Can Laptops/Tablets and Smart Applications Improve School Performance?

Issue at-hand

As African countries are slowly curtailing the deficit in enrollments at the basic education levels, the battle for improving the learning outcomes is far from being won. UNESCO's International Institute for Capacity Building in Africa (IICBA) reported in 2016 that "[n]ational monitoring reports, regional and international assessments confirm significant gaps in learning achievements within and across countries- with large numbers of learners in the early primary grades lacking in foundational reading and mathematics skills, primary level drop-out rates still high across Sub-Saharan Africa (SSA), and many children reaching adolescence without basic numeracy skills". Among the factors contributing to this worrying trend, the issue of student absenteeism leading to students dropping out ranks very high. Other factors such as unqualified teaching force as well as unavailability of quality learning and teaching materials seem more manageable than absenteeism.

African countries have also embarked on integrating ICT in education to address challenges in access, quality and relevance of education. The introduction of laptops and tablets as learning and teacher management tools is now a reality in many school systems across the continent. However, evidence of the effectiveness of these ICT tools in addressing quality and access concerns is very difficult to come by. But this situation is now changing as data on promising educational innovations in computer applications are trickling in to justify the hope placed in ICTs.

Policy recommendations: *(i) source relevant and pedagogically sound applications to address students' attendance, performance, behavior, health, and hygiene and (ii) train teachers to use them effectively.*

In Rwanda, student performance and attendance in schools can now be evaluated and improved thanks to a desktop application called "Smart Parent" (Kantengwa, 2016). The application is used every single day to track and monitor the status of children's school attendance and learning. The software uses five (5) domains in which the students are evaluated: attendance, performance, behavior, health, and hygiene. Individual teachers are equipped with a laptop containing the "Smart Parent" software and then trained in how to use it to collect data. The information thus gathered is sent to parents who are informed on a daily basis of the attendance and performance of their children.

According to the designers of "Smart Parent", the following pedagogical principle underpins the development of the software: *A child can't succeed if he is absent or late, he can't succeed if he is sick, absent minded or sleepy in class, and doesn't have access to basic hygiene needs*.

The development of the application was also preceded by a market survey and interviews with teachers, school administrations and parents. These key stakeholders welcomed the innovation and provided a favorable environment for its implementation in pilot schools.

It is important to note that the "Smart Parent" application is rural area-oriented. Even though Rwanda enjoys one of the highest rates of Internet penetration in Africa, the application does not need an Internet connection to function. Parents in rural areas who do not have access to smartphones can still have access to the information generated by the teachers on simple mobile phones.

To promote mobile penetration in the country, the designers of the application work with mobile phone operators to provide phones to parents who do not have them.

As with any innovation, it is important to begin with a pilot phase before scaling up. During the pilot phase the application will be adjusted/improved through the feedback provided by teachers as a result of their interaction with students' parents.

In Rwanda, the pilot phase began with 750 students in a high school with the plan to implement the project in 20 schools per month in the following year, bringing the number of classrooms covered to 600, equivalent to adding 18,000 students every month.

Conclusion

The "Smart Parent" application is now being piloted in six countries: Zimbabwe, DR Congo, Gabon, Gambia and Uganda. It is important to note that the application was developed by a

private company in Rwanda. This company was able to enter into public-private and private-private partnerships with the ministry of education and other private sector actors (mobile phone operators). The application as well as the types of partnerships will vary from country to country but the fact that it is underpinned by a pedagogical principle validated by key school and community actors contributes to its success. As the innovation is in its experimental phase, it is important to wait for its scaling up nationwide to learn additional lessons on its full potential to address school performance by ensuring that students receive more contact hours by remaining in classrooms with their teachers.

References

Kantengwa, Sharon (2016). How Smart Initiative will improve student performance in schools. http://www.newtimes.co.rw/section/article/2016-09-11/203427

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