



Reinforcing the quality of education in emergency situations: Ideas Box increases academic performance by 23%.

by Muy Cheng Peich, Director of Education, Libraries Without Borders | April 2016.

This study assesses the educational impact of the Ideas Box on students attending classes within the box in the Burundese refugee camp of Bwagiriza. Early qualitative trends published in 2015 indicated improved motivation and engagement in students who regularly visit the Ideas Box and use its contents. The following quantitative study outlines how students who attend French and Math classes within the Ideas Box show 23% more academic improvement than students taking the same subjects in a classic school setting.

Introduction

Burundi hosts more than **50,000 refugees**, the majority of whom come from the Democratic Republic of the Congo. The **Bwagiriza camp**, in which we conducted this study, welcomes **10,000 of these**. Originally hosting 480 Congolese from the Songore transit center in May 2009, it opened its doors to refugees from the Gihinga camp the following October. With 1,614 houses, Bwagiriza has become the largest camp in the region.

Refugees face many challenges ranging from health issues to security risks and geographic isolation. One of these difficulties is the lack of qualified teachers. With **61% of the population under 18 years old** (20.23% between 0-4 years old; 26,34% between 5-11 years old; 14.97 between 12-17 years old), this shortage of teachers and the consequential lack of pedagogical resources are sorely felt. Nevertheless, enrollment rates in primary schools are high, suggesting how parents prioritize education for their children: **81% of children aged 6 to 11 attend school in the camp**. The enrollment rate drops significantly in secondary schools, however: **only 25% of children aged 12 to 17 are enrolled in the camp's middle and high schools**. Though teachers in the schools are all trained and qualified as professional teachers, they unanimously report that they lack the resources necessary for the preparation of lessons and for the use of students in class.

Taken together, **these statistics show the importance of improving education in the camp**. Educating young people and developing their academic skills strengthen the community and prepare this new generation for the reconstruction of the post-conflict society. In addition to these advantages, involving children and adolescents in educational activities encourages positive psychological impacts, especially for those who went through traumatic events. Finally, education reduces security risks for vulnerable populations.

In February 2014, **Libraries Without Borders deployed two Ideas Box kits in Burundi**; one in the Musasa camp, which hosts 4,000 refugees, and the other in the Kavuma camp, which hosts 7,000 refugees. A third Ideas Box was installed in **Bwagiriza in July 2014**. Operated by teams of facilitators, Ideas Boxes provide a free access to Internet, as well as a wide selection of educational, informational and cultural content. Computers, tablets, cameras and GPS enable the creation of new contents by the users. Free use periods alternate with scheduled activities such as literacy workshops, academic lessons and trainings, etc.

Three months after the deployment of the first two Ideas Box kits, more than 3,300 users had registered in Musasa and Kavumu camps. Initial observations from this study revealed interesting ties between protection, community ties, and education. Summaries of these are presented below:

- 1. Child protection:** by creating a safe space where children could find relevant resources and activities, the Ideas Box reduced the risks to which wandering children were exposed.
- 2. Strengthening of community ties:** the Ideas Box acted as a catalyst for community bonds. Because it created an attractive place in the camp, it facilitated encounters between individuals and contributed to the emergence of new community dynamics.
- 3. Supporting education:** by providing access to a wide range of contents – digital and paper – the Ideas Box supported both the students and the teachers. The latter

used the box and its resources as a preparation tool for their lessons and met on a regular basis in the Ideas Box to exchange best practices and discuss their lesson plans and practices

Testimonies of teachers and parents revealed a significant increase in school attendance by children who regularly went to the Ideas Box. They also reported an increase in motivation, curiosity and concentration in class. These first results prompted us to further explore the question and decipher the quantitative impact of the Ideas Box on the quality of education, in order to better understand the mechanisms of such an impact and thus maximize the efficiency of the Ideas Box.

In this study, we aimed at quantifying the impact of the Ideas Box on the academic level of students who attended some of their lessons within the Ideas Box. Conducting a rigorous impact assessment study in such an instable context as a refugee camp in Burundi, especially during troubled time, poses particular challenges. Thus, we aimed at controlling for differences in characteristics that might have skewed our results.

