



Cash on Delivery: Motivating teachers to improve early grade learning in Tanzania

1. Introduction

All children should learn to read and calculate well in their first years of primary school. Teachers are the key agents to make this happen. To show that learning is important and encourage teachers to help children learn, Twaweza introduced “Cash on Delivery”, a new way to pay teachers. That is, Twaweza promised to pay teachers in Standards I, II and III depending on the skills their students learned. This Cash on Delivery bonus came on top of the normal salary and there were no sanctions for bad performance. With cash on delivery, teachers have an opportunity to

earn more if they improve the skills of their students.

The Twaweza Cash on Delivery programme is called KiuFunza (short for Kiu ya Kujifunza or Thirst to Learn). In order to measure the impact of cash on delivery, KiuFunza is implemented as a school based randomized control trial (RCT): this means that the bonus program was implemented in one group of schools while intentionally keeping another group of schools under “business as usual” – a control group. A key feature is that the program schools were selected by chance. This means that at on



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average the program schools and the control schools were “the same” before the program started. Therefore we have a fair comparison between control and treatment.

2. 10 Frequently Asked Questions about cash on delivery

Question 1: Why do we care about learning improvements in primary schools?

Quality education is a road to economic success, both for individuals and for Tanzania as a nation. Recent years have seen a huge increase in primary enrolment of almost 4 million students, growing from 4.4 million in 2000 to 8.3 million in 2012. The additional budget resources needed to deliver this are large. The expansion is likely to continue because of a fast growing population: in particular, talented teachers need to be recruited and trained to ensure Tanzania’s children learn basic skills such as reading and numeracy. Without these skills, a child will not reach secondary education or university.

But the basic skills are where many of Tanzania’s children struggle, even if they are talented. Data from the large scale Uwezo learning assessment (2015) show that in Tanzania pass rates on a Standard 2 test among Standard 3 students are 56% for Kiswahili story reading, 13% for English story reading and 35% for multiplication. Since these children have moved beyond Standard 2, the Uwezo data show that insufficient learning takes place in the early grades. This endangers the lifetime learning achievements and job opportunities for children in Tanzania.

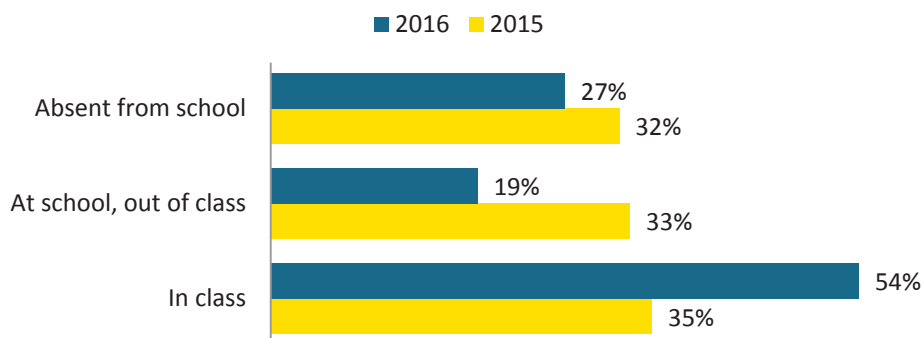
Question 2: Why is teacher motivation essential?

Most observers agree that teachers are central to the learning process. A special problem is that teachers are not spending sufficient time in class. In Tanzania, large numbers of teachers are not in the classroom and leave their pupils unattended.

How do we know this? Absence information comes from surprise visits to schools: KiuFunza survey teams visited a school with a list of Standard I-II-III teachers’ names and their teaching assignments. The team confirmed where the teacher was and what he/she was doing while on duty.

Figure 1 shows the “Where is my teacher” results for 2015 and 2016. This figure shows that in 2016 teacher class attendance was better than in 2015, but that it was still only 54% for teachers on duty. This is a nationally representative survey, meaning that in all Tanzanian public school lower grade classrooms 46% of teachers were absent from their classroom in July/August 2016 (these findings are confirmed by other national surveys, e.g. the 2014 SDI survey finds primary classroom absence of 47%).

Figure 1: Where is my teacher?



Data are for Public Primary Schools, Standards 1-3 (2015-16)

Source: Twaweza KiuFunza 2015 and 2016 midline teacher attendance survey

This reality represents two large losses. First, many children spend time in class without receiving instruction in skills that are essential for their future welfare. Second, Tanzanian taxpayers are paying these teachers their full monthly salaries for services that are only half delivered.

To understand the second type of loss, consider that a Standard 1-3 teacher costs on average TZS 9 million per year (based on pre-tax compensation, reported by teachers). According to Basic Education Statistics (BEST) data, Tanzania employed 191,604 teachers in public primary schools in 2016. This means that the total primary school wage bill is about TZS 1,724 billion per year. (This is a low estimate since the cost per teacher is for Standard I-III teachers and higher grades are typically taught by more senior and better-paid teachers).

