

Basic Education, Innovation & Technology in DR Congo: Preliminary Pilot Findings & Recommendations



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Introduction

EDC and its implementing partners AED, LDI, and IFESH are currently 18 months into the implementation of two USAID funded dot-

EDU pilot projects in Vanga, Bandundu and Luozi, Bas-Congo in the Democratic Republic of Congo (DRC).

These pilot projects seek to improve the quality of basic education through teacher training in instructional strategies, methods and procedures that incorporate principles of active pedagogy and student centered learning. Each initiative is strengthened and supported with an innovative technology component –Vanga with a resource center equipped with 17 computers, Internet connectivity and peripherals, and Luozi with videotaping of teacher practices for reinforcement and peer-to-peer self-analysis as well as a community radio component using the power of this broadcast technology to catalyze community discussion on the importance of quality education, especially for girls.

*Project Mission
To improve current basic educational methodologies and increase access to pertinent information in support of the existing national curriculum by fostering learning processes that are rooted in experience, integrated, use local knowledge and technologies, interact effectively with local development problems, and make appropriate use of ICTs.*

Eighteen months into the project, project management and USAID counterparts agreed that it was time to take stock of project activities in order to determine the viability of the pilots to date and to identify the core elements of each which could then inspire new projects should the funding permit developing a going- to-scale strategy.¹ This was particularly important in the case of the Community Resource Center in Vanga where the introduction of advanced technology in a rural setting was indeed a risky experiment.

In order to answer the various questions arising from the above issues, a technical team traveled to DRC from February 28 to March 13, 2004. Team members included:

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¹ A quantitative Mid-Term Impact Evaluation will also be conducted in Spring of 2004 by TMG.

This report outlines key findings, presents recommendations to strengthen the current pilot activities, and describes the core elements of possible new future initiatives.

Community Learning and Resource Center, Vanga

Findings and recommendations for the Vanga pilot are presented in three categories: Programmatic Activities, Institutional Capacity, and Infrastructure Capacity.

Findings

The team is extremely pleased to report that, even though the Center in Vanga has been in operation for a mere six months, programmatic impact on teachers and the community are already being detected.

Center Impact on Teachers

One of the main objectives of the Vanga Center is for Center staff to train teachers in the area of active pedagogy. EDC/Youthlearn training has consisted of exploring new techniques by guiding teachers through the creation of didactic materials and promoting excursions within the community to identify applied academic principles. The town water pump becomes a science experiment, local plants help illustrate biology, simple grocery items can be used for math, etc. Teachers have also been learning about new facilitation techniques where teachers guide students in inquiry-driven learning.

The impact of training (delivered by Center staff) on Vanga's teachers was evident. The team observed several classrooms where teachers had crafted with their students a collection of shapes and angles using locally available materials such as cardboard, sticks and twine (see Figure 1). The team also observed in one classroom, a large collection of bottle caps, sticks, and other materials used for counting exercises. The materials were basic but indicated an important step forward because in all classrooms visited prior to the establishment of the Center, evaluators had only once witnessed a teacher using didactic materials in an activity. An important seed has apparently been planted.



Figure 1: Finding evidence in classrooms of concrete representations of geometrical shapes crafted by teachers and students.



Figure 2: Teacher using a scale model of a river to engage children actively in learning new vocabulary, physical principles, geographical concepts and social skills.

Another example where evidence of impact can be described is when a teacher had prepared an entire geography demonstration lesson on rivers (see Figure 2). The teacher later explained that he got the idea for the lesson and the vocabulary he introduced by exploring computer-based resources at the Center.

However, much remains to be done. What follows are specific recommendations that, should funding permit, will strengthen and broaden the impact of the

ongoing pilot project on Vanga's teachers, students, schools, and broad membership of the education community. Also, TMG's Mid-Term Impact Evaluation will provide a more quantitative external evaluation that will further strengthen the findings and recommendations outlined in this report.

Recommendations to Strengthen Basic Education at Center.

- **Focus on Children's Initiative:**

Year 2 of this initiative focused on changing teaching practices and measuring impact thereof. Year 3 can and should focus on the need to further emphasize the process necessary for establishing truly learner-driven inquiry. This involves attending to developing the child's autonomy of thinking and acting. It should particularly focus on developing the ability in children to formulate questions and to interact with others, including adults, on questions raised. It should culminate in a pedagogy that is inspired by children's inquisitiveness. This can be incorporated in EDC/YouthLearn training initiative for Year 3 funding.

- **Responding Intelligently To Learners' Intelligent Errors:** The team's observations in the schools have shown that, even though teachers have improved on facilitating a more active teaching/learning process, there is still more to be done. One element that requires improvement is the quality of



Figure 3: Children are natural problem solvers. Their innate curiosity and initiative can often serve as a basis for their learning.

feedback provided to the learners. Often, when a learner provides an incorrect answer, or an answer different from the one the teacher has in mind, the student's response is either ignored or declared wrong. It is thus recommended that future training incorporate strategies for teachers to learn how to diagnose and analyze errors and respond appropriately.

