REC Biannual Report

April 2011 – September 2011

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List of Abbreviations

EDPRS	Economic Development and Poverty Reduction Strategy
ESSP	Education Sector Strategic Plan
FHI	Family Health International
GDP	Gross Domestic Product
GNP	Gross National Product
GoR	Government of Rwanda
ICT	Information and Communication Technology
ICT4E	Information and Communication Technology for Education
KIE	Kigali Institute of Education
MINEDUC	Ministry of Education
NCDC	National Curriculum Development Center
NEP	National Education Portal
NICI	National Information and Communication Infrastructure
OdeL	Open, Distance, and e-Learning
ORINFOR	Rwanda Bureau of Information and Broadcasting
RDB-IT	Rwanda Development Board - Information Technology
REB	Rwanda Education Board
REC	Rwanda Education Commons
RURA	Rwanda Utilities Regulation Authority
TCE	Teacher College of Education
TSC	Teacher Service Commission
TTC	Teacher Training College
USAID	United States Agency for International Development
VSO	Volunteer Services Overseas

REC accomplishments to date

REC has worked with international and national partners in five focus areas: (1) supporting policy and coordination, (2) developing multimedia educational materials, (3) establishing technology-supported channels for disseminating materials and bringing communities together, (4) building capacity and providing training and support for teachers and teacher instructors, and (5) mobilizing partnerships. In each of these areas, REC now can cite major accomplishments.

Policy and coordination

- In 2008, prior to the launch of REC, ICT projects supporting education were unaligned with each other and were not guided by an overall plan, resulting in duplication and wasted effort. REC mapped the ICT in education landscape in Rwanda and produced the first detailed survey of all programs, projects, and initiatives, highlighting where they supported national education policies. REC then worked with MINEDUC to draft Rwanda's first ICT in education policy and strategic implementation plan. This document was absorbed into the Education Sector Strategic Plan and the third National Information and Communications Infrastructure plan. **REC support was critical to establishing clear goals for ICT in education in Rwanda, and costed strategies for reaching them**.

Content development

- In 2008, and in collaboration with the National Curriculum Development Center (NCDC), REC reviewed the materials available to pre- and in-service teachers, and to pre-service teacher instructors. The main gap found was in materials to help teachers plan lessons – materials that suggested pedagogically sound methods for teaching specific units. As a result, REC works with primary and secondary teachers to produce these materials. Nearly 8,000 teaching guides have been produced to date. By June 2012, **the REC library will contain teacher guides for every unit in the primary and secondary curriculum**.
- All around the world, organizations have invested in creating educational content. Some of this content can be useful, with little to no adaptation, in Rwanda. REC has linked with numerous regional and international content providers to bring high-quality and relevant content to Rwanda. Over 300 videos and 100 partner-contributed educational materials were reviewed by subject

specialists and REC digital librarians and added to the REC libraries. **REC has been a leader in linking Rwanda's educational resource libraries with the world**.[1]

Technology channels

- REC partnered with Google to produce the Rwanda Education Commons portal (www.educationcommons.rw) to serve as an online resource library as well as a home for an online community of teachers in Rwanda. A dozen inspired Google engineers, usability experts, designers, and researchers worked closely with the REC team to field-test and refine the product. By November 2011, just six months after training began, 1,600 teachers had joined the community and begun downloading resources and participating in discussions. **The REC portal will be a best-in-class product supporting a thriving online community of teachers**.
- REC, in partnership with MINEDUC, the Kigali Institute of Education (KIE), Volunteer Services Overseas (VSO), and Rwanda's Bureau for Information and Broadcasting (ORINFOR), produces and broadcasts Rwanda's first educational television program. The program, *Smart Learning*, broadcasts two-hour shows on Saturday and Sunday demonstrating good teaching practices and featuring call-in segments where viewers ask advice of Rwanda's top teachers. The show, while continuing to improve the quality of its content, has attracted the strong support of the Government of Rwanda. ***Smart Learning*** **anchors Rwanda's national education broadcast television programming**.

Capacity building

- REC has delivered skills-based trainings at all of Rwanda teacher training colleges, for administrators, IT instructors, teacher instructors, and students studying to be teachers. These trainings improve ICT competencies and enable trainees to join the REC online community. As of November 2011, REC has trained 1,329 pre-service teachers, teacher instructors, and administrators. **REC trainings are bringing a generation of pre-service teachers and their instructors into contact with each other and with relevant, high-quality digital resources.**

[1] Content partners include Commonwealth of Learning; Mindset Network; Teacher Education in Sub-Saharan Africa; UNESCO; the U.S. Department of Agriculture; Volunteer Services Overseas; and the Worldwide Water Education Project. REC supports the Open Education Resources movement.