Methods

The Ideas Box in Bwagiriza was deployed in July 2014. During the first few weeks of its installation, the Ideas Box was presented to the population of the camp. Teachers immediately expressed their interest for the box and its resources. They saw the potential of the cultural and educational materials accessible in the box, as well as the potential of the space itself. On the latter, they explained that the new space, with its attractive books and technology, could motivate their pupils. They expressed enthusiasm for the disruptive quality of the Ideas Box.

Our assessment study **started in November 2014 and ended in July 2015**. Teachers who participated in the program gave **two hours per week of French and math lessons in the Ideas Box for 12 weeks**. We decided to focus on two education demographics:

- **Children in the 4th year of Primary School** (children aged approximately 10 years old),
- **Children in the 2nd year of secondary school** (children aged approximately 15 years old).

We compared performance of students who attended classes within the Ideas Box and students who attended classes in traditional school settings. In both cases, teachers used the Ideas Box to prepare for their classes: they used the space to work on their lessons

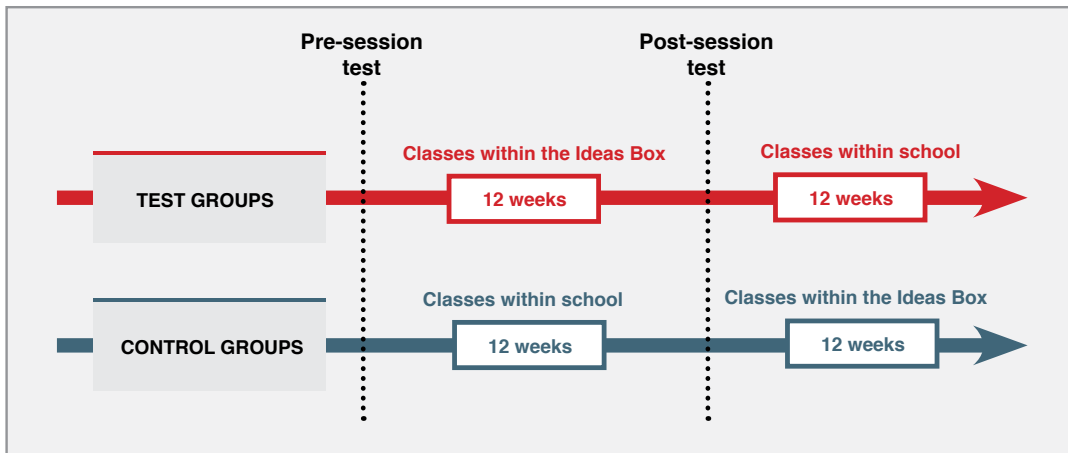
and consulted the Ideas Box’s resources to prepare the content of their lessons. The only difference between each class was the setting in which the class took place. When the class was held in the Ideas Box, teachers and students used the Ideas Box’s material (tablets, books, etc.) and resources (apps, videos, websites such as the Khan Academy, Wikipedia, the Voltaire project, etc.) for each lesson. Students and their teachers also took the time at the beginning of each lesson to install the Ideas Box’s tables, modules, and stools into positions that fit a particular day’s lesson plans (i.e. tables are set around the TV for a film followed by a debate, stools are placed around tables when using tablets, etc.). When the class was held in the camp school, students and their teachers used the material and resources that were at their disposal and tended to be basic materials (i.e. blackboards, notebooks, textbooks, etc.).

This experiment used a **randomized control trial protocol**. There were 2 classes for each year in the camp school. For each school year, one of the two classes was randomly chosen to be the test group. This group met in the Ideas Box. The other class served as the Control Group and met in the regular classroom.

Before the program’s implementation, the manager of the Ideas Box met with the teachers of the respective grade as well as the education manager of the International Rescue Committee – which is in charge of the school in the camp. The manager explained the protocol of the experiment to the teachers with their consent. A week later, all four teachers met for the random draw that would assign them to their class space.

