

Challenges of Adopting Open Educational Resources (OER) in Kenyan Secondary Schools: The Case of Open Resources for English Language Teaching (ORELT)

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Abstract: Kenya, like many African countries, has faced enormous challenges in the production of and access to quality relevant teaching and learning materials and resources in primary and secondary school classrooms. This has been occasioned by a plethora of factors which include, but are not limited to, lack of finances, tradition, competence, and the experience to develop such resources. Such a situation has persisted despite the existence and availability of many Open Educational Resources (OERs) that have been developed by education stakeholders at enormous cost. Such freely available resources could potentially improve the quality of existing resources or help to develop new courses. Yet, their uptake and reuse in secondary and primary schools in Kenya continues to be very low. This paper reports the findings of a study in which Open Resources for English Language Teaching (ORELT) developed by the Commonwealth of Learning (COL), Canada, were piloted in a sample of fifty (50) Kenyan secondary schools. The study applied the Model 1 – Distance and Dependence (Zhao et al 2002) model to investigate the challenges that instructors face in adopting and using ORELT materials. The study reported that poor infrastructure, negative attitudes, lack of ICT competencies, and other skill gaps among teachers, as well as lack of administrative support, are some of the challenges experienced in the adoption and use of OERs in Kenyan schools. The findings of the present study will provide useful insights to developers of OERs and Kenyan education stakeholders in devising strategies to optimise utilisation of OERs in the Kenyan school system.

Keywords: open education resources, open resources for english teaching, kenya, distance-dependence model

Introduction

Over the last decade, the Government of Kenya, through the Communications Commission of Kenya, (CCK) has initiated deliberate measures aimed at improving the standards of ICT infrastructure and access to ICT facilities in the country. This has been manifested in many ways including, but not limited to, the easing of import duties on computer and computer accessories and other IT hardware; the liberalization of Internet provision services that were hitherto the monopoly of Telkom Kenya, and the laying of an underwater fiber optic cable that has subsequently seen increased Internet connectivity and speed to 15Mbps throughout the country. Nowhere has the emphasis on improved ICT services and Internet connectivity been so prominent than in the Kenyan school system, right



from primary school to university. For instance, within the last two years alone, the government has ensured that nearly 70% of Kenyan public primary schools, up from about 20%, are connected to electricity, thereby, facilitating the laying and use of ICT networks and other infrastructure. Additionally, the government, under an International Competitive Bidding process, recently invited tenders from consortia of both local and international service providers for the design, production and distribution of digital learning platforms to all primary schools in Kenya. In the secondary schools, the government has intensified the supply of computers to many rural schools that previously did not have any. It has also set up ICT hubs in selected rural secondary schools. In the universities, the focus has been on the supplying bandwidth and the establishment of hotspots to enable students easily access the Internet.

The Kenya Institute of Curriculum Development, (KICD) has also embraced the use of open and digital content as an alternative to the traditional textbooks. One prominent international stakeholder that advocates for development and use of open content across the Commonwealth member states, including Kenya, is the Commonwealth of Learning (COL). One of COL's pioneering interventions is the Open Resources for English Language Teaching (ORELT).

COL, on their website, state that the Open Resources for English Language Teaching (ORELT), is a project aimed at supporting the classroom activities of teachers in junior secondary schools (JSS) across the Commonwealth. The aims of ORELT are to provide a bank of 'open content' multi-media resources in online, offline and traditional text formats that will support school-based education and training for JSS teachers; provide 'open content' support resources for teacher educators who train teachers for JSS; and to provide a forum for the exchange of ideas and experiences and sharing of ELT resources among teachers and teacher educators across the Commonwealth. The materials also aim at supporting learners by providing learner centered activities and resources both in online and in the traditional book formats.

But what, in theory and practice, are OERs under which ORELT falls? OECD (2007) defines them as freely and openly available digitized learning resources that can be adapted, modified, and re-used for teaching, learning, and research. One aspect of this definition calls for further scrutiny with regard to ORELT: their being digitized. ORELT resources go beyond being merely digitized, since the digitized versions that are freely available online through the ORELT portal are complemented with CD-ROMs and traditional book formats, thereby, making them quite versatile in terms of form and usability.

