Bridging the digital divide through the eLearning Centers Project
A collaboration amongst school, state and community.

By

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Abstract

*This paper presents the experiences of **The eLearning Centers Project**, a project initially mooted by the Basic Education Research Unit, the School of Educational Studies, Universiti Sains Malaysia to the Penang State Government as one of several efforts to realize the state's objective of achieving the vision of the k-economy and e-society in Penang. Launched officially in June 2003, the project has evolved and expanded as its potential to bridge the digital divide between the different socio-economic populations has been recognized. Hence, its focus now is more on providing access to eLearning opportunities to the rural and marginalized school-going children, with a mobile eLearning unit being included as its new thrust in reaching out to these groups. The paper will describe how the project was promoted to various parties in the community to tap on their respective resources, be it time, expertise, service, hardware, software or even moral support so as to synergise the efforts of all interested parties to sustain the project and ensure the achievement of its targets and objectives.*

Introduction: What is the eLearning project?

The eLearning Centers Project, is a project undertaken by the Basic Education Research Unit (BERU), the School of Educational Studies, Universiti Sains Malaysia for the Penang State Government as one of several efforts to realize the state's objective of achieving the vision of the k-economy and e-society in Penang. Briefly, the Basic Education Research Unit is a unit set up in 1990 by the university and placed under the auspices of the School of Educational studies to conduct research and development initiatives focusing on basic education. In addition, the Unit also provides consultancy and support services to external parties involved in educational projects.

In tandem with the current trend of increasing use of information and communication technology (ICT) in almost every aspect of life, including education, the State Government of Penang has drawn up a blueprint to develop the 'knowledge worker' as its main thrust in human resource development for the new millennium. Several projects which target different groups ranging from those already in the work force to those still in schools, rural communities, the unemployed, and special marginalized communities were proposed. To reach out to the school going children and more specifically those who were from the lower income groups, the eLearning Centers Project was mooted and well received as a project worthy of funding by the State Government. It was especially

attractive to the State government as it incorporated the concept of joint funding or sponsorship in kind by the private sector as well as by any interested benefactor, and hence meant a project which wouldn't be too financially demanding on limited government resources.

Rationale

Generally in the state of Penang, a large proportion of students are lacking in exposure to computing and eLearning facilities, and also, knowledge and skills to prepare themselves for the knowledge-based economy. Despite the best efforts of the Education Ministry, not all schools are equipped with sufficient computers. Schools are still expected to find their own resources if they wish to have enough computers and accompanying facilities that can cater sufficiently to the needs of all their students. This problem is compounded by the fact that in many homes, especially those in the lower income bracket, there are also no computers.

On the other hand, there are some schools well equipped with computing facilities. These schools are usually those whose parent-teacher associations are very strong and generally consist of those whose student populations come from the higher income families. However, majority of the students attend those schools currently without sufficient computing facilities and therefore unfortunately do not have easy access to the computing facilities available there. It is also noted that hardware alone is insufficient for eLearning to take place. Equally important is the availability of software, courseware and appropriate educational materials. In this respect, even those schools which are well equipped with computers face this problem of having appropriate educational materials for eLearning.

At the same time we have a situation where there are Multi-National Corporations and large private corporations willing to contribute in helping these students to prepare for the knowledge-based economy. Similarly, there are existing educational portals with developed eLearning materials but these materials are not being well utilised by students for one reason or another. Thus it seems only logical and sound to bring together those with the resources through a well coordinated and concerted effort to hook them up with those who need these resources for the maximum benefit of students, and especially those who are disadvantaged.

In the initial stage, the project would make use of the new computer laboratories available in some schools, where the existing computers could be installed with the already developed eLearning content. These facilities then could be made available during weekends for the use of all school students (including those from other schools) living in the vicinity. No additional major investment cost would thus be needed for use of the computing and eLearning facilities already readily available.

Objectives

The general objective of this project is to enhance the ICT knowledge and proficiency among students by equipping them with the necessary skills required for the digital era, consistent with the objectives of the Penang K-ICT blueprint, as embodied in our national Vision 2020.