Partnerships

- In addition to the technology and content partnerships listed above, a REC-led initiative brought together MINEDUC, the Rwanda Utilities Regulation Authority (RURA), and the Teacher Service Commission (TSC) to fully subsidize internet connectivity at professional pre-service teacher training institutions. Currently, REC and Inveneo, an international leader in low-cost connectivity solutions, are devising a plan to sustain and expand Internet access for educators in Rwanda. **As a result of REC, all of Rwanda's teacher training institutions have, and will continue to have, access to the Internet**.
- REC partnered with Waterford Research Institute to pilot their English-language testing software for grade 1 students. Every day, 90 students at a Kigali primary school spend 45 minutes interacting with software designed to boost their English language skills. **REC has been a leader in identifying and promoting innovative technologies to boost learning achievement**.

Impact

REC has developed simple and rigorous indicators to determine whether and to what extent our work has made a difference in Rwanda. Our evaluations seek to answer the following questions: As a result of our activities, do educators report (1) *greater access to* educational resources; (2) *greater access to* a network of their peers; and (3) *greater use of* these resources and ideas? In February 2012, a team led by Professor Mark Ginsburg of Columbia University Teachers College will gather and analyze data around these indicators and compare them with baseline assessments completed in late 2010. (See the Appendix A below for an interim evaluation report.)

Progress in Year Three

Introduction

In Y1, REC established local and international partnerships, and in Y2, those partnerships bore fruit: educational materials, educational technology and channels, and agreements with local institutions to deliver and align these products. In Y3, REC aimed to reach teachers and learners and demonstrate an impact on teaching and learning practices.

Despite delays resulting from the suspension and eventual acquisition of AED by Family Health International (FHI), REC achieved its goal of reaching teachers and learners in Y3. These delays led REC to postpone an impact evaluation, so to allow sufficient time for teachers and learners to benefit from program activities. Instead, REC conducted an interim evaluation, and plans to conduct a full evaluation in February 2012. The results from the interim evaluation, though not generalizable, are illustrative and encouraging.

The Y3 work plan was drafted with the expectation of additional financing from USAID to increase support to teacher colleges, leverage content partnerships, and launch an ambitious research project about REC activities. Unfortunately, the suspension of AED made impossible this additional financing. This did not, however, jeopardize program activities.

The section below reviews Y3 activities in some detail and references goals set at the beginning of Y3 as documented in the Y3 work plan.

Policy and coordination

- **Connectivity launched**: In June 2011, MINEDUC and REC celebrated the provision of Internet connectivity to all TTCs and TCEs. Minister of Education Damien Habumuremyi, now Rwanda's Prime Minister, presided over the event and spent two hours fielding questions from teachers and students. As noted in the *Partnerships* section above, the provision of connectivity is a signature REC accomplishment. In addition, national coverage of the celebratory event focused on the question-and-answer period between the Minister and students, furthering the REC ambition of promoting such dialogue.[2]

[2] For newspaper coverage of the event, see: http://allafrica.com/stories/201106300200.html

- **ICT in education conference**: REC has been invited by MINEDUC to lead education panels in an ICT in education conference planned for March 2012. REC will lead discussions on cost-effective technologies, M&E strategies, and REC accomplishments.
- **National technology policy**: Parts of the REC-led ICT in education sub-sector policy were incorporated into the third National Information and Communication Infrastructure (NICI) policy. REC was an adviser to the education component of this policy.

Policy and coordination		
Activity	**Y3 target**	**Y3 results**
a) Support to MINEDUC	Ongoing	**On track**
b) Convene advisory groups	2 detailed semi-annual meeting reports and recommendations	**Cancelled** as the MINEDUC IT office was disbanded, and then moved to REB
c) Provide Internet connectivity to TTCs and TCEs	10 TTCs and CoEs connected	**Completed**
d) ICT in education conference	Online publication of conference results	**Postponed** until March 2012, in support of a MINEDUC-sponsored conference

Content development

- **Online library**: The REC digital library is online (educationcommons.rw/library). It contains lesson plans and reference materials aligned to the entire secondary school curriculum and some of the primary school curriculum, as well as policy documents, videos, and multimedia materials.
- **Video materials**: The popularity of the REC *Smart Learning* television program led to MINEDUC's request to double the broadcast time set aside for the program. It now airs for two hours on both Saturday and Sunday. REC has partnered with KIE and VSO to improve the quality of the programming, and is now filming teachers demonstrating student-centered practices with the assistance of VSO volunteers.

Biology instructors prepare for a *Smart Learning* production at the Kigali Institute of Education

- **High-stakes exam preparation**: REC continues to deliver test preparation materials to rural students studying for high-stakes exams taken upon the completion of grades six (P6), nine (S3), and twelve (S6). These materials, delivered via newspaper inserts, are for many students, their only aids for exams that greatly affect their future schooling and vocation.
- **Encyclopedia distribution**: REC partnered with World Bank to distribute six sets of encyclopedias to all TTCs and TCEs. The encyclopedias, which include general reference, science, and children's education materials, are a major contribution to campus libraries.