The ORELT pilot project by the Commonwealth of Learning and the introduction of the digital learning platforms (also known as tablets for schools) in lower primary schools in Kenya represent the first real attempts at embracing OERs. Besides, MIT OCW statistics indicate that only two percent of MIT OCW traffic since 2004 has come from users in Sub-Saharan Africa (MIT, 2013). This apparent lack of interest in OERs is not merely confined to pedagogical classroom practice but also extends to research. For instance, Percy & Belle, (2012) report that there has been little research around the use of OER in the African context, while Andrad et al., (2011), on the other hand argue that a majority of existing OER studies focus on the development and publication of OER repositories as well as on the integration of policies in various institutions at the expense of their adoption and use. This is the context that informed the current study's focus on the challenges of adopting OERs in the Kenyan secondary school system.

The ORELT Project

Activity-based learning modules relevant to learners in JSS were developed by experts drawn from several African and Asian countries, who had either taught at the JSS level or were trainers of JSS teachers. The six modules covered the core language areas of listening, speaking, reading, writing and grammar, as follows:

- a) Module 1: Better Listening
- b) Module 2: Speaking for Better Communication
- c) Module 3: Success in Reading
- d) Module 4: Effective Writing
- e) Module 5: Language through Literature
- f) Module 6: Communicative Grammar

Each module had five units containing a range of case studies, activities and resources which teachers can easily adapt and use in their classrooms. Appropriate audio, video and graphic materials aimed at making the content more comprehensible were built into the modules. COL collaborated with teachers in schools and teacher educators in teacher education institutions to: build an ORELT Consortium, in order to maximize take-up and utilization by schools and teacher education institutions; provide support to schools and teacher education institutions to adapt and use ORELT; and support and encourage teacher educators and teacher training institutions to integrate ORELT into a wide range of other support resources (online, text, radio) for use by teacher educators as school-based ELT teacher resources.

Theoretical Issues

The present study adopts the view of innovation put forward by Thompson (1965) as the generation, acceptance, and implementation of new processes, products, or services within an organizational setting. Thompson's definition emphasises the implementation of the innovative items. Innovation is, thus, assumed to take place only with actual use. Researchers such as Zhao et al. (2002), and Groff and Mouza (2008) have theorized on the requisite conditions that must obtain in any educational innovation to succeed, as well as the possible challenges. They argue that three factors are critical to the success of any educational innovation within the school system. These are the innovation itself, the innovator, and the context (environment) of the innovation. The relationship between each of these areas is unique to each school and each innovation. These three factors are interdependent and create a triadic relationship as illustrated in Figure 1 below:

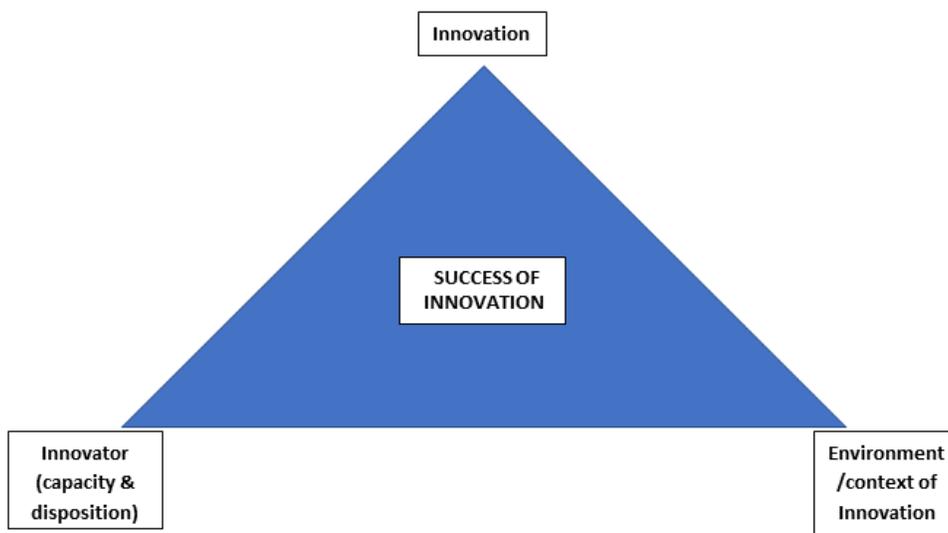


Figure 1: A conceptual framework of Innovation (Source: Zhao et al 2002)

The present study views the introduction of the OREL T materials in the teaching and learning of English in Kenyan secondary schools as an aspect of innovation in the school system. The study adopts Thomson’s (1965) view that innovation is considered to have taken place only when there is actual use, hence, focusing on the adoption challenges exclusively.