- **Flexible Scheduling of Class Period Time for Problem-Oriented Learning:**

In addition to making the teaching/learning process more active, reorientation of pedagogical practice towards developing the capacity in learners to autonomously solve relevant problems and respond to opportunities in their day-to-day lives is also required. This type of change requires adjusting the set curriculum, which includes for instance the determination that class periods are limited to 30 minutes. Advice should be developed, preferably in concert with officials of the Ministry of Education, on how existing rules and practices can best be reinterpreted to accommodate the demands of problem-oriented learning. EDC can participate in dialogue with the Ministry if required. Attention to the implications of the introduction of problem-oriented learning for the organization of pedagogical practice can be incorporated in EDC/YouthLearn training initiative for Year 3 funding.

- **Appropriate Choice of Technology:**



Figure 4: Participation of the community in decision making about choices that will affect them is essential.

Technology makes a difference, but not all the difference. It is essential to arrive at an optimal mix of attention to technology and the various uses to which technology can be put. The Vanga model is technology-heavy. Replicating it throughout the DRC will be beyond the current economic capacity of the country. On the other hand, the Vanga experience has proved so far that access to the new ICTs can be pedagogically beneficial and that populations who have not previously been exposed to those technologies succeed in quickly familiarizing themselves with their use. Thus appropriate attention is required to developing the already available technologies in a manner that can be sustained by the community. However, such attention should not be exclusive. It is no less important to pay attention to technologies whose value has remained unchallenged over the centuries, such as is the case of print. In the end, a wise mix of technologies must be found, appropriately adjusted to the needs and circumstances of the

community. Such needs and circumstances vary across communities. The choices of technologies will thus vary accordingly. No one-size-fits-all model should be prescribed or looked for. Community participation in arriving at particular choices cannot be overemphasized. Considering the pilot nature of the Vanga experience, such community participation should become well documented as the project evolves. Careful documentation will help to inform the possible process of going to scale in other parts of the DRC.

- **Information Literacy:** It should be noted that the introduction of technology into a community such as Vanga will often cause novice users to mystify the technology, attributing unquestioned authority to information that reaches them via electronic means. Thus developing the capacity to critically evaluate information – obtained by whatever means – is therefore necessary. Information Literacy is already part of the current training initiative and will continue to be in future trainings.
- **Focus on Community:** The team was pleased to find that the establishment of the Community Learning and Resource Center in Vanga has been beneficial beyond facilitating access to and use of new technologies. Specifically, the Center has had a favorable impact on improving the community spirit among the user population. As one member of the Vanga community put it, “*Le centre est un poumon.*”

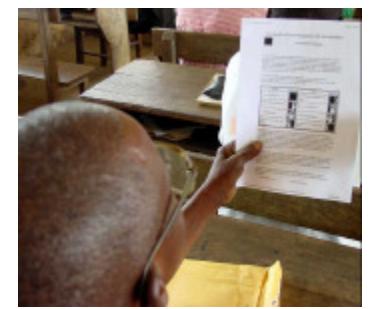


Figure 5: The set curriculum prescribes teaching the four phases of the moon. Encarta, accessed on the Center's computer system, lists eight of them. A teacher wonders what to do.



Figure 6: "*Le centre est un poumon.*" The Center as a provider of oxygen to the blood that keeps the community alive and makes it flourish.

However, and despite this function of the Center as a lung for the community, the heavy emphasis on technology in it also entails the risk that attention moves away from community building to individual use of computers and passive collective watching of TV. Opportunities are being missed if these processes are not at the same time being used to foster dialogue and collaborative problem solving at the community level. It is therefore recommended that, while attending to consolidating

the sustainable operation of the Center from a technical and managerial point of view, community building be explored not merely as a beneficial side-effect but as a major objective. An initial dialogue with the community in this context should focus on identifying issues in the resolution of which the Center can

play a role in empowering community members. Among other areas it is likely that such issues will pertain to domains like health, nutrition, agricultural practice, child care, literacy, entrepreneurial development, etc., all of which perfectly fit within an enlightened vision of basic education.

- **Sustainability Planning.** Current and future capacity building efforts should focus on how the “active” educational approach is actually being imbedded within the community. This will involve exploring how to help teachers and educational leaders own and invest in these principles. It may be further necessary to explore how true on-going “communities of practice” can be supported within each school and community. Additionally, it might be necessary to begin to build ownership beyond the schools through a degree of intervention with parents, extended family members, and other community leaders.
- **Data Collection To Quantify Impact And Support Continuous Improvement:** Dot-EDU/DRC efforts to track impact through TMG’s on-site evaluation have been and will continue to be key in order to strengthen current efforts and facilitate planning for future rollout. The current goal of data collection has been to articulate how teacher’s classroom behavior has been transformed. In Year 3, the resultant transformation in student behavior will also be evaluated and documented. This data collection can be imbedded within the training process and the operation of communities of practice so that ongoing reflection and assessment is an integral aspect of the new method.
- **Best Practice Collection:** One way to support educators in the development of lasting communities of practice is the collection and dissemination of promising practices arising from their own innovation. The recent introduction of video in each community is intended to promote this sort of collection on the local level. These tools are being used in current trainings in Vanga and Luoji and should be included in Year 3 programs.
- **Exploration Of Teacher Rewards And Incentives:** Despite dot-EDU/DRC’s best efforts to understand the needs and realities of teachers in DRC, it is clear there is still much more to learn. If Year 3 funding is available, a more thorough articulation of the motivations and incentives that drive a targeted teacher to change their teaching methods will be developed. With a better picture of how teachers are benefiting from the dot-EDU/DRC training or struggling to sustain these new methods, ways to reward teachers for their investment and promote greater lasting change will be identified and implemented.
- **Expand Number of Targeted Teachers:** Currently, project funding only allows the project to target ten pilot schools. In order to fully maximize the

investment of this initiative, it is crucial that the next phase expand its teacher target audience.