Content development		
Activity	**Y3 target**	**Y3 results**
a) Content strategy plan	Content strategy plan completed	**Completed**
b) Acquire local content	300 assets	**Completed**. Nearly 200 assets from TESSA; 30 national exams; and Rwandan education policies and planning documents
c) Acquire non-local content	500 video assets; 300 multimedia lessons	**Partially completed**. Videos and multimedia were deemphasized due to connectivity lag
d) Facilitate new content production	6,000 teacher tools; 300 multimedia lessons developed; 2 hours/week broadcast time	**Partially completed**. The teacher tools target was an overestimate; 3,000 teacher tools are complete. This is because the demand for video materials was underestimated: 67 programs (2 hours/program) were produced to fill 4 hours/week.
e) Align external content with curriculum	20 assets/month	**Completed**. More than 800 curriculum-aligned materials (over three times the target number) have been posted to the REC online library.
f) Organize content	200 assets/month [posted to REC portal]	**Partially completed**. REC reached only one-third of this target because the library launch was delayed. REC has since hired interns to organize and upload existing backlog by March 2012.

Technology channels

- **Portal upgrade**: Version 2.0 of the REC portal was released in February 2011. The upgrade was guided by usability research conducted by a team of Google and FHI researchers with teachers at several TTCs. Improvements included an overhauled library, a user-friendly sign-in and registration process, and a simplified look and feel. Several minor launches followed; v2.4 is scheduled for release in the spring of 2012. (See Appendix B for a list of forthcoming improvements.)
- **Portal usage**: Over 1,600 teachers have registered on the portal – double the target for Y3. Initially, discussions were unfocused, social, and effusive; gradually, and with moderation from REC staff, discussions have turned towards professional development topics.
- **Video program expansion**: As noted in the section above, the REC television program doubled its output to fill an expanded time slot. *Smart Learning* broadcasts remain free, as the GoR strongly supports its airing.

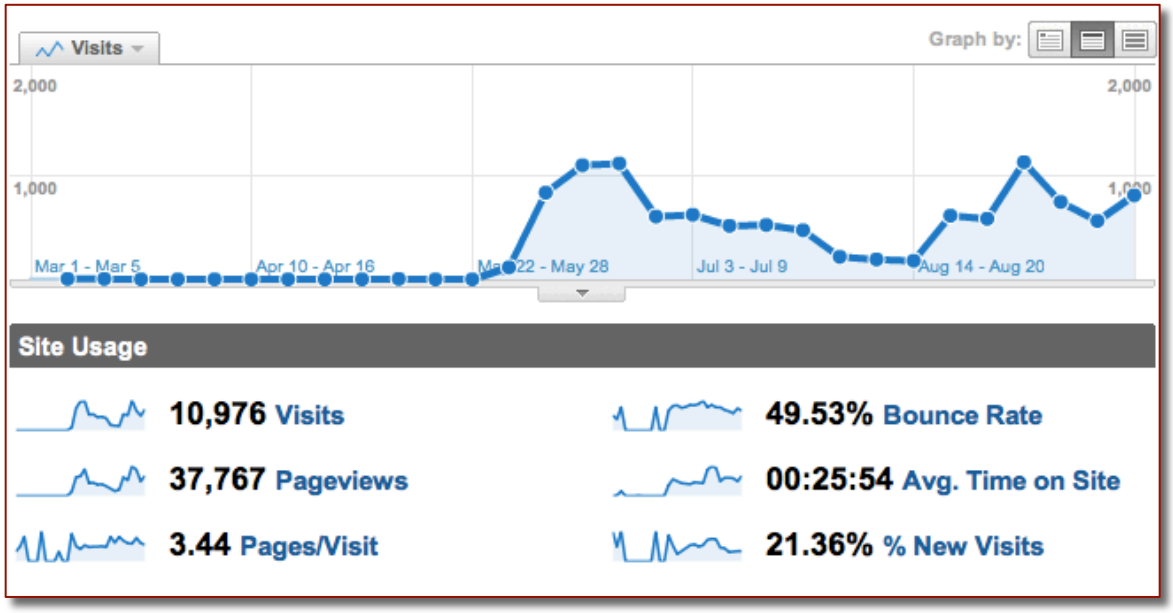

Figure 1: Snapshot of REC portal usage statistics for 3/11 – 9/11. The first peak corresponds to a major training push, but the second marks the first organic growth of portal usage. The trough represents summer break.