Table 1: Characteristics of classes that participated in the study

	Test Group	Control Group
4th grade – Primary education	n = 60	n = 60
	28 girls; 32 boys	27 girls; 33 boys
	age = 11.03 ± 1.97	age = 11.09 ± 1.98
2nd grade – Secondary education	n = 38	n = 30
	18 girls; 20 boys	14 girls; 16 boys
	age = 15.64 ± 1.78	age = 15.84 ± 1.42



We used the **EGRA** (Early Grade Reading Assessment) and the **EGMA** (Early Grade Math Assessment) developed by the EdData11 group to evaluate students' academic level before the experiment and after the experiment. Both tests were shortened to enable all the students to be tested the same week. The EGRA tested reading and text comprehension abilities while the EGMA tested number identification and basic operation abilities for primary school students and operations and problem solving abilities for secondary school students. The structure of the test was similar for both the pre-experiment test and the post-experiment test. But texts and exercises used in the tests were modified in order to prevent memorization bias.

All students took both the EGRA and the EGMA. Examiners unrelated to the experiment tested the students from the Test Group and from the Control Group, twice: before the 12 weeks of classes and after the 12 weeks of classes. Comparisons of performance between the groups enabled the evaluation of the impact of the Ideas Box on students' academic level.

In the camp school, students of the same grade level were randomly assigned to a class at the beginning of the school year. The teachers assured that there is no obvious difference between the 2 classes of each grade level. There was no significant age difference between the Test Group and the Control Group for either grade level, nor was there any significant difference in gender distribution.

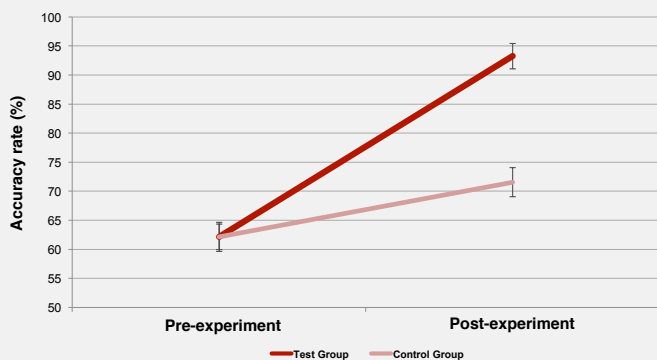
Results

The pre-experimental tests showed that children in both the Test and Control Groups received similar scores before the experiment. The groups could thus be considered as starting at the same academic level in these two subjects.

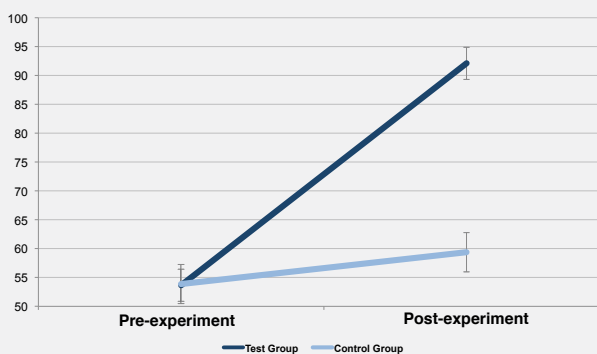
After 12 weeks of experiment, the students were tested again in French and in Math (Figures 2 and 3). Students in both primary and secondary schools showed improvement in Math and French in both the Ideas Box and regular classroom settings. However students

Performance for 4th grade students

FRENCH (WRITING & COMPREHENSION)

