72		54.8%		49.1%		37.2%		23.8%	-15	38.7%
	#	%	#	%	#	%	#	%	#	%	#	%	# >Nat'l	# >Nat'l
5 Yr. Project	29	30.9%	na	na	46	48.4%	29	29.9%	31	33.3%	83	87.4%	86	88.7%

In 2009, the BTG cohort class wrote their ZIMSEC exams; this is the group of students ASAP had been working with since grade 3 in 2005 so a significant increase in passrate was predicted and achieved 2009. 87.4% of the BTG project schools beat the national average passrate!

The column on the right compares the change in pass rates from 2004 & 2009 to the national trend, which declined by 15 points or 38.7%. Data was available for 97 of the 101 schools (some schools were newly formed during the project and some did not make data available). The math pass rates in 86 of the 97 BTG schools (88.7%) showed trends superior to the national trend during the 5 year period.

Increase the number of pupils with a positive opinion of Math at primary school.

The increase in both the number of schools and students participating in extra-curricular math clubs activities shown in table 2 clearly documents a positive change.

Table 2: Student Math Club Participation per Annum

Year	2005	2006	2007	2008	2009
#of schools with SMCs	55	87	97	na	97
# of pupils	1715	4591	5117		6231

The increased participation can be attributed to the teachers that were actively involved in BTG math clubs who encouraged their students to participate in SMC activities. The desire by pupils to be selected to participate in mathematics competitions was also a motivator.

During an end of project survey, 91% of Heads, 86% of teachers and 94% of parents all agreed that BTG project activities influenced pupils to have a positive opinion towards mathematics. In fact, a teacher at Nyatate in Nyanga West circuit noted that the project had a particularly positive impact at their school, which had previously not seen a pupil graduating with a first class in Mathematics in the national examination. Two students, Rodwell Ncube and Able Mwanaka both managed to get first grades in mathematics in the 2007 ZIMSEC national examinations. The teacher attributed this to the spirit of healthy competition that was inculcated in the pupils through BTG activities.

Improve teacher's interest in Math at primary and secondary schools.

As with the students, many changes were observed during the BTG project that indicates an improvement in teacher's interest in teaching math. The number of teachers participating in extra-curricular math increased from 686 in 2005 to a project high of 864 in 2007. The last two years of the project this number declined along with every thing else in the country.

In 2008, an extremely chaotic period when teachers' morale and salary had hit rock bottom, ASAP conducted a survey of the number of BTG teachers present at the project schools on a specific day. Table 3 shows the results.

Table 3: Teacher and BTG Teacher Count

PROJECT AREA	TEACHERS PRESENT AND ACTUALLY TEACHING			BTG MEMBERSHIP		
	AUTHORISED ESTABLISHEMENT	TEACHERS PRESENT	% PRESENT	TOTAL MEMBERSHIP	MEMBERS PRESENT	% PRESENT
CHIBUWE	146	28	19	125	54	43.20
NYANGA W	183	45	25	52	30	57.69
KATERERE	161	79	49	46	31	67.39
NYAMAROPA	184	80	43	52	34	65.38
MUTASA NORTH	319	3	0.94	133	117	87.97
TOTAL	993	235	24	408	266	65.20

The survey revealed that 65% of the BTG member teachers were present on that day. While, overall, only 25% of the faculty were present at the school. Although difficult to prove cause and effect, one could conclude that participation in the BTG project may have been a motivating factor.

Improve instruction and teaching methods/techniques

Although there was no hard data collected on this objective, of the heads surveyed, 70% thought that BTG in-service workshops updated their teachers' teaching methodologies. 77% of the teachers' survey believed that BTG staff development workshops helped to improve their interest and competence in teaching math topics identified as difficult to teach. In fact, the workshops that were conducted influenced sixty percent of the teachers to further their education academically and professionally.

Recommendations

1. Decentralize the copy-printing facility so it is easily accessible in each circuit. This will increase the benefits to the schools and take the burden off ASAP's administrative staff. The BSP resource centre in each circuit should be provided a copy-printer, computer, printer and generator and staffed by a full time BTG data capture clerk.
2. Include more unique competition prizes that are not locally available to add interest. Early in the project the National Math Teacher's Association in Washington DC donated "I ♥ Math" buttons and pencils". By including some funding for transport and duty from the US for donated prize and staff development items, the perceived value of the project locally could increase tremendously at very little cost.
3. Provide more teaching reference books, teaching and learning aids and mathematics kits to schools to motivate teachers and increase project outcomes.

4. Implement a practical application component to the project through the inclusion of and Internal Savings & Lending saving club project activities in all SMCs. Funds permitting avail a matching grant facility to savings used to attend secondary school.
5. Provide secondary school bursaries for students that win the competitions and also to financially disadvantaged pupils who excel in mathematics at grade seven. Teachers put this forward after noticing that there were some pupils who excelled in mathematics during SMCs but failed to proceed to secondary education due to economic challenges.
6. Increase School Development Committee involvement in BTG activities to enhance local interest in the project and increase sustainability. For example, the SDC chair can be invited as a guest of honor to a quiz competition.
7. The initial and final baseline surveys must be expanded to include more data to document changes in attitudes by teachers and students and be carried out by people completely removed from the project.
8. Include a Communications Office and Monitoring & Evaluation clerk for the project and contract an external evaluation consultant.

In conclusion, ASAP's teacher-centered approach as taken by the BTG project has shown to be a successful model that produced positive results despite challenging conditions in Zimbabwe. The key to the BTG project success is ASAP's approach; that is to put more trust in those held responsible to educate - the teachers.

It's impossible to truly measure the impact of education. Test scores can be recorded and compared, counting the number of students that pass and don't pass in each and every school. But something that cannot be measured is the effect one inspired and enthusiastic teacher on his or her students. A dedicated teacher will change a student's entire life in immeasurable ways. It may be career choice or merely an attitude toward achieving success in life. The effects of good teachers cannot be measured by testing. These role models stay with children their entire lives.

During a time of great crisis and hardship in Zimbabwe, many teachers left for greener pastures but some chose to stay and continued to inspire and educate children. The School Heads and parents generally believe the BTG project contributed to this decision. Can we measure and verify this? Absolutely not! Striving to collect such empirical data to justify efforts to improve education is not only futile but intuitively it is counter-productive.

The international community strives to improve education in many ways worldwide but success stories are often thin and debatable. This project is no different. However, we at ASAP feel strongly that the key to success is to put more trust in those held responsible to educate - the teachers. The project has been endorsed by the Ministry of Education in a country that protects the education of their children and guards this jealously from outsiders. Having been granted this privilege, it is ASAP's ethical and moral duty to continue and improve upon the work begun by the BTG project.