Extending and Embedding Tessa Open Education Resources (OERS) in Teaching at Primary School Level in Laikipia County, Kenya

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Abstract: **This study investigated extending and embedding Tessa Open Education Resources in Teaching at Primary School Level in Laikipia County, Kenya. The study was qualitative and survey designs.Two primary schools within Laikipia County were purposively sampled and all the twenty teachers participated using multistage sampling technique. The project was in three phases; introduction phase where a 2 day workshop was organised and experts well versed with TESSA OERs facilitated round table sessions on how to teach practical/creative thinking skills to primary school learners using TESSA methods. The training aimed at improving teachers probing skills, cooperative learning and forming a community of good practice. The second phase was implementation while the third phase involved collecting feedback from teachers. 400 pupils from the two participating primary schools were expected to benefit once the teachers embraced TESSA methods which advocate for active learning. Project outcomes included changes that teachers made in their lesson presentations in line with the CBC curriculum and completion of 2019 TESSA MOOC ,hence enthusiasm for online learning and continuous professional teacher development.**

The outcomes of the project may inform the Ministry of Education in Kenya in effective implementation of the new CBC as far as online Teaching/learning is concerned. Recommendations made by the project include: need for continuous ICT support for the primary school teachers and engaging the teachers in continuous teacher development courses especially those offered online.

Key words: **Competencies, covid-19 pandemic, online learning, TESSA methods**

I. INTRODUCTION

Teachers in Kenya are trained in traditional teaching methods which do not meet the demands of the new competencies based curriculum (CBC). There is need to teach differently in order to equip students with cognitive and psychomotor skills alongside competencies which will be required for success in life for post covid-19 pandemic, such as creativity, resilience, and the ability to use ICT effectively. TESSA small grant project (sponsor) aimed at equipping teachers with pedagogical skills to enable students to apply practical and creative thinking skills in solving day-to-day problems and to raise awareness of digital resources. Vision 2030 is an economic blueprint developed by Kenyan government and aims at transforming the country into an industrialized, middle income economy by the year 2030 (GOK, 2007). The blueprint envisions intensified application of Science Technology and Innovation (STI) to raise productivity and efficiency levels in the economic, social and political pillars (Wambugu and Keraro, 2020). To this effect there was need to overhaul curriculum 8-4-4 education system and replace it with a curriculum that would prepare highly skilled citizens ready to go head to head with other competing nations. This led to development of competence based curriculum (CBC) which is currently being implemented in phases- Already Grades 1-4 are in the new education system in Kenya.

Access and the quality of education especially in Sub-Saharan Africa is wanting and securing good educational outcomes depends on effective teacher education programmes (UNDP, 2014) that can produce teachers with adequate skills to effectively facilitate active participatory learning. To this end, Teacher Education in Sub-Saharan Africa (TESSA) consortium has developed Open Educational Resources (OERs) to support teacher training. TESSA methods are applicable both at primary and secondary school levels ,though they are quite adaptable for use even at higher institutions of learning. This is because TESSA methods are imaginative, creative and stresses the value of raising standards through international co-operation. TESSA vouches for collaboratively developed open educational resources (OERs) for teachers to use in their own classroom to support active learning methods and reflective practice. Thus OERs are created in such a way that they are adaptable for use by learning community members regardless of where the learning community happens. Because OERs are essentially a philosophy and practice for framing documents and texts and how they can be used, OERs can be created, shared, and found in any community that wants to use them. This was the main concern in this project.

OERs can also serve formal learning institutions, and traditional higher education students, in several related ways. OERs reduce the financial pressures (Hatzipanagos & G regson, 2015), expose students to potentially more diverse texts than they might normally see in traditional textbooks, thus improving student's success (Clinton, 2018). Students can literally write, revise, and republish the OERs with their own information, ideas, and content (Zobel, 2015). The ease

of use, ability to take the materials anywhere, and the inclusion of diverse and interactive materials are noted benefits of OERs (Kinsky, King & Miller, 2018). However not all teachers appreciate the benefits of OERs and some think they cannot match the worth of textbooks in terms of content, despite research showing that across the boards, students performed better in courses that used OERs (Dreon, 2018). This calls for teacher development programmes to enhance ICT skills amongst teachers so that they can become conversant with proper utilization of OER's. By so doing teachers will be placed in a position to equip students with skills to compete in a highly interconnected, competitive and globalised world and prepare them as future leaders for the country.