Technology channels		
Activity	**Y3 target**	**Y3 results**
a) Print channel	300,000 teachers and students reached; 5% gain in test scores; teacher tools distributed to all secondary schools; 50% user satisfaction	**Partially completed**. REC test preparation materials reached the target population, but turnover in M&E staff led to the postponement of an impact survey
b) Online channel	2,000 library assets; 800 registered users; 350 regular users; 1,000 discussion posts; 50% user satisfaction	**Mostly completed**. The library backlog will be uploaded by the end of 2011. Usage statistics are exceeding targets (see above bullet)
c) Video channel	50 videos produced	**Completed**
d) Digital channel	1,000 CDs and DVDs	**Incomplete**. This activity was postponed to provide additional time for the library backlog to be uploaded. It is a high priority for Q1-Q2 of Y4.

Capacity building

- **Training program**: REC launched its portal user training activities in May 2011, after having launched outreach activities to the same group in mid-2010. REC trained the IT instructors and principals from all TTCs and TCEs, and conducted face-to-face trainings of 1,329 teachers. The trainings were skills-focused, to promote portal use; subsequent trainings will be pedagogy-focused, to promote learning and a community of practice.

Capacity building		
Activity	**Y3 target**	**Y3 results**
a) Teacher tool production	60 teachers trained to develop teacher tools; 50% of trainees able/contracted to produce tools	**Completed**.
b) Multimedia lesson production	50 teachers and staff members of NCDC and TTCs trained to develop multimedia lessons by January 2011; 50 % of trainees able to produce multimedia lessons	N/A: This activity was cancelled due to the absorption of NCDC by REB and the determination of cost-inefficiency

Capacity building		
Activity	**Y3 target**	**Y3 results**
c) Portal end-user training	3,000 users trained; 800 registered; 350 regular users[3]	**Completed**. REC directly trained 1,329 teachers, as well as 11 IT instructors and 11 principals. The IT instructors trained an additional 1,000 teachers. The portal has 1,600 members and approximately 25% are regular users.

Partnerships

- **Ongoing local partnerships**: REC maintained numerous partnerships in Y3. Our main local partners continue to be MINEDUC, around a range of activities, and ORINFOR, to establish the distribution of educational content through broadcast television. Other local partners include RURA to subsidize connectivity, KIE to inculcate student-centered pedagogy, and the TTCs and TCEs to improve the quality of pre-service teacher education.
- **New local partnerships**: The Rwanda Education Board (REB) was formally established in July 2011 by Rwanda's legislature. REB[4] becomes the lead implemented of Rwanda's education policy; MINEDUC is now restricted to policy and planning activities. Coordination of ICT activities now runs through a new IT department (REB-IT), and has recognized and endorsed REC as a leader in ICT in education. In Y4, REC and REB-IT are working together to define activities in fulfillment of ICT in education policy.
- **Ongoing international partnerships**: REC maintains partnerships with Google, Waterford Research International, and World Book Encyclopedia, in the areas of the REC portal, an English-language software pilot, and the distribution of encyclopedias. In addition, REC maintained several smaller-scale partnerships around content acquisition.[5]

[3] REC defines 'regular users' to be users who download materials or contribute discussion posts at least once a month.

[4] REB absorbs several REC partners, including the Rwanda National Exams Council (RNEC), which contributed past exams to REC for publications in newspapers; the National Curriculum Development Center, with which REC conducted numerous activities; and the Teacher Service Commission (TSC), which oversees Rwanda's teacher colleges, and with which REC has a particularly strong relationship.

[5] In Y3, new content was acquired from Teacher Education in Sub-Saharan Africa (TESSA), Worldwide Water Education (Project WET), and the Commonwealth of Learning (COL), among others.

- **New international partnerships**: In Y3, REC launched a few notable new partnerships: with Inveneo, which specializes in sustaining low-cost connectivity solutions in sub-Saharan Africa, around maintaining the REC investment in Internet connectivity; with VSO, around demonstrating student-centered pedagogy in the *Smart Learning* program as well as in REC trainings; and with World Book, as mentioned above.

Partnerships		
Activity	**Y3 target**	**Y3 results**
a) Local partnerships	2 new partnerships; evaluation of progress and potential	**Completed**. REC partnered with REB and ORINFOR. MOUs are in progress with both.
b) Non-local partnerships	2 new partnerships; evaluation of progress and potential	**Completed**. REC partnered with World Book, VSO, and Inveneo. World Book has since entered into conversations with USAID directly; activities with VSO and Inveneo will increase in Y4.

Staffing changes

In September 2011 the REC Country Coordinator, Eustochie Sezibera, left the program on good terms. REC conducted a full search for her replacement. Of 20 serious applicants for the position, REC interviewed 8, and of these candidates, 3 were rated 'highly recommended.'

Happily, the decision was made simple. One finalist withdrew his application to accept a position as Director of the Rwanda Workforce Development Authority, and another was available only part-time. The third finalist, Louise Karamage, formerly the Deputy Coordinator of REC, was promoted to the position of Country Coordinator. As noted in the selection memo, Ms. Karamage is a strong manager and administrator with a track record of competence, diligence, and respect from her colleagues. REC is in fine hands.