All of the above recommendations should accompany existing Vanga pilot initiative, expansion of existing Vanga pilot initiatives, or addition of new initiative. Also, these recommendations also apply, in large part to the Luozi Findings and Recommendations described below.

Center Impact on Community

One of the missionaries, who works at the hospital writes the following to illustrate what the Internet, now present at the Center and in the community, has allowed him to do:

Internet helped me. I had to revise our strategies for severe anemia in the pediatric department of our hospital. I was in desperate need to find adequate literature. . . . Via a search of the web I found two overviews of the problem that quoted up-to-date literature. . . . I can [say now that] we managed to bring down transfusion rates to a level as low as possible

Dr. Friedhelm Förster
Vanga, March 6, 2004

Additional anecdotes illustrating the impact of the center within the community include:

- A medical practitioner who was able to find the manufacturer of his sonogram equipment online and thus arrange for its repair.
- The family of a child with congenital heart disease who had to send her to Paris for surgery was able to organize travel and communicate with her and the doctors during her stay in France all thanks to the fact that there was Internet in Vanga.
- Small business owners arranging for meetings and the purchase of merchandise in Kinshasa from Vanga thereby making their visits to the capital much more efficient.



Figure 7: Community members use the Center for diverse purposes.

This is not to say that some of these activities could not have happened without the presence of the Center and the technology therein. However, having access to the technology saved members of the community days if not weeks of time in completing their respective personal and business activities. In other words, the

presence of technology in Vanga has provided access to resources and information crucial for the integrated development of a rural community such as Vanga.

In addition, IFESH, subsequent to their training initiatives, shared with the team the following comments:

- The community is very interested in the program.
- The idea of a community resource and learning center was foreign to the community, but they are now seeing its value.
- Many sectors within Vanga are now using the center.
- Business people see the center as providing good input for development in the community.

Indeed, the achievements above demonstrate preliminary impact and community buy-in. But of course much still remains to be done. The following recommendations, when implemented, will strengthen the impact that the center is having on the community.

Recommendations to Improve Community Services

- **Inform Center Training with Instructional Design Principles:** Currently, Center staff is offering training to the community in basic productivity tools (MS Word, Excel, etc.). The team was informed however, that the quality of the training is not up to standard. No clear learning objectives are presented. And no real differentiation has been made between basic, intermediate and advanced levels of skills. It is important that in the next phase, Center trainers receive basic training in instructional design principles in order to overcome the above problems.
- **Assure Community Outreach.** To date it is not evident to what degree the entire Vanga community is benefiting from the services of the Center. One interviewee for example, estimated that only five percent of the community was using the Center. Based on a systematic analysis, strategies need to be developed that will both encourage and allow a larger percentage of the community to use the Center. This will require a greater emphasis on community outreach on the part of the Center staff and Committee members as well as more creative mechanisms for funding the use of the Center by a larger spectrum of the community.
- **Ensure that the Center is a Show Place for Innovation:** Currently, the Center is fairly sterile with little visual evidence of what has been learned there. Ideally, the walls of the Center should be show places for education and development innovations that highlight information and skills gained by visiting the Center.

Impact on Girls

In Vanga, as in the rest of the DRC, gender inequity in the classroom is a prevalent problem. While basic schooling is an option that parents will normally want to consider for their male progeny, they would usually give far less serious thought to the same issue when it comes to sending their girls to school. One member of a focus group of parents queried about the issue in Luoji captured the idea in the following words: "When a girl marries, that's the end of it."

USAID has implemented a girls' scholarship program (EDDI) to begin to address this serious problem. The EDDI program targeted the same schools as the dot-EDU schools.

During the team's visits to various schools, the impact of the EDDI program was evident in both a positive and negative light. On the positive side, parents and girls were ecstatic because their girls had received books and school uniforms. School directors were pleased because enrollments had increased. However, on the less positive side, girls were being bullied by boys because boys had not received the



Figure 8: Delegation of three girls during a welcoming ceremony at one of the targeted schools in the Vanga area giving expression to the importance of attending to girls' educational needs.



Figure 9: Schoolbags given to girls serve simultaneously to raise girls' positive feelings about their participation in the schooling process and lead boys (and parents) to question the policy to create selective privileges for redressing the gender imbalance.

same support. Team members were told of girls seen crying on the roads to school because boys had stolen or damaged the girls' new back-packs. School directors complained that at some schools there were no longer any girls enrolled because parents had enrolled their girls in EDDI targeted schools.

USAID's efforts to address issues of gender inequity are laudable and should be continued. However, in light of the challenges listed above, the dot-EDU team would like to share the following recommendations to further strengthen the EDDI program so that the targeted girls and families can continue to benefit from this important initiative.