Using the 46% classroom absence rate for 2016 across all grades we estimate that taxpayers are losing TZS 793 billion annually for teaching services contracted but not delivered (or TZS 4.1 million per teacher). Compare this to the highest estimate for money lost through the IPTL Escrow scandal of TZS 306 billion in 2014 that caused a national outrage. The loss on primary school teacher contracts is more than twice the Escrow scandal loss. *But this value is lost every year.*

Question 3: How can we improve teacher motivation and learning?

Policy makers face a double challenge: learning in schools needs to improve and the education budget, particularly teacher salaries, needs to be spent more effectively. What can be done? Twaweza has worked on the joint problem of learning and teacher motivation. We have explored different ways to motivate teachers using cash on delivery, an incentive system that links payments to teachers to the skills learned by the children they teach.

The idea is simple. What matters in education is *whether children learn*. What is the underlying cause of teachers' non-attendance? Motivation. So we took the oldest motivator in the book

(cash) and linked it to learning outcomes. We call it **Cash on Delivery (COD)**. Teachers **deliver learning** and they are rewarded for it with a **cash bonus**.

Cash on delivery sends a clear message from the Minister (a teacher's paymaster) about the importance of learning. It recognizes and rewards teachers who take initiative and care for their pupils; these teachers' efforts become visible for others and are talked about. Therefore cash on delivery creates visibility and accountability for learning, which is currently lacking in schools.

Question 4: Did Cash on Delivery improve learning in Tanzania?

Did cash on delivery improve learning? Yes. In 2015-16 we find positive effects on student test scores when Twaweza offered cash on delivery only to schools. This provided proof that cash incentives can motivate teachers to improve their performance and help their students to learn more.

In a specific subset of schools (in 2013-14), Twaweza also tested whether the combination of bonuses for teachers and Capitation Grant (CG) funds for school needs would have an effect on learning outcomes. The capitation grant benefits the whole school, not just the KiuFunza teachers. When the bonuses and grants are combined, the impact on learning in early grades is strong: we find that Kiswahili and Math pass rates improve by 20% in a single year. Few rigorously evaluated education initiatives in the world have had this level of impact.

KiuFunza research shows that providing capitation grant funds to schools *without incentives* (business as usual) does not improve learning. But in combination with incentives, the capitation grant helps children to learn. These findings are important, because the education budget is very large and is focused on inputs such as teacher salaries, books, desks and the capitation grant. This spending needs to be as effective as possible. KiuFunza shows that incentives can improve the value for money of the existing education budget.

Moreover, teacher incentives have a potentially important effect on attracting talented teachers. Teacher recruitment in Tanzania has suffered because of the lack of recognition and opportunity in the profession, driving good candidates away from a teaching career towards other sectors (this is true in many countries). Performance-based pay offers one opportunity to attract talent to this key sector.

Question 5: But this is an “academic” idea: how can it be realized in practice?

In fact, Tanzania has already started to implement a school incentive system. Under Big Results Now (BRN) this scheme started as the School Incentive Grant (SIG) in 2014. In this scheme only a small number of schools can win a bonus, so most teachers are not affected directly. Moreover, the bonus is paid to the school, rather than the individual teacher. This

is a good start as it shows that the principle of incentives has been accepted and that the system is in place to measure and reward *improvements* in learning.

An incentive system is like an engine: a change in design can change the power of the engine. Therefore, it is important to test different designs because they can lead to different outcomes. Our proposal is to implement teacher level cash on delivery first in a small sample of schools, test it and learn. Then decide on the best possible design before implementing at scale.

Twaweza's research strongly supports an enhanced design in which:

- a) More students and teachers benefit
- b) The bonus is paid to teachers directly, as part of their annual compensation
- c) The bonus represents a significant value on average
- d) The incentive design is communicated very clearly

Question 6: Do teacher incentives work at large scale, and in other places?

There are examples of teacher incentive schemes that work at large scale. One example is the Brazilian state of Pernambuco, where an incentive program covered 50,000 teachers in 950 schools and resulted in learning improvements.

Another example of cash on delivery at a national scale is from Chile, where all 6,500 publicly funded schools in basic education participated and strong improvements in math and language test scores were obtained.

Other studies include teacher incentive schemes at smaller scale and found sizeable test score improvements, e.g. in Kenya, India and Israel. A general conclusion from these studies is that teacher incentive pay has improved learning in diverse settings but also that design and implementation details matter a lot.

There will be numerous practical challenges to address when implementing a teacher incentive system in Tanzania. Therefore it is good to learn by doing before rolling it out. A number of must-haves are clear:

- Ministerial commitment and a cash on delivery fund to pay the incentives
- A consensus about the incentive design and about the measurement of performance
- An efficient management structure to oversee the incentive implementation
- Clear and engaging communication to teachers at the start of the year to ensure the incentive offer is known and understood
- Communication after the payments are sent to provide feedback

Twaweza has in the past implemented different types of incentive systems and, with help of partners, is in a position to advise on and assist in the cash on delivery implementation.

