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Totally “Online” High School for People at Educational Risk

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Abstract. The Iberoamerican Virtual Foundation (<http://fuvia.org>) is dedicated to providing e-learning solutions to universities and other institutions that may require it. It develops a pedagogical, methodological and technological online High School model based on WEB2 tools, which could be easily replicated elsewhere, and is delivered completely through an online ICT technological GNU open source platform, implemented completely online through the “Colegio Virtual Iberoamericano” (<http://cvi.edu.ec>), which caters to vulnerable students at pedagogical risk who for different reasons were not able to finish their secondary education. The selected students receive scholarships, thus tuition is totally free. The Iberoamerican online High School Project started on October 2004 with UNESCO support, implementing the last six years of High School in four specialties, with student ages being between 16 and 65, located in almost 50 communities both rural and urban-marginal. We are also working in four detention centers of young law violators and with young men and women from street gangs through community centers. Thus far our strategic alliances (over 20) are with central and local governments, and national and international Foundations. In the near future we plan to: extend the online High School coverage to the rest of the Country in order to help decrease the digital divide gap and the student drop out rate from high school (nearly 80%); replicate the experience in the rest of the region and in other countries in Africa and Asia; and develop a complete professional online digital Library service and a functional online student orientation Department.

Keywords. Education, internet, online, web2.0, open source, distance learning, rural development, sustainable development, replication.

1 Introduction

The Iberoamerican Online High School Project started on October 2004 with UNESCO support, implementing the last six years of high school in four specialties: informatics, natural sciences, cultural tourism and sustainable development, and social and cultural management, with students of ages between 16 and 45 years located in 42 communities, both rural and marginally urban, belonging to several ethnic groups, mainly “Quechua” located in the Ecuadorian Amazon. We are also working in four detention centers of young law violators and with young men and women from street gangs through community centers.

In addition, we have also made strategic alliances with: Ministry of Education, National Library System, Ministry of Economic and Social Inclusion, local governments, and several Ecuadorian foundations. Finally, we have obtained funds from UNESCO, MOVISTAR, REPSOL YPF and UDENOR, among other institutions, to fund all the scholarships.

From this perspective, our goals for the coming years are:

- To extend the online high school coverage to all 24 provinces in Ecuador in order to decrease the

country’s digital divide gap and the student drop out rate from high school (nearly 80 %).

- To share the experience with the rest of the Andean region and other countries in Africa and Asia that may require it, with the hope of reproducing the project.
- To develop a complete professional online digital library service and a functional online student orientation and guidance department.
- To continue developing the pedagogical, methodological and technological model through research.

2 The reason for the project

2.1 Vision

The project aims to contribute to the innovation and improvement of the developing world’s education through a totally *online* high school program, developed as a new pedagogical, methodological and technological paradigm which could be easily replicated, and based on free internet access, delivered completely through an online ICT technological GNU platform (MOODLE) with WEB2 tools. The program strives to provide a quality academic program through scholarships,

targeting especially people who had had few academic opportunities in the past, are vulnerable and have limited resources and are at pedagogical risk. The project expects to enroll 25000 students by 2010 through a process of replication, with the support of UNESCO and other partner organizations. By the year 2010 we would like to extend the service to 5000 students in all five Andean countries and replicate our model as a prototype project for Africa and Asia.

2.2 Objectives

Our objectives were to contribute to decreasing the digital divide gap and the high school desertion rate in Ecuador, the Andean Region and the developing world (part of Asia and Africa) by means of an accredited¹ remote online quality High School Educational System completely through the Internet.

Besides mastering six years of academic multimedia contents with the best possible professors and academic resources, the students also develop reading and writing skills, self confidence, fluent use of information resources, and computer literacy, and also become expertise in the use of courses delivered online.

2.3 Justification for the project

About 80 % of the country’s population does not finish high school studies, according to government statistics.

3 How was the project implemented?

3.1 ICT contribution towards the project’s objective

Students for the distance learning program carry out their studies exclusively through the internet at “Info centers” belonging to different institutions, which provide free Internet access and are part of the foundation’s Network of Academic Support². The students follow approximately two hours of daily online instruction. Every study year lasts ten calendar months, according to the law of Education for the “Regime of Popular Distance Education”.

The courses are developed as online modules each lasting one month. Thus, students in groups of 25 or less, working together with one teacher, receive an intensive online course for one month, for each subject. During this time, a permanent flow of communication is established among the members of the learning community (students, teachers, facilitators, tutors). In each virtual classroom, professors and up to twenty five students, depending on the subject and the methodological procedures of the teacher, work in groups.

3.2 Empowerment of target groups

We would like to emphasize that through a quality online educational program, we are reaching a population that could not otherwise

acquire a formal education because of living conditions, discrimination, age, economic possibilities, and other reasons.

Besides the normal school curriculum, we relate the subject matter to their local context and promote, locally, social support community³ needs as a result of their studies, implementing them through their projects, which are required for graduation.