Gender-Related Recommendations to Improve EDDI Initiative

- **Gender Balance:** Specific action should be taken aimed at restoring gender balance in school participation by girls and boys. Such actions should specifically have girls' learning needs in mind. They should furthermore be geared towards providing opportunities to parents to develop changed perceptions about the usefulness of schooling for girls. It is suggested that expertise concerning gender issues in education be sought to help structure these elements of the program.
- **Change Perceptions Through Radio:** Targeted actions should be developed to change perceptions among parents regarding the right to education for girls as well as the practical import of female education for personal, family, community and social development. An important role in this regard can be played by the introduction of community radio. Radio programs could specifically focus on generating social dialogue around the girls' education issue, on informing the public on relevant facts that underscore the importance of girls' education as well as on the social marketing of specific behaviors and attitudes. While parents are the prime target, such programs should equally address the need for perceptual change in boys and girls.

Gender-Related Recommendations to Improve dot-EDU/DRC Initiative:

In terms of the current dot-EDU/DRC pilot activity in Vanga, the team recommends the following:

- **Gender Equity Strategies:** All training initiatives should incorporate strategies that promote gender equity in the classroom and that best address the unique learning needs of young boys and girls.
- **Data on Differentiated Impact:** That in the execution of specific elements of the pilot programs, such as in the introduction of technological infrastructure or in the diffusion of active pedagogy, data be collected regarding the differentiated impact among boys and girls regarding such elements. The analysis of such data should inform project development decisions relevant in the context of establishing gender balance in educational participation.
- **Video:** The use of video-taped lessons of classroom practice as source materials to assist teachers in diagnosing gender-biased practice, and in developing strategies to remediate gender bias in classrooms.

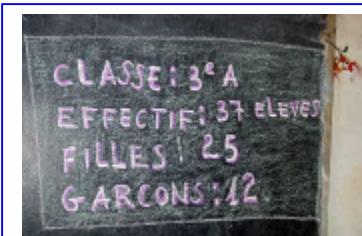


Figure 10: A typical case of reversed unequal school participation among girls and boys due to migration of girls to EDDI supported schools.

Findings on Institutional Capacity to Sustain Impact

In order to sustain the positive impact that the Center in Vanga has had on the community and the basic education sector, institutional and infrastructure capacity needs to be assured. Dot-EDU/DRC has done much to establish a solid foundation in this arena. For example, IFESH provided training in center management, team building, and conflict resolution. AED provided training in customer service. EDC/Kinshasa provided training in finance and budgeting. Thanks to these interventions, the team observed improvements in the area of institutional capacity at the Center. Both the Steering and Management committees are functioning. The staff is achieving significant results. However, the following issues and related recommendations were identified (some initially noted by IFESH and later confirmed by the team).

One of the major challenges faced right now by the Center is that there are competing institutional objectives. On the one hand, the Center is expected to serve Vanga's basic education sector, and on the other it is expected to develop strategies to economically sustain itself. These are competing objectives because the former will always require a subsidy from either external funder or the Ministry of Education, and the latter requires only a temporary two to-three year subsidy. It is also important to note that it is not reasonable to expect the Center revenues to subsidize the education initiative. The Center revenues will be sufficient only to cover its own recurring costs. The following recommendations largely consist of ways to remedy this issue.

Recommendations to Improve Institutional Capacity

- **Clarify Institutional Objective:** As stated above, the Center's institutional objectives need to be clarified. Is the Center primarily part of an education support initiative, or is it primarily a multi-purpose community resource center expected to serve multiple clients and run on economically sound principles of financial sustainability? If it is the former, then the Center will always require significant levels of external funding. If it is the latter, then the structure of the Center staffing must change to allow it to assume an identity separate from the education support project. If it is both, an appropriate strategy needs to be developed that will allow the two functions to co-exist and more harmoniously support each other rather than compete for resources.
- **Resource Management Training:** In order to develop better understanding of how resources are used, the Center staff should be trained to operate the Center more like a business with the USAID education support project seen as a primary, but not exclusive, client of the Center.
- **Establish Fund for Education Project at Center:** The relation between the Center and the education support project should include fiduciary elements. In other words, the education support activity should be provided funds to pay for Center services. This will relieve Center management from the burden of

balancing the needs of paying clients and non-paying clients, as, with this relation, all clients would be paying clients. In fact, the education support activity would undoubtedly become the largest and most important Center client requiring the Center to provide special benefits and better service to its education clientele.