Bikino Ildephonse, formerly the REC technology specialist, was promoted to the position of Deputy Coordinator, in which capacity he will continue to advise REC on all technology issues.

Rather than hire a new technology specialist, REC hired an Education Advisor responsible for reviewing and improving the educational quality of all REC activities.

Vicky Frantz was selected to fill this position. Ms. Frantz has led education and teacher training programs, and provides REC with deep knowledge of educational development.

Finally, the REC monitoring and evaluation team has been reassembled. REC M&E Advisor Arushi Terway, and M&E/Communications Officer Victor Mugarura departed FHI for new opportunities. Fortunately, an opportunity quickly presented itself: the FHI Country Office, now linked to REC, will provide communications and M&E personnel to support REC. Our chief M&E strategist, Dr. Mark Ginsburg, will continue to oversee impact evaluations.

Program sustainability

REC has pursued a two-pronged strategy to ensure that its activities do not end when USAID funding ceases.

The first strategy has been to work with MINEDUC to secure funding for a REC II. Towards this end, REC has developed a concept note in consultation with MINEDUC and with REB, and has agreed on a road map for its establishment:

- The concept note will be finalized in December 2011
- An illustrative budget will be delivered to MINEDUC by February 2011
- In March 2011, MINEDUC will seek funding from donors for a REC II.

This is the preferred strategy, as it will allow for the full continuity of REC activities and expertise. (See Appendix C for a draft concept note of the REC II vision, mission, and activities.)

The second strategy is to identify Rwandan institutions that would take over REC activities should a REC II not be established. REC has worked with MINEDUC and REB to plan for the shift of REC portal, video, content, and training activities to Rwandan institutions.

In support of both strategies, REC commissioned a sustainability study. A local company, Nile Bridge Partners, will carry it out. This study will be complete in November 2011.

Appendix A: Interim impact evaluation report

27 teacher educators participated in the interim impact evaluation. Of these respondents, 21 were from three teacher training colleges: Mururu (6), Save (7), and Zaza (8). Findings presented below reflect the opinions and feelings of a small subset of teacher educators. A larger scale evaluation scheduled for 2012 will be helpful in determining the impact of program activities across a broader population of educators Responses to at least some of the items may be inflated (as part of a response set), but perhaps this is less of a problem given that our analysis focuses on differences between teacher educators' current perceptions for both 2010 and 2011.

For the items discussed below, teacher educators were asked to indicate their responses reflecting their situation in both 2010 and 2011, thus also enabling one to see changes from one year to the next (see Table 1). The values reported in the table are average scores for those responding to the item. To clarify, for the items focused on teacher educators' self reports of behavior related to REC program resources, the following response scale was used:

0=never
1=one to three times during the year
2=four to seven times during the year
3=once a month
4=two to three times a month
5=once a week
6=two to three times per week
7=almost every day (during the work week)

And for the items focused on teacher educators' self-perceptions of their effectiveness in various aspects of their work role, the following response scale was used:

0=not at all effective
1=minimally effective
2=somewhat effective
3=effective
4=very effective
5=extremely effective

With regard to self-reported **access to and use of REC portal resources**, one observes an **increase in the average scores** on all items between 2010 and 2011. In 2010 teacher educators indicated that they accessed the portal between once a month and two to

three times a month (mean score = 3.7), but this increased to slightly more than two to three times per week in 2011 (6.2). Teacher educators also reported that in 2010 they used REC portal resources in various ways approximately once a month (means = 2.8 to 3.0), while in 2011 they reported using the portal resources in various ways between once a week and two to three times per week (means = 5.2 to 6.0). The highest average score in 2011 pertained to requiring or encouraging students to access and use portal resources.

In terms of **participation in and use of ideas obtained from the Teacher Discussion online facility**, one observes an **increase in the average scores** on all items between 2010 and 2011. In 2010 teacher educators Teacher educators reported that in 2010 their frequency of participation in and use of ideas from online discussions was between four to seven times during the year and once a month (means = 2.3 to 2.7), while in 2011 they reported their frequency of participation in and use of ideas from online discussions as approximately once a week (means= 4.8 to 5.5). The highest average score in 2011 involved requiring or recommending students to participate in the Teacher Discussion online facility.

With respect to **viewing and using of ideas obtained from the SMART Learning TV program**, one observes an **increase in the average scores** on all items between 2010 and 2011. In 2010 teacher educators Teacher educators reported that in 2010 their frequency of participation in and use of ideas from online discussions was slightly more than four to seven times during the year (means = 2.1 to 2.4), while in 2011 they reported their frequency of viewing and using ideas from the SMART TV program as approximately two to three times a month (means= 3.8 to 4.5). The highest average score in 2011 concerned requiring or encouraging students to view and use ideas from the SMART TV program.