More specifically the project aims to set up eLearning centers where students are able to make use of available computing facilities and eLearning contents during weekends. The project aims to inculcate and propagate the eLearning culture among students by:

- ➤ enhancing and strengthening cooperation amongst the State Education Department, representing the schools, and community based institutions to assist in the development and use of ICT in education;
- ➤ extending and encouraging skills in the use of ICT related facilities such as the use of CD-ROM and internet amongst students;
- ➤ demonstrating and providing eLearning through CD courseware based on the official school curriculum, covering all subjects, to all school students;
- ➤ change the mindset of students from learning only through books to learning through CD and online education portals;
- ➤ bridging the digital divide by providing free and easy access to information and knowledge;
- ➤ making learning fun;
- ➤ encouraging students to learn at their own pace and to be independent and self-reliant in their pursuit of knowledge; and
- ➤ encouraging interaction among students on the Internet.

Methodology/Activities

The main principle guiding the approach taken by the project is to enlist the support and assistance of any party who believes and is willing to contribute to the achievement of the project's objectives. To this end, the project in its initial stage involved a collaboration between the BERU as the coordinating body, the State Education Department (SED), the State Educational Resources Center (SERC), and the State Government (SG).

Role of BERU

The project head and project manager are staff of the Basic Education Research Unit. Their responsibilities are:

- ➤ To coordinate the resources of the various parties towards the successful implementation of the project: SED, schools with good IT facilities, Corporate sponsors, Content providers, and most importantly, the students who will benefit from the project.

- ➤ To liaise, organize, establish and manage the eLearning centers.

3

> ➤ To plan, formulate and implement a comprehensive promotion and publicity campaign and road-shows to reach out to all students.

The project head and project manager are assisted on the ground by project assistants who are university students working part-time. They manage the operations of the eLearning center on weekends, as well as help in the promotional and publicity activities on other days. Besides these, they also assist in carrying out continuous evaluation and monitoring of the operations at the center. Based on feedback obtained through formal questionnaires as well as informal interviews, conversations and observation, the effectiveness of current procedures, ways to improve and enhance services are investigated and reported in monthly reports.

Role of SED

To advise and support in terms of facilitating the promotion to schools, encouraging the use of the centers by students, as well as assisting in kind or spirit the involvement of their personnel in all activities organized by the project. Also to advise on how the project can supplement and complement the Education Ministry's efforts to avoid duplication. At the same time this may involve sensitivities, as schools might indicate that areas that should have been covered by SED has actually been less than effective and hence the need for our project to serve as a compensatory or retraining programme.

Role of SERC

The SERC plays a very important role as they are main provider of content in the initial stage. The content is in the form of CDs containing courseware covering topics in the national school curriculum. Besides the courseware, the SERC is also facilitating the project by allowing the teacher activity centers (TAC) to be used as the physical premises for the setting up of eLearning centers.

Role of SG

The role of the State government is mainly as funding agency, and persuader of corporate sponsorship.

Operations of the eLearning center

The eLearning center is open on weekends from 10 in the morning until 4 in the evening, and remains open on weekends that happen to also coincide with public holidays.

Membership

Students who live in the vicinity of the eLearning center can sign up as members after paying a nominal deposit fee(fully refundable), which serves as a deterrent for loss of CD borrowed or CDs returned after due date.

Services

The eLearning center acts as a CD library where members can borrow a maximum of 2 CD titles per week. Besides loan of CDs, members can also use the computers at the center if they are not being used by others who are testing the CDs they intend to borrow. At the center they are able to either work on their CDs, or go online to search on education portals that the TAC has subscribed to.

The staff at the center also run short lessons on basic computer programs like word processing, and also on getting to know the parts of the computer and its functions.

Periodically, guest speakers from IT companies and elsewhere are invited to give talks or run workshops on IT related topics.

Achievements

The measure of success of a project is usually determined through an assessment of how far the objectives of the project have been achieved. Although it has been only about eight months since its implementation, it is still possible to provide some indication of this achievement.