- **Vouchers:** The Center's targeted educators might be provided with coupons or vouchers to procure materials and services from the Center. This approach could promote proper accounting for materials and services provided by the Center to its education clientele. The current system of vaguely subsidizing services confuses Center staff and fails to differentiate between services provided to the educators and services provided to the general public.
- **Training in Grant Writing:** Center staff and community leaders should be trained in basic grant-writing and management skills. Ideally, the training would be of sufficient quality and length that the trainees could experience the entire grant cycle from proposal, to implementation, to reporting. Grants could be sought, in particular, to fund the use of Center facilities by different target audiences such as the women's literacy group, entrepreneurial clubs, specific education clientele, and medical and agricultural workers.
- **Continue Financial Management Training:** Center staff must be further trained to better track and account for use of Center resources. In particular, it should segregate the use of resources by subsidized education clients from the use by paying external customers. This will allow the education project to more effectively determine its resource usage and provide a specific budget from which to pay for this use. Ideally, Center staff should understand how the costs of all resource usage are either covered by project funds or through user fees.
- **Examination of Vanga Economy:** Center staff and project team members need to more thoroughly investigate the nuances of Vanga's economy to better understand the role of non-cash transaction and how they might influence the management of the Center. Specifically, staff need to investigate the benefits of barter and volunteer activities in exchange for Center services.
- **Communication:** The committees are functioning and active but are not collaborating with each other. This should be addressed in revised *reglement interieur* and with additional technical assistance.
- **Reporting of Committees:** The committees require additional reporting in order to ensure transparency. Regular reporting by the management committee with more time for input would allow the steering committee to better provide guidance.

- **Role Definition of Steering Committee:** The Steering Committee needs regular responsibilities to keep it engaged. In particular, terms of reference which clearly describe roles and responsibilities, programs, and activities need to be developed. This should be addressed in revised *reglement interieur* and with additional technical assistance.
- **Staffing:** The Center Director has not proven to have required leadership qualities. Staffing of the Center should be revised in June.
- **Finalize Sustainability Strategy:** A final draft sustainability strategy for the Center should be finalized and introduced to the community for discussion and eventual implementation. (forthcoming under separate cover in May, 2004).
- **Operations Manual:** The Center's *Reglement Interieur* needs to be revised and a more complete Center Operations Manual should be developed.
- **On-Site Long-Term Technical Assistance:** All of the aforementioned work will require substantial guidance to ensure that the community understands and can gradually work toward implementing strategies that will allow the Center to sustain itself and continue serving the Vanga community. In order to achieve these ends, the project believes that it is a high priority to identify a long-term technical advisor to reside in Vanga. This person's role should include support to developing proper Center management, supporting the development of the Center's governance structures, advising Center management, staff, and committees on day-to-day management and practice of the Center, support to the Center's grant-writing practice, support for community outreach and educational goals, and support for the Center's IT technical staff among other elements.

It is imperative that the above recommendations be implemented if the Center is to develop the necessary institutional capacity to sustain the Center's incipient success. In order to do this over and above anything, the committees and center staff need *time*. They have made great advances in increasing their respective capacities to manage the center but more time is needed to continue the capacity building. It is highly desirable that Year 3 funding include support for a resident technical advisor. While work done by EDC, AED, and IFESH has allowed the community to make great progress, it has resulted in a system where the community, the committees, and staff wait for the AED-EDC team to visit and make decisions rather than developing their own decision-making processes. A resident advisor, on the other hand, would provide the community with the comfort of moving forward at their own pace while knowing they have a continued source of technical guidance provided by the project.

Findings on Infrastructure Capacity to Sustain Impact

Introducing complicated electronic and communication equipment into an environment where few community members have even minimal experience with any electronic equipment is difficult. This basic difficulty is further complicated by the lack of an electrical grid in Vanga, the great distance between Vanga and other locations with IT expertise and basic material resources (e.g., transformers, surge protectors, replacement parts, repair services), and extremely high needs for lightening and surge protection in the Vanga area. At the moment, the technical needs of the Center are covered by the Center technician, Lodien Shifele, with assistance provided by AED-EDC, the missionary community in the area, and technical expertise occasionally brought, at fairly high cost, to Vanga using project funds. All of this support comes at a fairly high-cost to the project (and eventually to the Center). It is important that appropriate local expertise be developed to maintain the Center once USAID funds are withdrawn. Below is a list of recommendations for ensuring that the equipment currently in place at the Center is properly used and that capacity within Vanga is developed to maintain, repair, and support Center equipment.

Recommendations to Improve Infrastructure Capacity

- **Redundancy:** The Center needs access to more technical competence and technical backup. The Center experienced an Internet network breakdown from November to March. This could have been minimized by some material redundancy (e.g. 2 access points). A longer period of onsite access to trained technicians would also have been very useful. Initiating a backup person to the Center's lone technician also appears warranted. EDC-AED is taking steps to initiate another staff member, Emmanuel Mandinga, who has electronic training as a backup technical staff member to Lodien Shifele. It should be noted that having a full-time technician at a center such as the CCAR is quite a luxury, as many centers of this type cannot afford such a full-time position. It is questionable whether, in the long run, this will be affordable to the Vanga Center either.
- **Supporting Solar Power:** The Center is not operating at full capacity due to the delays associated with approving and installing the solar equipment. Once in place, the Center will be able to operate the lab for a significantly greater number of hours each day. The addition of the solar array, though, will add to the technical expertise needed to keep the Center running.
- **Slow Installation:** Some equipment is presently not being used. For example, lightening protectors have not yet been installed putting the equipment at greater risks from electrical surges. The laminator and scanner are not being used pending delivery of appropriate transformers.
- **Upgrades for Video Editing:** The video-editing equipment cannot be used because the hard drive capacity is inadequate. CCAR is in the process of

adding at least one 250 GB drive and potentially additional memory to at least one desktop computer.