Objectives of the Study:

1. To guide participants on preparation and use of Teaching/learning resources using locally available materials
2. To guide participants on access and active use of TESSA OERs
3. To induct participants to peer teaching using TESSA methods
4. To Introduce participants to TESSA MOOC

II. METHODOLOGY

The study was qualitative and survey research designs. Two primary schools within Laikipia County were purposively sampled and all the twenty teachers participated using multistage sampling technique. The project described in this paper was carried out in three (3) phases and was made possible by cooperation between Open University (UK), TESSA team and Laikipia University. Two workshops were organised for Laikipia campus and Shamanei primary school teachers in first phase. The first one-day workshop took place in Laikipia University and it marked the start of the project and it aimed at enhancing teachers' pedagogical and probing skills. In addition it emphasized the importance of cooperative learning and forming a community of good practice. The workshop was facilitated by TESSA members who are well versed with TESSA methods and they presented in three sessions. During the first session, the facilitator presented on Competence Based Curriculum (CBC) in Kenya which reminded participants of the seven core competencies namely; Communication and Collaboration, Critical Thinking and Problem Solving, Imagination and Creativity, Citizenship, Digital Literacy, Learning to Learn and Self Efficacy. It also brought on board the key teaching practices- Asking good, open questions, modelling how to think critically and solve problems and providing effective feedback and corrections.

The first session prepared the learners for the second session on TESSA methods and OER's. The second facilitator presented on TESSA methods, ICT integration in classroom teaching and TESSA OER's. This was an engaging session and the participants requested for more time on this learner centred approach of teaching. The third session presenter linked up CBC and TESSA methods. This session was on embedding TESSA methods and OER's in the new CBC to make learning active and learner centred. The participants discussed on how best they can adopt TESSA methods. This was practically done by doing an activity that involved think, pair and share. The facilitator conducted round table sessions on how to teach practical/creative thinking skills to primary school learners using TESSA methods.

