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# Commentary From the Field: ELIMU HAINA MWISHO “Education has no Limits”

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**Note:** Erick Mathew Kaaya’s story is in his own (second language) words, with some ellipses and bracketed text added by James Tanton to support readability.

June 2017 the journey of Exploding Dots started in Tanzania, specifically Northern part of Tanzania in Meru district. Teachers were gathered at a room for a science teacher’s workshop that was hosted by Prof James here in Tanzania, [114 teachers in all over two days]. The majority were math teachers, all were from secondary level. The teachers were from both government and private school within Meru district.

The session were very energetic and productive to the teachers. It was very interesting since Prof James was very insisting to teacher’s participation during the lesson. Even telling them this is a gift to your students so let’s keep attentive and have time to go and share the gift. Prof James started the workshop by international math salute, which it was very cool and trick. Some appeared to say its magic! It’s just math I can say. He introduced we are going to solve some additional questions from right to left, just from the audience the giggling started. It was a good start for Exploding Dots to the teachers which created curiosity to the audience.

During the session the idea to join the movement grew to me at glance. This is how the kick-off of Exploding dots started in Tanzania.

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Here in Tanzania I am working with secondary teachers [with a first goal of having them participate in] Global Math Week 2018. We extended to primary and college/Universities.

The teachers have [proved to] play a role of good advocacy and ambassadors here in Meru district. They have been providing Exploding Dots lesson to the students up to date. I am working with the Meru district teachers it is a challenge bringing them together. All of the schools that we are working with I made sure I visited them physically [so as] to create a great bond with the schools. ... After [creating] this platform it made [it easier for me] to bring together the teachers and to understand the nature of the school and understand [the contexts of] certain demand[s]. I had a support from education district officer get an authority to visit the schools it took me time to get this permission and build the relationship with Global Math Project. The aim is reaching more schools and spread a word of Exploding Dots and uplifting mathematics for all in generally.

There is [an] interesting program that is conducted to some of the schools here in Meru district ... [the] Exchange of Knowledge program. This is a culture in Tengeru Boys Secondary whereby when any teacher who go out for any workshop. They usually conduct an internal workshop for all teachers who did not attend the workshop. I can say this culture is impressive within the school, it did not end there. I shared this with other teachers since its good. It was positively received by the teachers, hopefully they have adopted the culture to some extent.

I did more efforts to keep the teachers more involved and see themselves as the part of the team. I created a WhatsApp group for the teachers, that I named Exploding Dots Tanzania. Since most teachers have access to WhatsApp here in Tanzania. I did not specify exactly Meru district teachers because aim is to reach more math teachers here in Tanzania. Other teachers even invited more teachers from other schools. At a group I have been [giving updates] on Global Math Project. It created more platform for ... teachers [to share] different concept[s] on math. [They were curious about all that was] new from Global Math Project but Exploding Dots have been trending. [They wanted] more from our project, [and] probably [WhatsApp helped quench their thirst].

A teacher from Akeri secondary school had a very interesting impact with Exploding Dots lesson. After teaching Exploding Dots to his students, after a [couple] of weeks, [he] constructed a weekly test as [per] usual. [He added to one question] ... solve this question using Exploding Dots method. ... We can see the impact now, it is not in a Tanzania curriculum but he tried to assess the students' knowledge on Exploding Dots. It was so impressive he

posed to the exploding dots group in Tanzania. There is this say in Swahili that's says "Elimu haina mwisho" this means education have no limit.

## **Exploding Dots in a Tanzanian Classroom**

Exploding dots is having great impact here in Meru district Arusha-Tanzania. It [has] change[d] the attitude of both teachers and students. To teachers it was very new and interesting [to solve] addition, subtraction, multiplication and division questions from right to left and still remain mathematically relevant. To students it became very interesting, one of the students once said: If Professor James was able to establish this new way which is easy and applicable . . . why I should even fail this normal way of solving math? I was in front of the class encourage this young girl and a class in general that they are never late. I also told the students that [doing] math is [just like] life struggling. Working hard to join university, create your own job or be employed. All those hustles apply to math subject. As students you should keep trying and trying the questions until you come to the solution. With that attitude [they should take] math as part of their daily life as . . . students.

Exploding dots in northern Tanzania particularly in Meru district which is in Arusha region have success to bring together the teachers. Currently I have covered more than 25 schools in Meru district the aim is to cover the schools at the national level.

During the Global Math Week 2018 the idea clicked into my mind: why don't we evaluate what we are doing? Immediately we started with very simple surveys. It just a simple blank white paper where the teachers were able to write [a few words] on [their impressions of] Exploding Dots. And to students, one side a [mathematical] question on Exploding Dots and other side [an opportunity to] say [what they think] about it. And the responses were very grand and interesting.

Communication is . . . human connection. What clicks in mind it is translation of Exploding Dots materials to Swahili language. Here we see the important of translation to the community. The printing of Swahili handout it was very beneficial to the students. It enabled them to have quick and accurate understanding [of] the lesson compare[d] to [what they could glean otherwise from] their weak background of [the] English language. Here most of the schools are . . . public [schools] where English is taught as a [separate] subject. [It is] not [the] medium of communication for all subjects. . . . In private schools . . . English [is the] medium of communication for all subjects. Now we can see how helpful the translation of material is important here in

Tanzania. I made this happen with the help of teachers and the Swahili team. We thank Simons Foundation for funding the translation work.

Exploding Dots have a great impact [on] the attitude of students. [They] see [the] math subject can be achieved successfully: it's not the issue of [being] hard. But it's just the issue of working smart and trying and trying. I see success [in] students [becoming] motivated on math subject, but the challenge is monitoring and evaluation to come up with accurate data. We are in the process of creating the surveys that will enable us to have accurate and reliable data. I wish we could have fund on operating our project here to that we can be able reach more teachers and students. [I think it would be beneficial to introduce] a GLOBAL MATH PROJECT-TALK / MATHTALK TANZANIA [program, with] the aim of ... talking with different teachers, graduates, students, parents and the community members. ... This will be [in the form] of video recording. [We could] also having motivational videos from mathematicians around the world. [Humans] like being motivated[!]. Let change the world by uplifting math.

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