- **Equipment Usage:** Equipment such as the shortwave radio, rechargeable flashlights, the laptop computer, calculators, and photocopy machine are not being used appropriately. Better planning for and accounting of equipment and resources will be outlined on the new Operations Manual.
- **Long-Term Technology Planning:** Central to sustainability will be the exploration of equipment upgrades over time. A complete, multi-year technology plan needs to be developed that will forecast equipment, infrastructure, and technical support needs and how these needs will be secured.
- **Misuse of Equipment:** Some equipment and resources are being misused. For example, the television satellite connection acquired as a secondary source of revenue for the Center has been used to freely show inappropriate programs to children. Planning for the television use for educational purposes and paid use for well defined programs is under study by the management committee and staff.

Teacher Capacity Building, Luozi

Findings and recommendations for the activities being undertaken in Luozi follow.

Findings

A car accident on the way to Luozi caused only a few members of the team to reach their destination. As a consequence, also, they had no more than two days available to conduct their investigations. Yet, despite these limitations, it was possible to carry out a comprehensive program including visiting a local rural community radio station; do class observations in targeted and non-targeted schools in Luozi, Nkundi, and Lufuku to record teacher and student behaviors; observe a teacher targeted by the project provide guidance to an intern doing his practice teaching; hold discussions with teachers and administrators; meet with the project's steering committee; converse with children; exchange ideas with and discuss concerns of parents; and visit the project office.



Figure 11: Conversation with children at the Tusavuvu school in Luozi, gauging the need for active pedagogy to start affecting their own involvement in taking control of their learning process.

Community Radio: Contact with Radio Ntemo was established on the way to Luozi and still before the road accident happened. Hence the entire team participated in the visit. Radio Ntemo operates out of Mbanza-Ngungu in the Cataract District of the Bas-Congo Province. The 2 KW signal of the station, which broadcasts in the FM band at 98.8 MHz, covers the entire Cataract District and beyond reaches out to most of the Bas-Congo as well as can be heard in the Republic of Congo (Brazzaville), Angola and Kinshasa. While picking up the signal on the car radio, however, it was found that the strength and quality of the signal varies considerably with the terrain. To access the signal throughout the Luozi territory it may thus be necessary to ensure proper aerial positioning, and perhaps signal amplification, in certain cases. Otherwise, the team found that Radio Ntemo can be a valuable partner in adding a local radio dimension to the project activities in Luozi. Objectives and current programming of Radio Ntemo are in line with the goals of the Luozi project.



Figure 12: Discussing possible partnership modalities at Radio Ntemo.

Defining Role of Technology: Interestingly, the team found that the Luozi experience, which, contrary to the Vanga project, developed in the absence of most of the technologies offered to the Vanga population, great and profound advances can be made in instilling the practice of active pedagogy among teachers at a much lower cost. Thus, in developing a technology dimension of the Luozi project, it will be important to ensure that this component, unlike the existing perceptions in Vanga, will not be seen as the driving force of the project. Moreover, careful analysis is warranted aimed at balancing technology cost and benefits to be derived from technological enhancements. As in the case of Vanga, community participation in the decision making process will be essential. The decision making process should particularly focus on questions regarding how technologies will operate in a sustainable manner over time, considering the need for replacement of obsolete equipment and software and maintenance. Discussions in Luozi with different parties concerned invariably led to the conclusion that radio should be seen as a priority channel if large population groups are to be reached effectively. While giving radio priority, though, this should not be interpreted as declaring less essential the need to provide access to the wealth of information and interactive communication opportunities that will result from the introduction of computer technology, even if this would be done at a very small scale only.

Besides the above observations, the team found the developments generated by the project in Luozi in regard of the introduction of activity-based pedagogy to be largely convergent with the above reported findings concerning the Vanga project. Below follows relevant detail concerning the impact on teachers and the

community. In addition we provide comments regarding the impact resulting from the introduction of the toolkits and the distribution to the teachers of the new curriculum.

Impact on Teachers



Figure 13: In teaching about nature, teachers are found to have developed an increased ability to make things concrete for the kids in their care.

Compared with observed teacher behavior a year earlier, when the initial needs assessment was undertaken, it is immediately clear how dramatically the targeted teachers have changed. After training teachers:

- Construct, out of **local resources**, materials for use in their classrooms to support their teaching and the learning of their students;
- Identify in the proximity of their classrooms opportunities for students to **link theoretical concepts to concrete elements** in their environment (see e.g. Figure 11) and organize excursions outside the classroom;
- Focus more than before on the **students' learning**, rather than on their own teaching;
- Can **explain** to the team why they opt for particular **pedagogical strategies**;
- Succeed in building **bridges between disciplines**, such as, when in a lesson about domestic animals, issues of naming body parts are dealt with alongside issues of food production and its economic and environmental implications as well as issues of hygiene;
- Engage in **teamwork**, including crossing the traditional boundaries between schools pertaining to the different religious denominations, exchanging ideas with colleagues;
- **Interact more**, and more frequently, with their students;
- Are successful in **encouraging the children to take a more active part** in preparing classroom events, such as when children bring in plants or help construct teaching and learning aids; and



Figure 14: Examples of didactic instruments produced using local resources for their manufacture.