Taking this into consideration, the present study adopts the Distance and Dependence model of innovation as propagated by Zhao et. al (2002). This theoretical model aims to make explicit the context-specific factors that affect an innovation and help identify the likely success of an innovation by depicting its difference from existing practice and resources. Zhao et al. (2002) argue that a two-axis scale can be used to understand the potential success of an innovation through the capacity of an organisation or individual to engage with change. On the vertical axis is the distance of the innovation from existing practice. They suggest that the closer the innovation is to existing practice, the easier it will be to adopt. Here, practice can relate to classroom practice, pedagogy, school culture or structures within the school, depending on the nature of the innovation. Indeed, the definition of the ‘change to practice’ is context-bound by those who use this model.

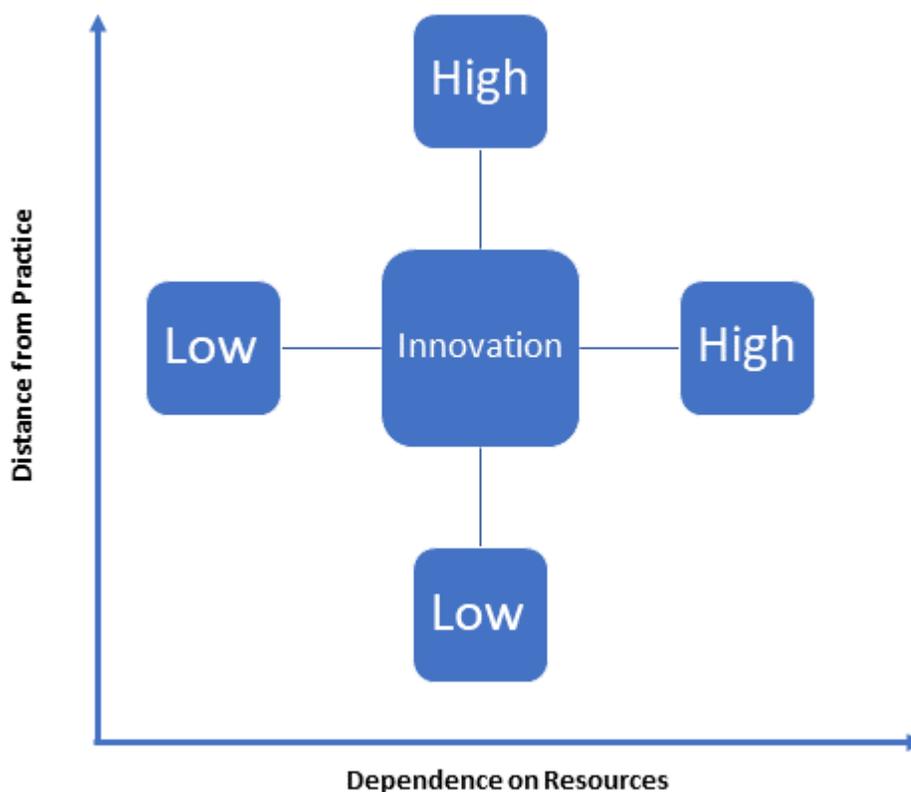


Figure 2: Distance and Dependence model (Source: Zhao et al 2002)

The horizontal axis indicates the extent of dependence of the innovation on resources for success. This relates to the resources needed for the innovation and the extent to which they differ from existing school resources. In this study, resources for innovation were considered to be computer software and hardware, electricity connectivity, physical classroom space, and audiovisual learning aids. These were considered critical in supporting learning activities and planning time. As demonstrated in this model, the less demand the innovation puts on extra school resource levels, the less challenges there are in its implementation and the more likely it is to succeed. As such, if an innovation requires a significant change in teaching practice and a significant increase in resources, then it will need a greater amount of support to succeed than an innovation which requires fewer resources and demands little change from the teacher’s existing practice.

A key function of the model is to support an understanding of educational innovations in context by depicting how an innovation can be understood as a function of its distance from current practice and dependence on available resources. This model was used in this study to gauge the propensity for success of the ORELТ materials in the teaching of English in Kenyan junior secondary schools. The likelihood of success was operationalized in terms of the level of challenges posed to this innovation and the mitigating factors in place that could help surmount such obstacles. As such, implementing a ‘single’ innovation in a school may involve a school undergoing multiple innovations to cater for the resource and pedagogical demands of the innovation. This variance in the received complexity of an innovation is mirrored at a school level. As Zhao and Frank (2003:27) observe:

For one school which already has in place strong infrastructure and technical support and positive formal and informal staff structures, it may be a relatively minor disruption to buy in and incorporate necessary technical equipment. For another school, which has none of these factors in place, an innovation may require transformation across the school to be effectively implemented. The success of an innovation then depends on the extent to which the scale of change is understood and appropriately resourced.