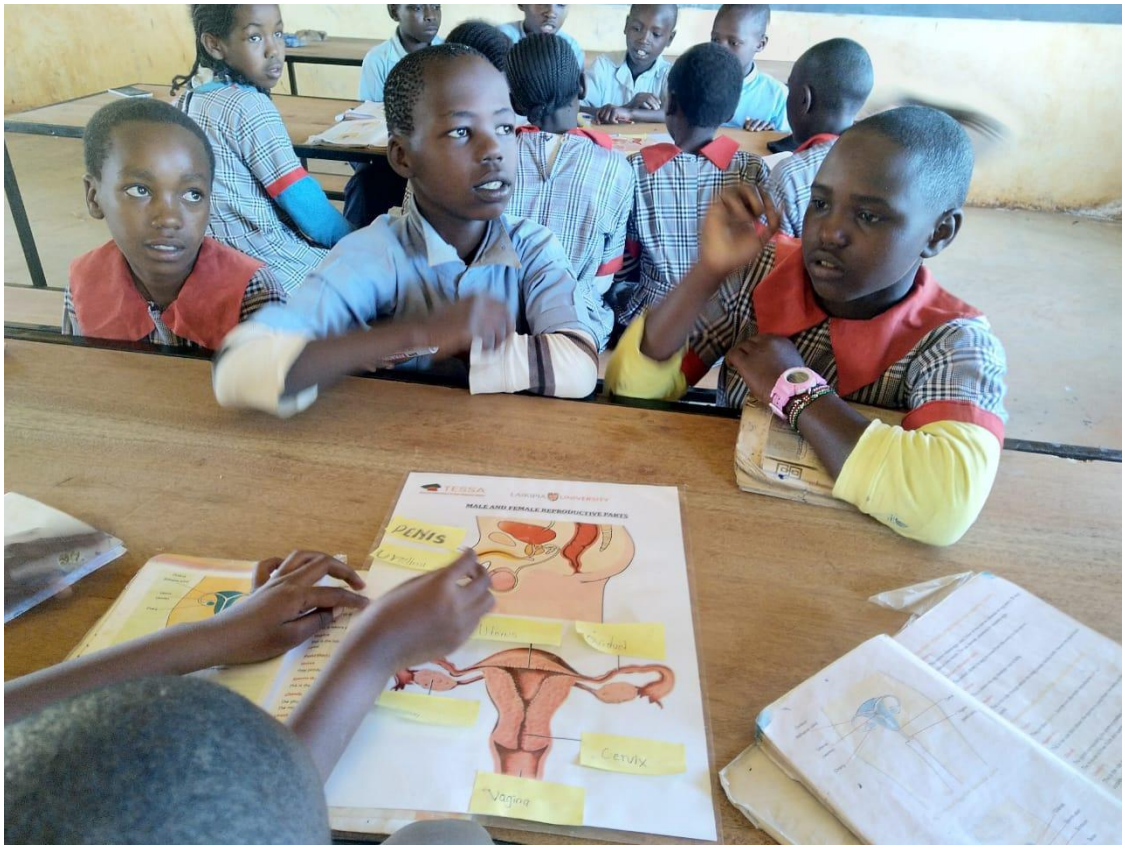
The second work shop also lasted for a day and was in form of bench marking at Egerton University primary-Kenya, a primary school which is ahead of others as far as embedding TESSA OER'S is concerned as well as incorporation of ICT in teaching-learning process. ECDE teachers spent the day in the ECDE section where they observed and learnt how smoothly TESSA methods were being employed by the teachers. The lower primary teachers (GRADE 1, 2 and 3) spent the day with their counterparts and so did the upper primary school teachers. This was the most resourceful stage of the project because teachers got practically involved in application of TESSA methods in class and got opportunity to source for OER's from e-learning platform that was available for Egerton primary school staff.

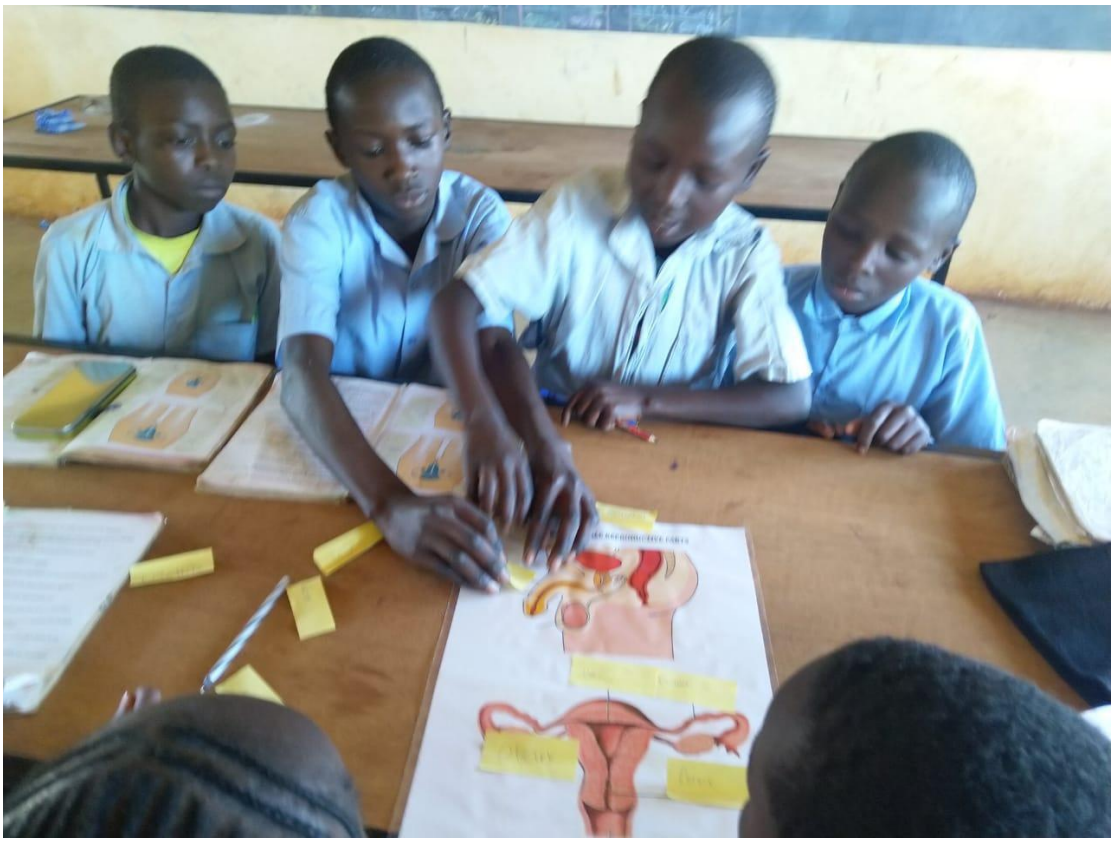
Second phase involved follow up on /implementation/application of TESSA materials and OERs in classrooms. The teachers were expected to adapt skills learnt in the first phase and make necessary adjustments in their classrooms. Two TESSA ambassadors made the follow ups and collaborated with teachers in resources preparation and searching for more materials from already existing open repositories like teaching commons, resources for K-12 including Khan academy.