Firstly, in terms of enhancing and strengthening cooperation amongst the different agencies such as the State Education Department, the schools, and community based institutions to assist in the development and use of ICT in education; the project has undoubtedly succeeded. Without this collaboration, the project would not be possible, or even be in operation now. Presently, this collaboration is best seen in the run-up towards the operations of the 2nd eLearning Center at Kepala Batas where at least 2 service teams from the political partis are actively supporting the project alongside the local district office, State Education Department and the local schools

Next, the objective of extending and encouraging skills in the use of ICT related facilities such as the use of CD-ROM and internet amongst students has also been achieved, albeit limited to only the students who have become members of the eLearning centers. It is very heartening to note, that for the majority of these students, prior to the project they have not had such kinds of learning experiences.

Thirdly, the project was able to demonstrate and provide eLearning experiences through CD courseware based on the official school curriculum and covering almost all subjects. This was possible due to the CDs that were supplied by the SERC which were developed based on the official school curriculum. The latest titles especially for the teaching of Mathematics and Science in the English language will be supplied only this year.

Next, based on feedback obtained informally through interactions with the student members and their parents, it can also be said that there is now a gradual shift in the

mindset of students from learning only through books to learning through CD and online education portals. They especially report on the interactive nature of learning through the computer compared to just reading from a book. Hence to them this also becomes a more enjoyable and 'fun' way to learn. The fun element is also visible because often times at the center, it can be observed that the children group together in pairs or even small groups sitting together at the computer and working through a lesson as a team.

As the title of this paper suggests, one important objective of the project is to bridge the digital divide. In enabling student members to gain access to information and knowledge through ICT facilities at the centers, this objective is being realized gradually as no fees are charged, save for the token registration fee, and they can either borrow and/or use the CDs at the center itself. From a survey carried out on the background of student members, it was found that close to 60% of them do not have a computer at home. Finally, it can also be concluded that the project has been successful in encouraging students to learn at their own pace and to be independent and self-reliant in their pursuit of knowledge. This conclusion is made on the basis of what has been reported by parents, teachers as well as observation of the students themselves. A comprehensive and systematic evaluation of the impact of the project will be conducted in the near future. Such an exercise will yield more reliable and valid findings on the effectiveness and benefits of the project.

In terms of numbers and statistics, the project thus far can report modest but encouraging achievement. The first eLearning center in the district of Tanjung Bungah, serving the children from mainly lower-income families has a record of 147 as registered members. At any one day of operation the average number of users/visitors to the center is around 50. Of these our tracking system has identified a core group of about 40 children who can be considered 'regulars', meaning that they faithfully turn up almost every day that the center is in operation. At an Education Fair held in November 2003, a total of 593 students signed up as new members. At this fair more than 1000 CDs were given away. Two mini eLearning centers have been set up, and negotiations are being carried out with at least two more schools who wish to set up their own centers. About 60% of the facilities needed to start up the mobile promotion unit has already been acquired, and once the state government officially approves funding for 2004, the MPU will also be in operation. A second eLearning center is being launched in March in the district of Kepala Batas, on the mainland, and negotiations for the setting up of three more centers are currently in progress.

Issues, Challenges and Responses

1.Self-sustainability

Essentially, this project is "community service" in nature. Hence, services are provided free of charge Its main thrust is to bridge the digital divide and enhance connectivity. If fees are imposed, the effectiveness of reaching out to the most needy and underprivileged will be severely curtailed and compromised. The measure of success for this project is

not commercial viability, but that of providing the services to the needy in the most cost effective and efficient manner. And hence, with the approach of utilizing existing resources wherever available, the costs and expenses incurred is already being minimized for maximum benefits. Thus, to those detractors who believe in self-sustainability, the outlook for the time being is that the project will not be financially self-sustaining. This point is related to the second and third issues that follows.

2. Corporate sponsorship

Due to the global slow-down in economy, many of the MNCs are having financial difficulties. Thus, many of the companies that have been approached to provide sponsorship especially in terms of funding, have politely declined to participate in the project. On the other hand, many have offered to give in kind. However, most of the things that they have proposed are inappropriate or are not relevant to what the project needs. Because of this, we have turned to other avenues to cut down cost. Among the alternatives is to get the local community involved to provide the manpower needs on a voluntary basis. This point is further elaborated below.