- Have become more conscious of the presence of **learning spaces other than those provided by the school environment.**

Teachers also report that they feel more at ease now that there is a greater level of collaboration between teachers and students as well as among the students themselves:

It happens that children ask questions for which we have no answer, such as what the products are of which a battery is made. In such cases we do research. We don't feel threatened by such questions.

Teacher from Luozi School

Asked if teachers would accept undergoing training in the presence of the children, allowing them to practice particular behaviors with real children rather than in a simulated environment, they answer that they would welcome such opportunities. Also, teachers who have directly benefited from the project help their non-targeted colleagues to catch up with the project goals.

In addition to the above, one of the school directors with whom the team spoke mentioned the improved vocabulary used by teachers and the fact that in addition to improved didactic activities children now have more time to engage in recreational activities. He also noted that children have become more regular, i.e. they are **less frequently absent or late for class**. Moreover, parents talk spontaneously about the positive influence the project is having on their children. They feel increasingly encouraged to send their children to school. At the same he commented that the parents are at risk to fall back into past lackadaisical attitudes should the project terminate before it has had the chance to firmly take root in the community.

We note here that for the current phase of the project, under scrutiny during the team's visit to the DRC, there had explicitly been no expectation that behavioral change in the students could be found. It was expected that teacher behavior would have changed as a consequence of the project. The team is glad to conclude, based on the above observed evidence, that significant change in teacher behavior has indeed taken place. Beyond expectation, the team is most pleasantly satisfied that it can also report that initial changes in the behavior of the children are already becoming visible as well. It is cautiously suggested that the lesser emphasis in Luozi on technology and the enhanced focus on pedagogy may be responsible for this differential effect when the above findings are compared with those of the Vanga project.

Impact on Community

It was already mentioned above that, thanks to the project, parents had noted a change in the behavior of their children and that, as a consequence, they had also changed their own attitudes.

The team spoke at length with a group of parents, gauging their appreciation for and expectations about the project. Here is what they said:

It is imperative to extend the project to all classes, and not just those for which the small number of targeted teachers are responsible. Children show enhanced motivation to go to school. They sing. And they ask more questions.



Figure 15: The team spoke at length with a group of parents, gauging their appreciation for and expectations about the Luizi project.

Girls: And what about the girls? the team asked. The girls issue continues to be a complex one. Having only limited resources that allow only some of their children to be sent to school, parents choose the boys rather than the girls, except when there is clear evidence that a girl has greater potential than the boys. It's a matter of practicality, in their view. On the other hand, when the team informs the parents on what is known about the relationship between female education and benefits for child health, the well-being of the family and community life, a more differentiated debate evolves. In the end parents conclude that this is an issue that merits further debate. They feel that the EDDI girls' scholarship initiative is important and that, if it is to work effectively, the initiative should cover all six grades rather than only the first three grades. They think that radio could play a very important role in furthering the debate among parents on this issue and sensitize parents into changing their attitudes.

A most notable impact on the community can be seen in how trans-denominational practices of collaborating across boundaries between different religious groups have emerged. Whereas schools in the Luizi territory almost invariably pertain to one of four major religious groupings, none of these separations is apparent in community dialogue among parents, teachers, educational administrators, and religious leaders.

The Steering Committee also notes a change of attitudes in the community as regards perceptions about how children and parents see and interact with each other. It is noted that parents learn from their children (e.g. illiterate parents whose children become literate); parents show pride as they recognize that their children are learning and become more competent; and they attribute greater value and higher status to the teacher. In short: "Something has changed in the

heads of the parents," the team is being told. There are different attitudes that will, at a later stage, be adopted by the community members who are now children. "One clearly sees the benefits."

Stakeholders in the community with whom the team spoke don't see the above as a reason for complacency or relaxation. "The project should continue," they opine. "For how long?", we ask them. "At least another year for the current phase," is their opinion, "and then another two to three years for the next phase, going to scale and consolidating the projects' achievements, integrating them in sustainable community practice."

Impact of Toolkits and Curriculum Distribution

The toolkits are seen as having been the most essential element in leveraging the change that was prompted by the project.

Previously teachers taught theoretical lessons. Thanks to the kits they now construct their own didactic materials and lessons have become concrete and relevant.

Member of Luozi steering committee

As an added benefit, the practice of constructing one's own materials for use in the classroom has led to creating a team spirit among teachers, who exchange ideas and collaborate on projects. It has also created a similar team spirit among children and teachers. Children explore their environment and the technologies available in it so as to identify resources and they help in the construction of materials that are required in larger quantities. There is a spirit of emulation among the children. They feel more confident of themselves and begin to acquire a sense of agency, such as when they take the initiative to talk about what they learnt to members of their families.

The fact that the new curriculum is now in the hands of all targeted teachers has been another great contributor to the dynamics of change. Previously, no single source of reference was available to the teachers. Having the new curriculum at hand gives them a sense of security and control.

Recommendations to Strengthen and Expand Luozi Initiative

All of the applicable recommendations listed to strengthen basic education under the Vanga initiative also apply to Luozi. In addition, the following recommendations should also be noted for Luozi.