Teacher educators' self perceptions of effectiveness in various aspects of their role **increased somewhat less** (mean differences = 1.1 to 1.6) than was the case for the three areas discussed above (mean differences on a different scale of 1.7 to 3.0). In part this is the case because in 2010 they perceived themselves to be between "effective" and "very effective" (means = 3.2 to 3.6) in various aspects of their role, while they perceived themselves to be between "very effective" and "extremely effective" (means = 4.5 to 4.9).

Table 1: Selected Findings from Online Survey (comparing 2010 and 2011)

Variable/Question	2010	2011	Difference
SELF-REPORTED FREQUENCY OF BEHAVIOR			
Access and use of REC Program Resources (Portal)	3.7	6.2	2.5
Use portal resources in deciding on content in planning class	3.0	5.8	2.8
Use portal resources in deciding on teaching strategies for class	2.8	5.6	2.8
Use portal resources during class session	2.8	5.2	2.4
Encourage/require students to access/make use of portal resources	3.0	6.0	3.0
Participate in online interactions with other teacher educators via Teacher Discussion facility on the REC Portal	2.4	5.2	2.8
Use ideas obtained from such online interactions in deciding on content in planning class session	2.5	5.0	2.5
Use ideas obtained from online interactions in deciding on teaching strategies for class session	2.5	4.9	2.4
Involve other teacher educators in a class session by connecting with them via the online Teacher Discussion facility of the REC portal	2.3	4.8	2.5
Encourage/require students to participate in online discussion via the Teacher Discussion Facility of the REC Portal	2.7	5.5	2.8
View a SMART Learning TV program	2.4	4.4	2.0
Use ideas obtained from viewing a SMART Learning TV program in deciding on content in planning a class session	2.3	4.2	1.9
Use ideas obtained from viewing a SMART Learning TV program in decision on teaching strategies for a class session	2.4	4.4	2.0
Show all or a portion of a SMART Learning TV program in a class	2.1	3.8	1.7
Encourage/require students to view a SMART Learning TV program	2.4	4.5	2.1
SELF-PERCEIVED EFFECTIVENESS			
Knowing relevant subject area(s) content knowledge	3.2	4.8	1.6
Knowing about different pedagogical approaches	3.4	4.6	1.2
Planning lessons or class sessions	3.6	4.9	1.3
Teaching class sessions	3.4	4.5	1.1
Obtaining ideas and support for one's teaching from other teacher educators	3.3	4.6	1.2

Appendix B: Improvements to the REC portal (v2.4)

No.	Feature/Task Name	Description	Priority	Difficulty	Skills/Notes
1	**Home page**				
1.1	Home page images	The image at the top of the left-hand column on the home page should change with each page load. REC staff should have a simple way to add new images to this space.	High	Medium*	JS
2	**Registration and sign-on**				
2.1	Improved registration flow	Improve the REC new user registration and sign-in flow so that the process is user-friendlier.	High	High*	JS, GAE; Google
2.2	User verification fix	Phone verification does not work. This should be either fixed or removed.	Urgent	High*	Google
3	**Library front end**				
3.1	Print resource button	Add “print resource” button to the library, functional in all browsers, to print resources.	Medium	Low	JS
3.2	Simple text search	Add search bar to library that searches the text of all library resources.	High	Medium*	JS, GAE
3.3	Advanced search	Add “advanced search” option near search bar with the following search parameters: source, year, grade level, topic, and rating	Low	Medium*	GAE, JS

No.	Feature/Task Name	Description	Priority	Difficulty	Skills/Notes
3.4	Moderated user upload form	Create upload form so that community members can upload materials for moderators to review and post to the library.	Medium	High*	GAE
3.5	My Library	Add "save resource" button so that users can save a resource to their personal library. "My library" should be viewable on a separate page, linked through the user account. Users should be able to delete resources from their library.	Low	High*	GAE
3.6	Back button fix	"Back" button should bring the user from a library resource page to the previous page viewed. Currently it brings the user to the library home page.	High	Low	JS
3.7	User comments	User should be able to comment and view comments on resource pages.	Medium	Medium*	GAE
3.8	User ranking	User should be able to rank and view aggregate ranking of resources on resource pages (n of 5 stars).	Medium	Medium*	GAE
4	**Discussions**				
4.1	Recent topics link	Clicking on a discussion topic on the home page should take the user to that discussion. Currently it takes the user to the discussion home page.	High	?*	May not be possible.