This model, therefore, predicts that large-scale innovations which are not supplemented with resources from outside of the environment are unlikely to succeed. In applying this model, the present study particularly took due cognizance of resource environments in the schools where the ORELТ materials were piloted by considering the resources each of the schools were endowed with. Thus, the 50 schools were stratified into urban/rural; private/government sponsored and national/county.

Method

Fifty (50) JSS teachers were invited for a five-day ORELТ induction workshop at the Kenyatta University Conference Centre, March 18-23, 2013. The teachers were drawn from a mix of urban/peri-urban and rural schools (30 each) and were also balanced in terms of gender. They were purposively sampled as teachers of English at the JSS level (Form One and Two). Where two or more teachers were teaching at this level, one was randomly selected. The schools were also purposively selected from the five counties where the project was being piloted, namely, Machakos, Kiambu, Nairobi, Meru and Tharaka-Nithi. The participants were initially introduced to the concepts of Open Educational Resources (OERs), their history, use and justification in educational settings, especially in developing countries, and specifically the history, rationale and development of ORELТ materials. Additionally, the participants were inducted to the principles, theories and practices of task-based and learner-centered approaches to learning, upon which the ORELТ materials are based. They were then introduced to the six ORELТ modules and the ORELТ online platform by three workshop facilitators over a period of five residential workshop days. For each module, the facilitators took the participants through its content, learning activities and learning resources. The participants were then assigned discussion tasks on each module which they performed in breakaway groups and later presented in plenary. The teachers were then expected to pilot the modules in their classes in their respective schools. Before the workshops, each of the teachers filled in a pre-workshop evaluation questionnaire. This questionnaire sought to elicit the responses of the teachers with respect to their pedagogical knowledge of, and interest and skills in, the content of the ORELТ materials, which were broken down into five modules; their knowledge of, and skills in, activity based learner centered approaches; their frequency of using activity-based, learner-centered approaches in their classrooms before the workshop; and the frequency of using collaborative, team-teaching approaches before the workshop. A post-workshop evaluation questionnaire issued to them at the end of the workshop was aimed at capturing any changes in each of these indices as a result of the workshop.

Having ascertained the preparedness of the teachers to pilot the materials based on an end-line evaluation after the five-day residential workshop, the teachers returned to their respective stations where they immediately began piloting the materials. Each teacher was given a set of six hardcover ORELТ modules and an online training manual depending on the self-declared enrollment in their classrooms, a DVD version of the same, and password-secured access to the ORELТ online platform where they could, in addition to accessing the modules, have interactive sessions with other teachers

using the same materials in the entire Commonwealth. After eight weeks of piloting, the researchers began making field visits to the various stations where the teachers were working with the aim of providing post-workshop support to the teachers on how to adapt and use the ORELТ modules in their classrooms.

During the field visits, the researchers provided a range of technical support to the teachers who were meant to be the master trainers. Such support included, but was not limited to, the following:

- a) Providing technical support on the use of ORELТ DVDs and navigation of the ORELТ website
- b) Guiding the teachers on effective use of audio-visual resources (in schools where these were present) such as overhead projectors, CD players and desktop computers
- c) Answering any technical and content questions that the teachers had with regard to the ORELТ modules
- d) Visiting selected classrooms and observing real-time lessons where the ORELТ materials were in use and providing appropriate feedback
- e) Assisting in creating networks with other teachers in the neighboring schools who may not have already been exposed to the ORELТ materials during the workshops, with a view to making them candidates for future training by the master trainers. Each of the teachers was given a set of ten ORELТ materials for this purpose in order to create a multiplier effect.

Apart from providing technical support and assistance to the teachers as outlined above, the field visits also provided the opportunity to find out the challenges the teachers were facing in implementing the ORELТ materials within their various schools. Guided by the conceptual framework for innovation and the distance-dependency model, the researcher conducted structured interviews based on questions relating to costs of implementing the ORELТ in their classrooms, the pedagogical current practice within the school, and the availability of resources for implementing the innovation. Interviews were also conducted with teachers and a few of the students on the challenges they were facing in implementing the ORELТ materials in their classrooms.

Findings

In the following section, we present the findings of the study with regard to the challenges faced in the implementation of the ORELТ materials in the selected secondary schools. In line with the chosen conceptual model and theoretical framework, these findings are organized under the thematic areas of innovators' capacity and disposition for the innovation, the innovation, and the environment for innovation.