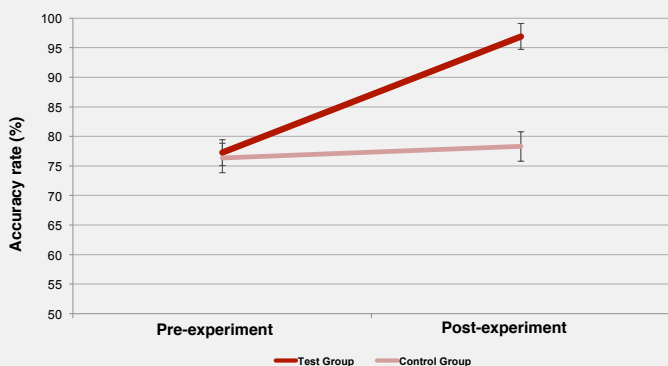


MATH

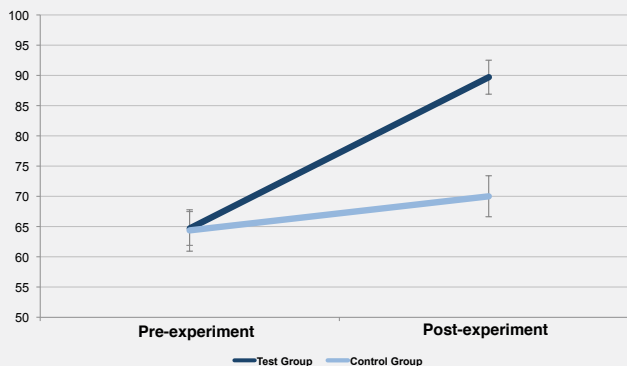


Performance for 8th grade students

FRENCH (WRITING & COMPREHENSION)



MATH



having followed the Ideas Box program – the Test Group – **did show more improvement in both French and Math than students in a regular school setting.**

4th grade students in the Test Group improved their performance in French by 31.1%, while students in the Control Group improved by 9.4% (Figure 4). **The same can be said for Math where 4th grade students in the Test Group improved by 38.45% while students in the Control Group improved by 5.5%** (Figure 4). Though the difference is less pronounced for students in the 2nd grade, the same pattern can be seen.

Interviews with the teachers of the Test Groups showed that the **students consistently seemed more engaged during classes than in the regular classroom.** Initially explained this as a result of novelty on the part of the students, both teachers stated that their pupils seemed more engaged throughout the experiment. Teachers also reported increased **curiosity** and levels of participation from their students and a **more active posture** – more questions from the students, more interactions between the students during exercise session – when the lesson was held in the Ideas Box.

Conclusion

This study attempts to quantitatively assess the effectiveness of the Ideas Box four months after its deployment in Bwagiriza. **It found that students who met for class in the Ideas Box performed better in both Math and French than their counterparts in a regular classroom environment. On average, they found that students meeting in the Ideas Box performed 23% better than those in regular classes after 12 weeks of instruction.** Younger students were affected more than older ones effect is particularly pronounced for younger students: students in the 4th year of primary education on average received scores 27% higher in the Ideas Box than the regular classroom, while students in the 2nd year of secondary school scored 18.5% more on average after instruction in the Ideas Box than those in a traditional classroom setting.

It would be interesting to further explore these results and try to decipher whether these effects are due to the introduction of the higher quality materials accessed during class that are only found in the Ideas Box, or whether it is the space itself. After all, **the Ideas Box not only provides new educational, cultural and informational content, it also creates a new space in which activities can be held.** Qualitative feedback from the teachers suggest that both aspects of the Ideas Box are relevant in their students' attitudes when they met in the Ideas Box. Indeed, they reported a **change of attitude in their students when the lesson is held in the Ideas Box:** they were “more alive, more motivated and engaged”. And this change seemed to have lasted for the whole 12 weeks.

As was previously mentioned, this hypothesis of **the Ideas Box acting as a third disruptive space** must still be tested. Additional quantitative data from both the teachers and the students will add a more in-depth understanding of the mechanisms underlying the study. **Such data, when analyzed, would join data collected in other studies which have highlighted the importance of not only providing high quality educational material, but also of improving learning environments in order to improve the quality of education, especially in emergency situations** (Brown, 2001; Torrente et al., 2015).

A complete study, which will include a qualitative analysis of the results presented above, will be published in the upcoming months. Building from the promising results of this study, we will continue to develop a better understanding of the impacts of the Ideas Box on education, and to explore the effects of the Ideas Box on psychosocial and cognitive development. These assessments will support us to improve the efficacy of the Ideas Box and its contents. We have to explore the effects of the Ideas Box on psychosocial and cognitive development in order to improve the efficacy of the Ideas Box and its contents. Such assessments require long-term studies and rigorous methodologies that take into account the constraints of fieldwork. Though awareness about the importance of impact evaluation in humanitarian programs has improved, the coordinated collection of data and global effort of all actors of the emergency field remain necessary.

Writing and data collection

Author : Muy Cheng Peich, Director of education, Libraries Without Borders
(muy-cheng.peich@bibliosansfrontieres.org)

Data collectors: Sophie Ait-Belaid, Maurice Mayimbikiza, Adonis Nshimirimana

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