3. School computer labs' restrictions.

After the project had been conceptualized, one issue that arose was that related to restrictions imposed by the vendors who equipped the school computer labs. The agreement imposed on schools was that for a certain period of time, the computers could not be installed with programmes not sanctioned by the vendors. Because of these restrictions the SERC proposed the Teacher Activity Centers (TACs) as the alternative to school computer labs being used as the project's eLearning centers.. On normal working days, these TACs are the meeting place for teachers coming from schools in a designated zone. Teachers congregate here for various activities, but mainly to do with workshops etc. for the upgrading of teaching-learning skills, as well as for the preparation of supporting teaching-learning materials. These TACs come under the purview of the SERC, and are normally equipped with a computer laboratory.

4. Advertising and Non-profit principle of SERC

Some companies who have agreed to fund, suggested that they get in return publicity by printing their logos/corporate identity on the CDs that the students borrow. However, because the CDs are owned by the Ministry of Education, they do not allow any other party to impose their identity as the perception might be that the said company has copyright ownership of the material in the CD. Additionally, these CDs that belong to the Educational Technology Division of the Ministry of Education, cannot be sold or be part of any money-making programme as it is going against their policy of free use by school children. Thus for the company who has agreed to sponsor notebooks, and other hardware to set up the mobile unit, a compromise has been reached where their corporate

identity is printed on promotional materials like brochures and banners which provide information on the project.

5. Security and safety

The issues of security and safety which may sound trivial and mundane were factors that we had to consider seriously. The point about security arose because the project is running on borrowed premises, namely the TACs. Most of the TACs are located within the grounds of existing schools. They also house other expensive equipment, machines and documents related to their normal weekday operations as TACs. Hence the project staff and part-timers had to be vetted thoroughly to ascertain their trustworthiness and known to being responsible. Consideration of the safety of students, especially the very young primary school children who visited the center was also another factor. Staff on duty had to always be vigilant and supervise them while using the computers. Parents were advised to accompany the very young students to and from the center to avoid any untoward incidents.

6. Transportation

After having being in operation for about seven months, it is clear that the eLearning center is heavily used by those children who live in the immediate vicinity of the center. Those who live further away manage to visit the center less often and upon questioning it is confirmed that their problem is transportation. Physical distance then is a real problem especially for the younger students who have to rely on their parents or guardians to bring them to the center. Because of this, the project has evolved and is making plans to launch a mobile eLearning promotion unit, with the assistance of one IT company, the DELL Computers Corporation.

7. Manpower constraints

Another lesson learnt in the process of implementing the project was that the project team was too small to manage and run more than one eLearning center at a time. Given budgetary limitations more project staff could not be hired. Hence the alternative was to seek volunteers from the community who could be trained by the project staff to manage and operate each center. For this the service team of the elected people's representative was approached as a first choice of several possibilities. The response thus far has been encouraging. Besides political teams, other parties have also indicated their willingness to work with the team. For example, DELL employees volunteered duty on a rotation basis to assist in promotion and publicity activities at a recent 3-day educational exhibition which started at 10am and ended at 10pm each day.

8. Limited computers

The problem of limited numbers of computers at the center (TACs) would definitely escalate with the increasing membership at the existing center. Hence in lieu of the SERC giving some consideration to increase the number of computers at the respective TACs which will be chosen to be an eLearning center, the project will also seek to encourage schools themselves who can afford it to set up their own 'mini eLearning center'. One school so far has gone in this direction after the project team had made its round there to conduct a publicity drive in their school. The teachers were impressed and sought support from their PTA for funds. The project team was only too happy to assist in setting up a an 'offshoot' in the said school, and with this, the problem of transportation, facilities as well as manpower is overcome.