Moreover, students become familiar with information and community technologies (ICT) and learn to work efficiently with computers and use the internet to find needed information for their daily needs. They thus prepare themselves for the future, increasing their potential access to better jobs and university studies. In this way ICT improves traditional services and creates new ones that are beneficial to human and social development.

3.3 Activities summary and ICT role

The communication tools used by teachers and students include forums, assigned homework, Wikis, evaluation activities, messenger services, chat rooms, internal mail in every classroom, external mail, and telephones (when needed). Most of these are integrated into the course management system (CMS). The increase in the use of technological resources results in better communication between the members of this particular educational community.

It is important to note that most of the time the communication between teachers and students is asynchronous, since students choose their own schedules depending on their availabilities and possibilities. This particular system of education thus emphasizes the needs of each student.

The contents of each subject (course) have a pedagogical, practical and theoretical treatment that takes into account the context of daily life. The students can thereby contextualize the problems in their geographical, cultural and socioeconomic context.

Finally, the online contents⁴ are graphically and pedagogically well-designed, appearing as multimedia hypertexts in order to begin acquainting the students with the different types of information available through the world of the internet.

Besides the contact with this living community, the students also have the opportunity to experience the outside world by means of online games, simulations, a diverse variety of information, online conferences, interactive web sites, etc. The students also have access to multimedia format study materials, within the classroom and through the Virtual School Library.

4 What were the barriers/problems? How they were overcome?

4.1 Technology

4.1.1 ICT use

³It is worthwhile mentioning that approximately 100 students exercise functions of leadership in their communities, especially in the Amazonian and in other indigenous areas.

⁴There are several participants in every course design and implementation, namely an area coordinator, content specialist (professor with experience), online pedagogical specialist, multimedia designer, online young teacher and facilitator, on-site tutor, students and evaluators.

¹Note: Ministerial Agreement No. 3507.

²In several cities the Program of the “Working Boy” and the “Jatún Sacha” Foundation are the institutions belonging to the network. We also have formal partnerships with several local governments, through their mayors. Our online school also serves three national “young infraction centers” for youths under 18 years old. Finally, we have incorporated the National Library System (SINAB) into our network.

We have developed and implemented a six year high school program that is completely online using updated ICT. We have thus designed over 80 multimedia (MM) motivating courses, besides actually developing and programming an online multi format library (prototype) and an animated 3D-like virtual school campus user interface. For course implementation and delivery, we are using free software through GNU licenses. In particular, we are using the “Moodle” course generating system (Moodle 1.8.2+). In this technological environment, we have developed the entire learning community, integrating databases, interactive resources and tools, internet forums, wikis, scorm, lams, etc.

The technology, software and costs that we are using include:

- Fixed connections: DSL, IDSN, Cable
- Wireless connections: WiFi, satellite
- Estimated monthly internet costs: US\$ 330 for internet services only to support our office work
- Minute costs for local mobile phone calls: US\$ 0.15
- Project access points: library, cyber centers, internet cafes
- Fixed connections: desktop computers
- Software license type: open source
- Communication tools: instant messaging, voice over IP, phone, e-mails, forums, among others, all integrated into the CMS platform
- Software applications: MOODLE software (course management system) is very basic, so we have developed a 3-dimensional user interface for easier student connections and navigation. We have also developed an online library prototype, besides over 80 courses with multimedia content.

4.2 Economics of the project

Our main obstacle was to raise funds for the program. Here we present some of challenges and how they were solved.

- Our project reached sustainability by the end of 2007.
- Our sustainability strategy: since all of our students come from an under served family background and with subsistence economy, all the students receive scholarships after evaluation of their academic performance. We are thus supported by several local and international nongovernmental organizations (NGOs) and government organizations including UNESCO, Movistar (Fundación Telefónica), REPSOL, UDE-NOR, MIES, Cotacachi Municipality.
- Annual budget: US\$ 360,000
- Funding sources: loans, grants, donations.
- Operational development plan and changes: although the online high school is working well until now, we continue improving the courses and multimedia contents, students’ interactions, updating our software and visiting all the students at their local communities. We

also continue to update the high school’s online library and the student orientation service developed on the online platform.

- Business strategy: our project is oriented exclusively towards meeting social needs. Consequently we are always contacting local and international governments and organizations for funding. In 2009 we started working in other countries in the Andean Region. In Nov. 2007, we were also invited through UNESCO to Namibia with the goal of replicating the project in Africa and Asia.

5 What were the benefits/impacts of the project?

5.1 Impact and success indicators

- Through the online educational program using an ICT educational platform, we are preparing high school graduates to find better jobs; to improve their lives, of their communities and of future generations; to help them have efficient access to new technology.
- We have found that our graduates improve their writing and reading skills and use of technology, besides developing self-discipline and confidence. They also demonstrate the ability to continue studying through distance delivery higher education institutions in the future and to use efficiently internet ICT resources.
- We have a graduation rate (success in finishing the online high school) of approximately 80 %.
- Development of community projects for graduation involving local members of the community to generate jobs and serve their communities. Some of them have been awarded financial help from international organizations.