Challenges Related to the Nature of Innovation

With regard to challenges related to the innovation, we looked at factors inherent in the modules themselves that would make their implementation either difficult or feasible. It was noted that the fact that the materials existed in three alternate formats, namely, traditional text format, DVD and online digital content made the materials versatile and flexible for use even in schools where there was neither electricity connection nor computers. However, the print documents had certain factors which hindered their smooth adoption as an innovation in the English classrooms.

Incompatibility of Learning Activities

A number of the teachers interviewed had serious concerns with the nature of the learning activities and tasks in some of the modules. This arose from the fact that the materials had been developed by language experts and practitioners drawn from the entire Commonwealth, for use within the Commonwealth countries. Thus, some examples and learning activities had no direct socio-cultural and pedagogical relevance to the local situations in the Kenyan schools. For instance, there were passages dealing with elephants that are domesticated, high-speed trains, or activities that required the learners to appreciate traditions and practices that were alien to them. The learners were, therefore, unable to directly relate such tasks and content with their immediate environment and daily experiences. To remedy the problem, therefore, the teachers, had to spend extra preparation time as they went through the materials in a bid to adapt and customize them to the local environment. All the teachers interviewed reported unusually longer preparation times as one of the most serious challenges to the successful implementation of this innovation. This has been reported in the literature (see Taylor, 2002, for instance) as an inherent weakness of nearly all massively produced and massively consumed OERs.

Incompatibility with Syllabus

Compatibility of the ORELТ materials with the Kenyan secondary school English syllabus was cited as another challenge in implementing the innovation. The ORELТ materials certainly met the curriculum and syllabus demands and were vetted by KICD and passed. However, while all the language skills taught in the Kenyan schools were catered for in the modules, the curriculum design and the syllabus in the Kenyan school system was different and not in tandem with the structure of the modules. Some content in the modules was taught at higher levels in the Kenyan syllabus and certain language skills were given more prominence and emphasis, and, thus, allocated more teaching time. For instance, the oral skills and oral literature in general were allocated only one lesson per week, yet in the modules it was given as much emphasis as other language skills. Therefore, striking a balance between curriculum and syllabus demands and the development of language skills was a challenge to some teachers.

In a number of the schools in the study, existing policies with regard to the curriculum, the syllabus and assessment became an impediment to the implementation of the ORELТ programme. Such impediments included, but were not limited to, a requirement by the school administrators that the teachers stick to the official school syllabus with the stated learning activities and resources as well as the requirements for a strict schedule of assessments. Most of the schools had a tradition of giving standardized joint-assessment tests, usually with other neighbouring schools. It was, therefore, difficult and sometimes impractical to evaluate the learners based on the ORELТ materials in a number of such schools. In certain cases where only one stream was selected in the same school, it became even more difficult to assess the students based on ORELТ materials.

In a number of schools included in the study, there was a requirement that teachers prepare and use common schemes of work and lesson plans. These schemes of work and lesson plans were derived directly and logically from the syllabus as handed down by the Ministry of Education. In most cases, the school administration, as stated earlier, expected teachers to strictly adhere to these documents.

Since it was a requirement that teachers use schemes of work and lesson plans, the implication was that teachers who were part of the study had to prepare these two documents on the basis of the ORELТ materials before they could use them in the classrooms. This caused serious challenges in using the ORELТ materials in some selected classrooms while the rest were using the regular schemes of work and lesson plans. The prescriptive curriculum, therefore, ensured that teachers were bound by the lesson plans and schemes of work. However, some teachers would use the ORELТ materials as a supplementary teaching aid, from which they would draw the remedial assignments and homework for the learners.

Inadequate Content

A number of teachers interviewed during the field visits opined that some of the ORELТ modules had content that they considered inadequate and insufficient. A case in point was Module 5, *“Language through Literature”*. This was a unit that sought to integrate language learning within literature learning such that learners, while reading and explicating literary texts, were supposed to learn language structures and forms such as grammar and vocabulary. Ideally, this should have blended well with the Kenyan curriculum which provides for an integrated approach to language learning. This was, however, not the case as teachers reported that certain aspects of the content were inadequate and inaccurate. Nearly all the teachers pointed out that the distinction between “simile” and “metaphor” was inaccurate.

It was also observed that a number of the materials needed for the successful execution of some of the learning activities were not readily available in the local schools. Some activities were also considered inappropriate with the typically large classes in the Kenyan schools. Finally, the materials were not adapted for use by visually impaired learners, unlike the standard learning resources produced by the Kenya Institute for Curriculum Development (KICD). They could, therefore, not be used effectively in special schools meant for such visually impaired students.