No.	Feature/Task Name	Description	Priority	Difficulty	Skills/Notes
4.2	E-mail notification defaults off	Set discussion notifications to default to off.	Urgent	?*	May not be possible.
5	**Social**				
5.1	User profile	Add Google+ profile functionality to frame. "Welcome, user@domain.com" should be clickable to profile. User names through the site should be clickable to their Google+ profiles.	High	Medium*	WD; JS
5.2	School profile pages	Site admins should be able to add "school profile" pages containing text and images. School profile pages should be navigable from the main navigation bar.	Medium	Low*	WD; manually made sites pages w/edit permissions
6	**News**				
6.1	Blogger backend	News tool should be replaced with Blogger. Old news items should be migrated to new tool.	High	Medium	JS
6.2	News formatting	Improve the usability of the News feature on the home and news pages.	High	Low	JS
7	**Library back end**				
7.1	Improve admin library upload form	Create a smoother library upload flow with better navigation between form, list of resources, and data dump	Medium	Low	GAE

No.	Feature/Task Name	Description	Priority	Difficulty	Skills/Notes
7.2	Copy/paste problem	Fix coding in library upload form description box - currently if a paragraph of text is copied/pasted, it displays on website with + and = signs throughout	Urgent	Low	GAE
7.3	Smart categories	When an admin chooses a category on the user upload form, relevant topics appear (e.g. If I select Academic subject, then Arts, Biology, Chemistry, etc. appear)	Medium	Low	JS
7.4	Editable admin library upload form	Admins should be able to edit library upload form choices and instructions editable by admin (e.g. Grade level has no "Not Applicable" choice or we should be able to add a new subject. Admin should be able to edit that category to add a new option. If instructions have changed - admin should be able to edit the instructions)	High	Medium*	GAE
7.5	N/A grade level option	On Library upload form, add "Not Applicable" as grade level choice	High	Low	GAE, JS
7.6	Admin-only use of library upload form	This form should not be accessible to non-admin.			

Skills required

Google	Requires Google support
JS	JavaScript, including JSON, AJAX, DOM, and Basic Web Development
WD	Basic Web Development, including HTML, CSS, and Google Sites
P	Python, specifically as used by Google App Engine
GAE	Solid knowledge of Google App Engine design, efficiencies, and issues, using Python for development

Appendix C: Draft concept note for REC II

Vision and mission

Rwanda's educators will have the skills and resources to successfully challenge a generation of students to speed Rwanda's transition to a knowledge society. Aided by their encounters with a network of their peers and with excellent and engaging learning materials, Rwanda's educators will inspire students to reach new heights of academic, civic, and personal achievement.

The Rwanda Education Commons will partner with Rwanda's education institutions to inspire and support Rwanda's educators through the effective use of ICTs. Teachers, mentors, administrators, and policymakers will turn to REC to find relevant and high-quality resources and networks of their peers.

Educational objectives

REC II plans to achieve the education goals described below. They represent a continuation and expansion of current REC goals, in alignment with the policy and planning documents listed above. **We believe that ICTs can play an essential role in achieving these education goals**. The ICT-oriented strategies to reach these goals are elaborated in the *Activities* section below. REC II will:

1. Expand educators' access to high quality educational content designed to improve both subject knowledge and pedagogical strategies
2. Enable educators to find, share with, and learn from their peers, by strengthening and supporting professional networks
3. Ensure the use of high quality education content and peer networks through regular training, mentorship, support, and outreach
4. Expand the reach of existing education initiatives in Rwanda by availing partners of multimedia content delivery channels
5. Promote a culture of creative thinking and problem solving among educators.

Proposed beneficiaries

REC II targets Rwandan educators with access to technology. By "educators" we refer primarily to five groups. Mainly, we refer to Rwanda's (1) pre-service and in-service primary and secondary school **teachers** and (2) supporting personnel, such as **mentors**. REC II activities also target (3) pre-service **teacher instructors** at professional institutions; (4) **administrators** and the primary, secondary, and pre-service training levels; and (5) education **policymakers**.

Proposed key activities

REC II will support educators by implementing the following activities. This list may grow or be refined during Y1 of the program, in consultation with REB and MINEDUC.

1. **Establish a National Education Portal**. The National Education Portal (NEP) will build on the REC teacher portal to provide educational materials, information, and networking opportunities to all Rwandan educators. NEP may include sub-portals to provide similar resources and opportunities to support technical and vocational education, early childhood development, and non-formal education activities.
2. **Support a National Education Library online.** By the end of the first REC program, teaching aids supporting *every unit within the primary and secondary curriculum* will be available via the portal and offline CDs. REC II librarians will work with REB and partners to expand this collection, and to build capacity where needed to produce user-friendly, well-organized digital repositories within the National Education Library.
3. **Support open, distance, and e-learning.** REC II will provide and build capacity in online course development at REB, and build online course management functionality into the NEP to support online courses after they are developed.
4. **Expand the Smart Learning television program.** The Smart Learning program will become the foundation of an educational television broadcast network. REC will showcase model teaching practices, and additionally will mobilize partner expertise to build capacity to improve the quality of education programming and production.
5. **Increase Internet access points for educators.** Currently, REC deploys VSAT dishes to TTCs, and has arranged with RURA the full subsidy of bandwidth costs.[6] REC II, in partnership with REB and Inveneo, an ICT in education solutions provider with

[6] RURA subsidizes 80% of TTC costs through the Universal Access Fund, and REC subsidizes the remaining 20%. We anticipate that the availability of fiber optic cable will further lower costs.

expertise in sub-Saharan Africa, and will sustain and leverage REC's current connectivity investment so that telecenters and secondary schools gain access to the Internet.