Finally third phase involved collecting feedback from the participants and this was done by teachers who assembled at Laikipia University and made their presentation on the experiences of both the teachers and pupils involved in the project.

III. FINDINGS AND RESULTS

Teachers presented some photographs showing class seven pupils from Laikipia Campus primary keenly learning using materials assembled by their teacher of science.





Source: Laikipia University Campus Primary School (2018).

The teachers reported that the project was an eye opener on possibilities of making classrooms more lively, practical based and probing both teachers and learners to apply problem solving skills. The traditional sitting arrangement was done away with and learners learnt when facing each other and started engaging with each other more collaboratively. Pupils also started asking each other questions and if they were not satisfied with answers they were offering; they freely engaged the teachers. In summary:

1. Participants prepared learning materials using locally available materials
2. Participants used e-learning materials in their teaching during the follow sessions and were excited about TESSA methods
3. Participants embraced ICT in classroom teaching and ably used the gadgets provided by the government of Kenya.
4. Participants demonstrated readiness to join the next TESSA MOOC

The project realized its objectives as the following was achieved at the end of the project period (6 months):

1. Improvisation and creativity amongst learners and teachers
2. Development of e-learning materials and OER'S by participants
3. Integration of ICT in classroom teaching under guidance of Laikipia University teacher educators
2. Participants registered and completed 2019 TESSA MOOC

Challenges of the Use of TESSA OERs

The use of TESSA OERs presented a number of challenges to both teachers and learners. The teachers found it difficult to source and use TESSA OERs because they lacked requisite ICT skills. As such, there was limited use of the web based resources. The two schools also lacked ICT infrastructure such as computers and internet connectivity and they therefore had to rely on the print copies of materials that were provided by Laikipia University and one laptop provided by the government through Ministry of Education. As a result there was limited use of the materials and in addition pupils couldn't actively interact with the materials.

IV. CONCLUSION AND RECOMMENDATIONS

The project concluded that TESSA OERs have the potential to enhance teachers' pedagogical skills and provide learners with an opportunity to effectively and meaningfully learn. The project also concluded that primary school teachers need continuous ICT training and support, so that they can confidently conduct lessons using OER's. It is therefore recommended that primary school teachers be supported in ICT skills, so that they collaboratively develop learning materials based on active learning approaches to enhance online learning among pupils. TESSA OERs provide a template that can be used to achieve this. This would improve the quality of teaching and learning and go a long way in realizing some millennium development goals and Kenya's vision 2030, as Stutchbury and Ngman-Wara (2012) put it:- TESSA embodies a model for change.

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