Challenges Related to Innovators’ Capacity and Disposition for Innovation

For the purposes of the current study, innovators were considered to be the teachers that had been inducted on the ORELТ materials and were expected to introduce the resources in their English language classrooms, together with the school administration and any other staff that would have had a direct influence on the success or otherwise of the innovation.

Negative Attitudes

One of the overriding and serious obstacles faced in the implementation of the ORELТ materials in the selected schools was the negative attitude towards the materials. A number of the teachers reported that most of their colleagues who were teaching English in other classes, especially those who were not part of the training workshop were not cooperative and had a negative attitude towards the whole project. In some cases, this attitude was also exhibited by the administration, such as the principal and the heads of department. This hindered the effective implementation of the project, especially in administering the standard tests which had been developed during the workshop. Some teachers and heads of department preferred to administer the usual common exams to the students and refused to adopt the ORELТ tests.

Lack of Awareness of OERs

Another important finding was that some instructors were still unaware of the existence of OER. This was evident from their responses and interactions with the researcher during the field visits. A number of teachers preferred the traditional textbook teaching materials and strictly followed the prescribed textbooks. Most of the teachers were unaware of the existence of OERs, and the few that had an idea about them lacked knowledge on how to access them. It was felt that this was due to a carryover from their training, since most of the college lecturers who trained them also lacked awareness of OERs. Such lack of awareness of the existence and advantages of OERs was a major implementation challenge because it contributed to negative attitudes towards, and mistrust of, the ORELТ materials. Additionally, this lack of awareness contributed to a lack of administrative support from the school administrators towards the implementation of the ORELТ project.

Lack of Adequate ICT Competencies

All practicing teachers develop some sort of self-supporting practical knowledge that enables them to prepare and conduct their classes (Feiman-Nemser & Floden, 1986). A number of the teachers that we interviewed and observed did, indeed, know how to go about their jobs, albeit with a variety of approaches. They, however, demonstrated less skill when addressing new objectives and methodologies or facing the realities of their changing classrooms brought about by the introduction of the ORELТ materials. A number of such teachers were supportive of the use of technology in their classrooms but did not know how to maximise their educational possibilities. This was due to limited ICT skills and proficiencies in some of the teachers, especially in the rural areas. Overall, such teachers did not have the necessary skills or knowledge to bring about change. In some instances, they did not even have a clear idea of what changes to expect in spite of the fact that they had taken part in the training workshops. It would seem that their existing practical knowledge was not a sufficient basis for the implementation of new teaching approaches and they also needed (and perceived the need) of more inductive and intensive training in ICT skills.

Skill Gaps

Teaching several language skills poses a significant problem to teachers of English in Kenya. In the study, it was noted that teachers had difficulties teaching specific language skills, namely, writing, speaking and reading. These skills were a challenge to most language teachers in both better performing and poorly performing schools. A recent report by Uwezo Kenya (2014), indicated that many children in Kenya cannot read materials for beginners. It was established in the course of the study that most teacher training institutions in Kenya do not systematically train teachers on how to teach these important language skills. Therefore, there were skill gaps in training teachers in language pedagogy. The immediate consequence was a mismatch between the language curriculum offered to teacher trainees at university, and the school curriculum and syllabus that the teachers were actually expected to handle after their training period. While the teachers graduated with a degree in Education, they were ill-prepared to teach language skills in secondary schools.

Challenges Related to the Environment for Innovation

A number of challenges relating both to the formal and informal environments were reported.

Inadequate ICT Infrastructure

Inadequate ICT infrastructure was an obstacle to the implementation of the ORELТ materials in certain schools. Although the Government of Kenya, through the Ministry of Education, had launched a programme aimed at improving ICT infrastructure and access in all schools, this was yet to impact all schools, especially those in the rural areas where electricity was not easily accessible. Particularly lacking in such schools was hardware like computers, overhead projectors, video and audio players, and cassettes. In cases where the school administration had purchased this equipment, lack of electric power made it impossible for the teachers to use them.