9. The 'First mile'

IT people have concerns about what they call the 'last mile'. The last mile refers to the situation that exists in most places now where the IT industry specialists have reached the state-of-the-art technology in the speed of processing information, which is not matched at the other end, i.e. the bottle neck that exists for the end-user, especially where broadband transmission is still non-existent

On the other hand, from our experiences thus far, we feel that we have overlooked the much earlier phase, which we wish to call the 'first mile'. The first mile is the phase of getting the potential user to face the computer. This first mile has been taken for granted, when it should be addressed seriously especially when we are talking about bridging inequalities between the haves and the have-nots. The place to start would be with the parents. Previously, parents were less than convinced of the usefulness of the computer in the education of their children. However of the few who have accompanied their children to the center and personally witnessed their children working on their lessons on the computer, they have related to us how these experiences have resulted in their conviction and resolve to get a computer of their own. Simultaneously, for those parents who have not personally used the computer, they also begin to familiarise themselves and have a better idea of what eLearning can be. Thus plans are afoot to also hold short basic computer classes for beginning parents to sit down with their children at the computer and learn basic computer skills as a way to clear this 'first mile' hurdle.

Conclusion: Future Directions

Having experienced the problems and challenges described above, the project has set out to move out and over its original course. The responses that have come about either wittingly or otherwise to these challenges serve as the future directions for the project.

Mini eLearning centers

As earlier described, mini eLearning centers are those centers located at specific schools who request the assistance of the project team to duplicate the eLearning center in their own school premises. These centers will be self-financed and self-managed, and the project team's responsibility is only to assist in the initial setting up, as well as with liaising with the SERC to duplicate the courseware. In return the school will periodically furnish the project team with data and information on its use and effectiveness in promoting eLearning amongst its students.

Besides schools, other parties may also be interested in setting up their own mini eLearning center modeled after the project. One such example is the DELL community project called the Smart Village Programme in a rural district called Juru on the mainland. After getting the blessings of the SERC, the project team wasted no time in setting up the first community mini eLearning center there. Just as in the case of school based centers, these community based centers will also be self-financed and self managed, with the project team merely monitoring and facilitating collaborations with the relevant parties.

Mobile Promotion Unit (MPU)

The mobile promotion unit is basically the eLearning center on wheels. This is in response to the problems faced by students who lack transportation or cannot come to the TACs because of safety and other factors. DELL has already committed to sponsoring this initiative. Thus far they have donated 8 state-of-the-art notebooks, an LCD projector and several hundred blank CDs. They will be asked to consider sponsoring more items that are needed, such as a multi-CD replicator etc to facilitate the operation of this phase of the project on a fast track basis.

The MPU will be making regular stopovers at those schools identified by the State education department and the SERC as particularly marginalised schools where the students are in most need of such a facility. It is hoped that eventually the project will have two such MPUs in order to reach out to even more schools and ultimately giving more children a chance of experiencing eLearning.

E-Mentoring

This is simply the broadening of the scope of the project to include mentoring of students online. There are a group of private individuals (working professionals) who wish to contribute to the education of the younger generation but cannot do it at fixed times. They

have therefore volunteered to become e-mentors. Each mentor will be assigned a group of students who can contact them through e-mail and post them questions or just 'chat' with them on anything they wish to know related to IT and education or even career options. Even though this has started in a small way, it already holds promise as an alternative to student guidance and mentoring in ICT and education.

The eLearning Club

This is another plan that is in the pipeline as a future spin-off activity of the project. Included in the services and facilities of the eLearning club will be online internet listing of all education websites, online directory of all the CD courseware available for the students to request, as well as online basic computer courses.

Going national

With the interest being shown by other states, it is very probable, given appropriate funding for the project to extend its wings beyond the boundaries of the Penang state. Already there are plans to present a proposal to the Sarawak state, which is in East Malaysia and which contains a sizable rural population. Because of its vastness and accompanying problems of accessibility, logistical and infrastructural amenities, such a project holds much promise to bridging the digital divide amongst its student population.

In closing, it is mainly to note the sense of satisfaction the project team has experienced in implementing the project. In addition it is to highlight the close and individual attention that we have to give to the children that we wish to nurture and educate on to the path of lifelong learning in the new mode; that is self directed, self accessed and self paced. To make it a success the people who are involved with the children also have to be caring and committed individuals who believe in the project and its objectives.

The eLearning Center Project can harness the collective goodwill of all the various parties involved so as to benefit the community of school children. Hence, it is also to express thanks and appreciation to all those who have collaborated in the project.