Question 7: What are the key cash on delivery design decisions to consider?

The most important decision is the performance metric or the **'what'** question: what is measured and paid for? Most education analysts agree that the relevant metric is value added or the difference between what a student can do before and after a period of schooling. This is indeed what the SIG already uses as it pays a bonus to the most improved schools. The advantage of an improvements-based incentive is that it does not give undue advantage to schools that have a better starting position, e.g. urban schools with better-off students.

Another important decision is the incentive target or the **'who'** question: whose performance is measured, individual teachers or groups of teachers? In practice a group incentive, based on national exam data, is most practical and cost-effective.

A third key decision is about the **size** of the cash on delivery budget. The size of the bonus budget divided by the number of beneficiaries gives the average bonus payment. The higher this average pay-out, the higher the expected bonus impact.

Question 8: How costly is cash on delivery?

Cash on delivery does add to education expenditure, but incentive payments are made only if performance improves. This means that the budget per student will increase. The amount will depend on the design. The KiuFunza bonuses, which were paid to Standard I, II and III teachers only, were about 3% of the existing per school budget. The Twaweza implementation had to add the school visit costs for baseline communication (about 1%) and for endline student testing (3%). If testing costs can be avoided by using existing exam data, the expense for cash on delivery in the lower grades is about 4% of the existing budget.

But note that the *cost per passer* is what matters for the education system: this is, the average cost per student passing the curriculum requirement, for example the Standard 4 exam. The cost per passer will drop as long as the total cost of the cash on delivery system per added passer is lower than the existing average cost per passer.

Question 9: What about equity, should Government differentiate payments?

The proposition of cash on delivery is not discriminatory. Every teacher is eligible to benefit, depending on performance. We note that basic pay levels are not affected but a performance linked bonus is added. However, since the aim is to improve early grade learning at the lowest cost possible in KiuFunza the bonus was offered only to Standard I, II and III teachers. If the Government would like it could further focus the intervention on rural schools where the living and teaching conditions are challenging and where it is harder to attract teachers.

With this focus the bonus can help to improve the situation for those schools that are in most need of support. Individual teachers can thus be motivated to come to these schools and add value to the skills of their pupils.

Question 10: What about execution, how difficult is it to implement cash on delivery?

There are five core tasks to perform when running a cash on delivery system. In the table these tasks are summarised and a tentative division of labour during an implementation trial is provided.

Action or input	What needs to be done?	Agency (proposed)
(1) Communication	Provide approved bonus rules to teachers at the start of the year, in a clear and engaging manner; and provide feedback about performance payments in the next year via SMS.	Twaweza
(2) Teacher assignment and bank account data	Provide for each participating school a list of teachers by grade. This information is combined with teacher bank account and mobile phone information to create a teacher level cash on delivery database.	President's Office – Regional Administration and Local Government (PO-RALG)
(3) Student test data and audits	Organize testing in schools and capture student level test data. *Audit tests to investigate extreme exam results	NECTA, PO-RALG *Twaweza, NECTA
(4) Create pay sheets	Combine (2) and (3) to create teacher level bonus pay sheets with the bonus amount for each eligible teacher. Sheets approved by cash on delivery steering committee and submitted to PO-RALG. All school level bonus data are made public so teachers can check their payments.	Twaweza
(5) Pay bonuses	Send the bonus payments. This assumes that bonus payments can be made via the usual salary accounts once the bonus amounts have been calculated. *Payment sample audit to check receipts	PO-RALG *Twaweza, PO-RALG

3. Conclusion: cash on delivery in Tanzania, can we make it happen?

Education is a focal point for our fifth phase government. But the temptation will always be to highlight those things that are more visible and countable – desks and laboratories. Twaweza believes that we must ask the really hard questions: what works to ensure that children learn, and how we can change our education system with this end in mind.

Teachers are a great place to start because people matter most. Teachers like the cash on delivery program because it offers earning opportunities. This gives the policy makers a possibility to ask for something in return: more responsibility and accountability for pupils' learning.

Teachers themselves were positive about cash on delivery, 95% have a favourable opinion about such a program (and 75% have a very favourable opinion). When asked how they would want to receive a 15% salary increase only 35% favour a traditional “flat increase”; 65% favour some type of performance based pay.

Finally, Tanzania has already started to implement a teacher incentive system known as the School Improvement Grant (SIG) since 2014. We believe this is a good start but recommend an enhanced sharper scheme under which more students and teachers benefit. Twaweza is ready to work and think with the Government of Tanzania to help implement the best possible incentive system, based on the years of evidence and experience with cash On delivery.

Is cash on delivery sufficient to improve learning? No, it is one piece of the puzzle. But other measures to improve learning become more attractive for teachers to adopt once they see a benefit in ensuring children learn. School leaders and teachers may start searching for solutions when they receive a signal from the Ministry through the cash on delivery system that added learning is valuable.

Our proposal is to implement cash on delivery at a small scale, test, and learn. Then we can decide on the best possible implementation and decide on implementation at scale.