Teachers hardly accessed online materials because most rural schools in Kenya had no access to the Internet. Those that used their private modems found it too expensive as the schools did not refund the cost of the bundles used. They also had problems using the DVDs in schools that had no electricity. Where there was electricity, it was not easy to view video files in class since the student numbers were high and the teachers depended on only their private laptop computers to show the video or play the audio files. Some schools had LCDs but the teachers had no access to them. In schools that had electricity, teachers had no speakers to project the audio files and, in some instances, no sockets in the classrooms. Lack of computers was, therefore, a major challenge in most schools. Where there were some, they were only meant for office work. Besides, some teachers had no private computers and, therefore, could not use the DVD.

Lack of Administrative Support

The administration in most of the schools that we visited welcomed the ORELТ initiative. Head teachers in some schools promised to provide the necessary infrastructure to ensure that the learners could use the ORELТ materials. Nonetheless, there were certain obstacles which hindered full utilization of these materials.

In a few of the selected schools, a lack of administrative support hindered the utilization of the ORELТ materials. In such schools, the administration did not sufficiently empower the teachers to use the resources in line with the guidelines given during the training workshops. For instance, in one school, the administration did not allow the teacher to administer the pre-test, using the argument that the school had a specific number of tests that the students could be given and that the ORELТ pre-test was going to be an extra load on the students. In another school, the head of department and the deputy principal insisted that learning resources to be used in the classrooms had to be uniform in all the streams, while other teachers of English in these other streams would not use the ORELТ resources because they had not attended the workshops. In some schools, teachers were not granted permission to network and consult with other teachers in the neighbouring schools who underwent the same ORELТ training workshops.

Discussion of Findings

From the foregoing findings about the pilot introduction of ORELТ materials in Kenyan secondary schools, it is evident that Kenya has yet to realise the full potential of the OERs in increasing access to quality education, reducing the cost of education through cost-effective educational materials available through The Creative Commons copyright licenses, and improving classroom interaction between teachers and learners.

In schools where teachers had overcome some of the barriers described above, they evidently appreciated the benefits of the ORELТ project in improving language skills, particularly the modules on better listening, success in reading, writing, language through literature and speaking for better communication. For instance, teachers were introduced to different tasks to demonstrate that listening need not be done by teaching the sounds of words or sentences in isolation but by exposing students to natural language in communicative situations. They also brainstormed various ways of improving attitudes to reading culture, since the modules were very explicit on that topic. Writing skill, which was the most unpopular with the learners and the teachers, was identified as one that teachers and students of English could not ignore.

Despite the challenges, all the teachers interviewed reported that the modules were very helpful. They made the teaching and learning of English exciting, easier and lively. Most students that were interviewed explained that the ORELТ materials gave them a rare opportunity to learn English in a more practical way. They explained that the resources, especially the audio and video files, made learning practical and interesting. The materials gave them the opportunity to practice pronunciation, learn how to review each other's written work in a peer-review exercise and formulate debate topics on their own. The teachers were, however, reluctant to ask the learners to review each other's work, citing administrative challenges, since such an approach would be misconstrued as laziness and abrogation of the teachers' responsibilities of feedback provision to the learners. The learners were particularly happy to have their colleagues review their work and identify typos, spelling mistakes, punctuation errors before submitting their work to the teachers. The learners and the teachers reported improved performance in the writing exercises. Needless to say, the debating sessions among learners helped to build their self-confidence and also improve their language skills. The learners also explained that in instances where some teachers had difficulties pronouncing certain sounds due to First Language (L1) influence, the teacher would play the DVD and ask them to attempt the correct pronunciation.

The findings of the present study have highlighted the importance of engaging teachers in developing, sharing and reusing OERs, as evidenced by their experiences with ORELТ. As stated earlier, the teachers were involved at the early stages of this pilot study and later on engaged during follow-up visits as they used the materials in their classrooms. As Fitzgerald (2013:21) observes:

Empowering users through early involvement in projects that deal with OER, whether through a design-based approach (as in TOETOE) or by employing them to assist with project tasks (as in LORO), is an effective way of allowing them time to begin to reconstruct their identity as teaching practitioners. The journey from acquiring new knowledge and skills to fully understanding the transformation that results from applying these to one's practice can be a lengthy one, as the learning curve for many practitioners is rather steep. Early input through teacher education and sustained engagement and support for practising teachers through the incorporation of open practices into professional development activities are key.