6. **Reduce Internet costs for educators.** REC, in partnership with MINEDUC, REB, RDB-IT, and RURA, will establish an "e-rate" for educators to further lower barriers to Internet access. The e-rate will provide subsidies to access points for the provision of Internet to educators, or coupons to educators redeemable at access points, or both.
7. **Offer ICT in education trainings, workshops, and capacity building services.** REC currently offers trainings and mentoring to TTC instructors. In REC II, we will develop a portfolio of capacity building activities for educators. This portfolio will encourage the use of ICTs to support student learning and achievement, directly working with teachers and mentors to integrate ICTs into classroom practice and professional development activities. Specific focus areas will be on how ICTs can promote child-centered learning methodologies, and sharing good practices in using ICTs in education.
8. **Support early grade literacy and numeracy activities.** MINEDUC and REB, in partnership with USAID, has committed to the improvement of early grade reading, writing, and numeracy. REC will ensure that its video, online, and offline channels serve as a distribution mechanism to support literacy initiatives, in particular the Rwanda READS campaign and the USAID L3 program.

Alignment with national policy

REC II activities are designed to support and in some cases fulfill policy priorities set forth in the ESSP, NICI III, and the draft ICT in Education Policy and Costed Strategic Plan.

REC II activities are directly aligned with section 3.1.3 of the ESSP, which lists 6 strategic priorities for the application of ICTs in education. Where the ESSP is indicated below, we refer to the ICT in education strategic priorities (except in Activity 8).

REC II activities are aligned with Project 8 of the NICI III Plan: a Training and Education Portal. Where NICI III is indicated below, we refer to this project.

The ICT in education costed strategic plan lists seven objectives, adding the objective of developing content networks to the six ICT in education strategic priorities of the ESSP. This plan also includes a detailed logframe. Where the costed strategic plan is indicated

below (as ICT4E Plan), we refer to activities within this logframe. In addition to the alignments listed, REC II supports activity 2.2 (partnerships for ICT in education), 3.4 (innovation through partnerships), and 4.3 (innovative solutions) within this logframe.

REC II activity	Areas of alignment
1. Establish a National Education Portal	• **ESSP 3.1.3/1**: "Building a common platform to…share resources and good practices" • **NICI III/Project 8**: "Develop and implement education portal" • **ICT4E Plan/1.3**: "Availability of online portal to raise awareness of ICT in Education"
2. Build capacity in support of a National Education Library	• **ESSP 3.1.3/5**: "Developing and distributing quality digital content and ensuring that this content is adapted to the Rwandan context and aligned with the national curriculum" • **NICI III/Project 8**: "Create an e-Library" • **NICI III/Project 8**: "Digitization of curriculum and education materials" • **ICT4E Plan 5.1: "**Availability of digital content at all levels"
3. Build capacity and expand online platform in support of ODEL	• **ESSP 3.1.3/6**: "Establishing Open Distance and e-Learning (ODeL)"
4. Extend *Smart Learning* and build capacity to produce educational broadcast programming	• **ESSP 3.1.3/1:** "Promoting an ICT in education culture" • **ICT4E Plan/1.2**: "Availability of broadcast outreach material" • **ICT4E Plan/5.2:** Mobilizing partnerships for innovative solutions in digital content
5. Design solution for expanding connectivity access points	• **ESSP 3.1.3/3**: "Expanding ICT infrastructure" • **ICT4E Plan 3.1**: "Availability of affordable power and equipment"

REC II activity	Areas of alignment
6. Design and establish e-rates for educators	• **ICT4E Plan 3.2**: "Availability of affordable high-speed connectivity"
7. Build capacity among teachers using ICTs to promote strong teaching methods	• **ESSP 3.1.3/4**: "Developing capacity to integrate the use of ICT into education practices through training of teaching staff on integrations of ICT into the teaching practice • **ICT4E Plan/1.4**: "Increased number of ICT in Education champions" • **ICT4E Plan/4.2: "**Improved capacity for integrating ICT into teaching, learning, and administrating" • **ICT4E Plan/7.1**: "Increased access to education through ODeL"
8. Support literacy and numeracy programs	• **ESSP 1.8/2**: "Ensuring that education quality continues to improve through…English as a medium of instruction" • **ESSP 1.8/3**: "Developing a skilled and motivated teaching, training and lecturing workforce through… the use of English as the medium of instruction"