5.2 Impact to date

As examples, we have observed that our students become fully involved in their communities by developing small tourist and cultural projects (US \$5000 each) that will not only improve their economic situation but also that of the communities in which they live, reflecting the low dropout rate (20%) from the high school program.

5.3 Results obtained from September 2004 to December 2008

- Over 1200 scholarships were given to all our students coming from the cities of Quito, Guayaquil, Cuenca, Ibarra, Cotacachi, and from Orellana and Tena (indigenous communities of Alto Napo) and other small towns in the rest of the country.
- Given the successful track record of the project, we are supported by over 20 varied organizations, including municipalities through their mayors. The online school also serves young people below the age of 18 years in

special institutions that restrict the liberty of the young people.

- We also provide an online high school education through information centers to young people that belong street gangs in marginal urban areas, and who are in the process of becoming rehabilitated.
- We have increased the rate at which women study today. The current distribution of students is: 54% men and 46% women.
- We have provided 1200 scholarships to the students⁵ through different foundations, organizations and local government agencies.
- We have alliances with over 40 infocenters serving the students with computers and internet access.
- We are conducting research on virtual pedagogy and andragogy (ICT supported) to improve the online educational process at the secondary level (last six years of high school).

6 How could this project be better improved or duplicated?

6.1 Improvement

We have already made major modifications to the original project to better address the needs of our students. We have organized group classes so that one “online” teacher and one facilitator are assigned to each group of 25 students with personalized “follow ups”. We have also incorporated one “on-site” tutor at every partner info center, to attend human and administrative needs.

In addition, we have implemented workshops delivered to teachers, tutors and facilitators, which take place all year round. We still need to finish the virtual library and start the design of an online orientation service to students.

6.2 Reproducibility

Our project should be easily reproduced through any type of educational organization that is technologically oriented, given a real motivation to help disadvantaged youngsters achieve a sound education.

Resources used in the operation of the project:

- US\$ 30,000 /month
- 200 m² of physical space
- 15 computers
- Simple “up to date technology” usage
- 10 full-time administrative and technical personnel, plus 5 multimedia designers per product and 20 online teachers on a monthly contract basis for each course.

⁵The students of the Tena, Orellana, Ibarra and Cotacachi, are native Quechua speaking. The working occupations of the students are: agriculture, home employment, messengers, construction workers, commerce, mechanics, gardeners and artisans, or unmarried single mothers.

6.3 Skills required

Online teachers, content specialists, multimedia designers, computer programmers, webmaster, administrators, accountant, fund raising personnel, and project designers.

7 Help offered to other organizations in helping to implement a similar project

Besides being able to reproduce the model, through coordinating strategies to maintain excellence, we have recently started to help: *NAMCOL* at Namibia and *RIATAERP* at Kazakhstan

The assistance was provided after attending, upon an invitation from UNESCO, a CCT Workshop on Education, held at Windhoek, Namibia, in November 2007. The purpose of the workshop was to share experiences among developing countries of Africa, Asia and America, and FUVIA presented a description of its online high school implemented project with a Power Point Presentation and a real “on hands” workshop on the use of the online high school platform at the premises of the NAMCOL information center. FUVIA later presented an oral and written presentation of its high school project at the following organizations: UNAM (at Windhoek and Oshakati) and NIED (at Okahandja), all in Namibia.

NAMCOL and UNESCO expressed great interest in FUVIA’s products: special online workshops (courses) to teachers in “online pedagogy” and online course implementation for high school students, among other topics.

All participants expressed great interest in FUVIA’s project because of its innovation in using exclusively ICT resources in a complete online educational program.

Given the interest in FUVIA’s project, FUVIA (<http://fuvia.org>) offered immediately to our partners two concrete products at no cost: (1) allow them “*guest*” access to high school contents (<http://cvi.edu.ec>), and (2) prepare a communication system on an online platform so that all the participants may communicate and inform each other of advancement of their projects (<http://fuvia.org/namibia>).

Through UNESCO, we have also offered to reproduce and extend the project to Latin America and the Caribbean.

8 Conclusion

We conclude and believe that:

1. By using ICT internet resources, we have improved and democratized a traditional, expensive educational service (high school education), creating an innovative way of delivering online education to the needy, for their social, human and professional progress and development.
2. The project promotes equality in educational services, regardless of gender, origin, culture, geography, age, physical or mental disabilities (except blindness), giving the students the control of the educational services offered.
3. We have proved during these years that the project sustains itself, with support from its donors, because of the

Foundation’s efficient and transparent fund raising policy and action.

4. We have clearly seen acquisition of knowledge and development of positive skills among our graduating students, with local innovative initiatives producing services and products to help their communities.
5. It promotes a consciousness in favor of education in order to improve socially and economically.
6. Our project is a proven quality, which is a reproducible and inexpensive solution of providing a high school education to underserved populations by delivering it through the internet using ICT resources. It is not a substitute for face-to-face high school education, but it definitely fills a gap where regular education does not exist or cannot be acquired.