In the present study, it is evident that the positive reception of the ORELТ materials by the teachers was largely attributable to the early involvement of the teachers from the conceptualization of this innovation. The views by Fitzgerald above, coupled with the findings, underscore the need to involve

teachers early in any innovation in the classroom. This is even more pertinent when the innovation involves a significant departure from the traditional modes of learning, and requires extra skills, as is the case with the ORELТ materials. Early and sustained user involvement in an innovation can take different forms. In the case study by Quinn et al (2011), early and sustained user involvement in the project was by way of a number of language teachers from the institution being employed to carry out project tasks as research assistants, project assistants, technical testers, resource ‘uploaders’, trainers and champions. Several of them went on to disseminate LORO at internal and external events. In the present study, it took the form of a baseline survey, conducted for one month (from Feb 2 – Mar 1, 2013) involving the teachers, two induction training workshops, field visits to observe and provide technical support to the teachers as they utilized the materials in their respective classrooms, and the active engagement of a select cohort of teachers as Trainers of Trainers to train other teachers on the implementation of the innovation. Whatever form it takes, early and sustained involvement in any innovation in the classroom is critical for its success because it makes the environment conducive for innovation.

The audio-visual component provided by the DVD-facilitated retention of the content by students. The teachers averred that students grasped the varied concepts and content better if the content was illustrated with video recordings. Thus, the audio and visual aspect of the ORELТ modules made learning more interesting. This shows that if the environment is conducive to innovation, the ORELТ materials can improve learning and increase learner participation in the learning process. This can be achieved by developing OER models of learning and providing training to understand the 21st Century, virtual classrooms and new pedagogical methods. The Innovator, who in our context is the teacher, may understand the importance of new pedagogical methods but without relevant support, the innovator and the innovation itself (learning) is bound to face challenges. In Thompson’s (1965) model where innovation is assumed to take place only with actual use, the ORELТ project can be said to be slowly gaining ground in Kenya. However, its success and the success of other OERs in Kenyan schools will be dependent on the stakeholders’ good will, their understanding of the advantages of the OERs in the learning process, and, thus, are able to see the need to address the implementation challenges in infrastructure, policy, attitude, administrative support, pedagogy and logistics.

Downes (2009) argues that OER uptake necessitates less emphasis on providing resources, and more on removing barriers and restrictions. ICT has been identified as one of the enduring challenges to the implementation of OERs in many educational settings. MacKinnon and Pasfield-Neofitou, (2016), in a study on the “Producers” model to support OER in English Language teaching in higher education made a distinction between IT-related and IP-related barriers to implementation of OERs as innovations in language teaching. They point out that internal IT policies of any organization, whether it is the producers and right holders of the OER, or whether it is the intended final consumer of the innovation (such as a school) play a largely overlooked role in determining the extent to which OER implementation becomes a practical reality. Additionally, they identified copyright restrictions as an obstacle to the richness of the media available in language teaching and learning. The findings of the present study serve to buttress these sentiments by pointing out the need to take into account not only IT software but also the hardware. This is because, as reported in the findings of this study, the availability of adequate IT infrastructure, coupled with the requisite skills among the target teachers, proved to be a major challenge to the introduction of ORELТ materials in the selected schools.

Accordingly, there is a need to ensure that all IT considerations are taken into account if OER innovations are to be successful.

Conclusions

In concluding the study, the researchers suggest that the OER implementation in Kenya can go a long way to reducing the cost of education in the country without compromising on the quality of learning, the myriad of challenges notwithstanding. In the ORELТ project in Kenya, for instance, the researchers established that the rural, poor schools with limited resources adopted the materials because they had limited or no teaching resources. The well-established schools, sponsored by the church or government, hardly utilised the resources because they had more resources than they needed in their libraries.

The flexibility with which the materials were developed, i.e., the text-book format, DVD, online and offline models of access, made the materials available to all categories of schools, despite the ICT infrastructural challenges. What can be seen to be lacking in Kenya is sensitization to what OERs are, their implementation approach, and their benefits among the key stakeholders. A government that is committing so much to developing ICT infrastructure in Kenyan institutions of learning cannot afford to ignore the changing trends in modes of content delivery, including virtual classrooms. The teachers in Kenya, therefore, require regular in-service training to build their capacity on new pedagogical skills in order to keep abreast with the changing trends from the traditional classroom to the 21st Century virtual classroom and digital teaching and learning. In addition, what also emerged in our study is the impact of the prescriptive curriculum in Kenyan classrooms. The pre-set and the fixed syllabus and examination schedules are all an indication of a system that is dominated by examination-oriented approaches to learning. The immediate outcome is a lack of creativity on the part of the teachers and the learners, who learn for the sake of passing examinations and not for the sake of gaining knowledge and competence in language skills. It is hoped that in the on-going restructuring of the education system in Kenya, learners and teachers will have more room to try out new teaching and learning experiences and make learning more innovative and interesting.

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