- **Upgrade Toolkits.** Introduction of the toolkits has been a great success. At a very low cost it has allowed to foster the development of resourcefulness among their users whose only complaint is that some essential tools are

missing. It is therefore recommended that the content of the kits be reviewed and adjustments be made to optimize their usefulness.

- **Development of the Technology Component:** The developmental history of the Luozi project is distinctly different from how the Vanga project developed in terms of the attention paid and importance attributed to the roles played by computer technology. Considering the team's findings reported above, it is recommended that technology be introduced in Luozi in a gradual manner, providing ample opportunity to the community to discuss possible options and particularly to decide on potential uses. From initial discussions conducted by the team it has become clear that initial emphasis should continue to be on community radio. This may in time be supplemented by the installation of one or two computers and the development of basic community-based library services.
- **Taking Advantage of the Luozi Dynamics for Advanced Experimentation:** Conditions in Luozi seem to be more propitious for starting to experiment with next steps in the development of active pedagogy than they are in Vanga. At least in some of the Luozi schools teachers were found to be more advanced conceptually and they are better able to discuss why they are doing certain things. Moreover, as mentioned earlier, initial impact on the children can also already be noted. All these conditions position Luozi favorably as a site for advanced experimentation. It is therefore particularly recommended that a beginning be made in Luozi with designing and implementing training workshops on active pedagogy that involve, in addition to the teachers, also children.

Core Elements of Future Initiatives

Eighteen months into the implementation of these unique pilots dot-EDU/DRC is in a position to outline the essential elements that should be present in future innovative basic education initiatives in the D.R. Congo.

In the development of the Luozi and Vanga interventions, an effort was made to tailor the initiative to the unique needs of each community by conducting thorough **contextual learning needs assessments**. We feel this is important to all future assessments. In addition, a number of primary instructional advances have been identified that all teachers and children should benefit from. These include:

- **Enquiry-based Learning:** Facilitating youth participation through inquiry-based learning and hands-on activities.
- **Local Resources:** Surveying ones community to identify culturally relevant resources.
- **Excursions:** Planning excursions to help students witness demonstrations of academic principles in ones surrounding

- **Didactic Materials:** Creating engaging and relevant didactic materials with tool kits.
- **Link to National Curriculum:** Aligning activities to the National Curriculum
- **Teacher Capacity To Self-Evaluate and Identify Good Practice** through video.

Coupled with these, the following implementation strategies should be part of future initiatives:

- **Training Delivery:** face-to-face training of trainers (TOT) should be delivered at periodic intervals;
- **Training Support to Ensure Transfer:** Between trainings, trainees should receive recurrent support either face-to-face or via a digital or broadcast technology to strengthen hands-on methods of learning and for reinforcement between face to face training of trainers.
- **Classroom Observation/Video:** This should be included for reinforcement and peer and self-analysis of teacher practices.
- **Community Participation:** to ensure buy-in from parents and other stakeholders;
- **Gender-Appropriate Curriculum:** to ensure equity and ensure correlation to EDDI.

Moving forward, dot-EDU/DRC expects these methods and approaches to be at the core of all future teacher training initiatives within DRC. Depending on scope, streamlining will be necessary to truly serve the unique community needs one faces across DRC. In each setting there will still need to be a careful assessment of how *technology* might support and enhance our core learning principles and whether community needs and resources support the integration of technology.

Technology: Indeed, in each setting there will still need to be a careful assessment of how technology might support and enhance our core learning principles and whether community needs and resources support the integration of technology at any substantial level. In particular, future designs should be cautious regarding injecting levels of technology into the project design to the point where the project's primary focus shifts from support to education to support of the technology. In many cases in the DRC, this will likely mean a level of investment in technology that is less substantial than the creation of a Center such as the one in Vanga. Nevertheless, with the development of cellular provision of Internet services across the DRC, providing education outreach staff and education clients with some level of access to ICT resources and material creation capacity can provide great benefit to teacher training efforts.

Future expansion of the current teacher training activities should focus on the unique characteristics of the communities where they are located, and should

draw upon lessons learned from both Vanga and Luozi. Vanga lessons include and understanding of the benefits and excitement gained by the creative disturbances of new technologies. It also includes a better understanding of the substantial human, financial, and time resources required to establish a wholly new entity in a community. Perhaps less ambitious ICT resources placed in already established education institutions (e.g. schools, regional education offices) with already established management systems and revenue streams could be more easily adopted and sustained.

Conclusion

Though much remains to be done, the dot-EDU/DRC team is very pleased with the above findings, especially given the challenging environment within which both pilots have been implemented. The team observed changes in teachers in six months that were not expected to occur for at least another year. Of course, the number of teachers impacted is still at a pilot level and observations were anecdotal. Thus the team awaits TMG's Mid-Term Impact Evaluation with great interest. Moreover, The TMG evaluation will delve deeper into many of the issues raised above and will shed further light on how to improve on program activities. Finally, the findings reported here combined with those of TMG will form the basis on which the dot-EDU/DRC team will be able to develop a going-to-scale strategy, if so required. It is a privilege for the dot-EDU/DRC team to contribute to the extremely pressing professional development needs of Congolese teachers and looks forward to continuing this important endeavor.