Implementation of E-Learning in West Bengal to Enhance the Present GER in Higher Education

Anirban Das, Dilip K. Banerjee, and KajlaBasu

***Abstract*—E-learning has made drastic revolution in the world higher education since last few years and created a benchmark to huge enrollments in each and every sphere of learning. To minimize the number of dropout students of West Bengal, e-learning may be an outstanding way out to enhance the overall gross enrollment ratio (GER) in higher education. This paper outlines a complete facility of e-learning process like, model e-learning classroom, web enabled systematized way of quality learning process, digitized methodologies to interact with instructors and fellow friends, online examination system and other many other facilities which will enable to get the already dropped out or going to be dropped out or regular students interested in learning so that the enrollments of higher education in West Bengal will increase.**

***Index Terms*—community college, CSC, e-learning, e-learning centre, GER, NeGP, NSDC, WBSRDA, Web Portal**

I. Introduction

West Bengal is a state which is having very low GER. Various reasons are there which signifies that current scenario of West Bengal in terms of enrollments in higher education. Of them, poverty, distance from home to higher education institutes, bad transportation system, expensive higher education, less seats in higher education institutes, mediocre students are not getting their subjects of interest, engagements with family occupation, being one of the earning members of the family etc. are important. From survey of the students who are going to be a part of higher education in West Bengal are asked for the reasons as indicated earlier and from their views the report comes like:

Establishing e-learning centers in the rural West Bengal we have the initiative to grow the enrollments as most of the reasons as in the diagram Fig:1 can be removed through incorporation of e-learning in the higher education system.

II. Preliminaries in Establishment of E-learning Infrastructure in West Bengal

A. What is E-learning

E-learning, generally called as electronic learning, is referred to "the delivery of individualized, comprehensive, dynamic learning content in real time, aiding the development of communities of knowledge, linking learners and practitioners with experts." [1] In accordance with Drucker e-learning is "just-in-time education integrated with high velocity value chains……"[2]

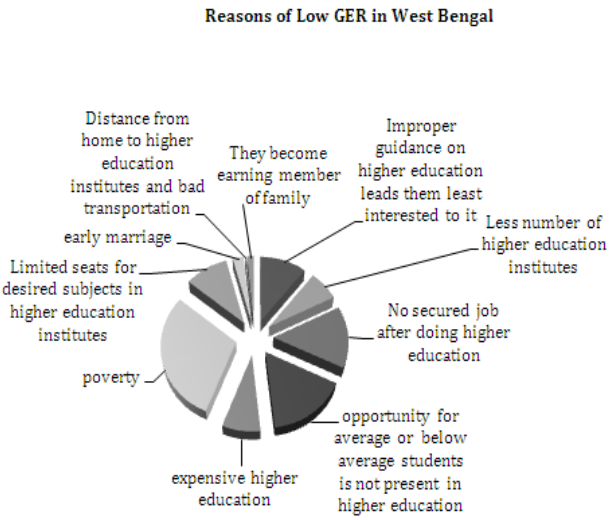

Fig. 1. Reasons of low GER in West Bengal

E-learning is nothing but the web enabled learning having some major benefits, pointed as per the report of WR Hambrecht, over conventional classroom higher education systems like, technologically cultivated learning to facilitate knowledge in cost effective manner, education through e-learning can be provided irrespective of place, time as well as intended person across the globe, it eliminates transportation cost and time, just in time accessibility, collaboration and interactivity among students can be maintained effectively, e-learning can be controlled mostly by learner according to their own pace i.e. it is learner centric, uploading of up to date desired soft documents can be done swiftly etc. [3]

Tushar Kanti Sen 2011 claims in that advancement of technologies like cost effective high speed broad band network connection in computers has been radically revolutionized the way of teaching learning process. [4][10]

E-learning can be categorized into four different ways like:

a. Warehouse of Knowledge: The fundamental form of e-learning i.e. all the data that are needed while educating or teaching the students are stored here.

b. Online Approach: E-learning can be accomplished through the online facilities such as online forums, online blogs, online bulletin boards, emails, chatting etc.

c. Training Asynchronously: Excluding live instructors

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the students interact with the teachers and vice versa through online forums, online blogs, online bulletin boards, emails etc.

d. Training Synchronously: Live instructor led training done at real time and students can interact with the instructor directly.

B. Where to Establish E-learning Centers in West Bengal

West Bengal is a state which has already implemented Common Service Centers (CSCs) under the National e-Governance Plan (NeGP). Moreover several policies and initiatives has undertaken in Gram Panchayets in terms of rural development to reach the people under the CSC facilities. Near about 100000 Common Service Centers are going to be established under the scheme of NeGP in rural India to make these centers a bridging hub through which technology enabled government services can be facilitated in a rural districts in India. The West Bengal State Rural Development Agency (WBSRDA) is going to establish 6797 CSCs in rural West Bengal.[5] In these common service centers which are dedicatedly work for the rural development, the e-learning may be introduced so that the rural higher aspiring students as well as the students going to be dropped out may get interested in this newly launched platform.

TABLE1: TOTAL DISTRICT WISE BLOCKS AND CSCS IN WEST BENGAL [9]

Districts of West Bengal	District location	No. of blocks	No. of CSCs in districts
Darjeeling		12	256
Jalpaiguri		13	279
Coachbehar		12	245
Uttar Dinajpur		9	204
DakshinDinajpur		8	139
Maldah		15	306
Murshidabad		26	540
Nadia		17	395
North 24 Parganas		22	395
Birbhum		19	327
Burdwan		31	553
Purulia		20	341
South 24 Parganas		29	651
PurbaMedinipore		25	436
Hoogly		18	434
Bankura		22	398
Howrah		14	327
PaschimMedinipore		29	571
Total blocks=341		**Total number of CSCs in WB= 6797**	

C. Where to Study through E-learning in Higher Education

ASFROM the survey it is noticed that as a facility of higher education the students are demanding university affiliated degree or diploma courses. With regards to the employment or establishment of the students after higher education, they can be treated as community college students in USA, where the students are assisted to pursue skill development programs like plumbing, carpentry etc. In USA, students of the age of 18 are not needed to finish secondary education. They are to show an "ability to benefit" certificate. Besides, community colleges accept high school students or dropout students. This policy of open admission results a lot to the students attending classes in community colleges. These courses are basically short term job oriented courses of higher education. [6][7]In West Bengal scenario they can be channelized through university affiliated general stream

courses(degree /diploma like B.A, B.Sc, B.Com etc.) along with job oriented courses like small scale industrial development courses, agriculture, apparatus and instruments repairing courses etc which will help the already going to be dropped out students enrolled into it as most of them are not willing for higher education as because their views are like no such opportunities present after higher education.

III. Methodologies & Results: How to Establish E-learning Facility as a Pioneer to Increase Enrollments

If National skill development corporation (NSDC), launched by the Central Finance Minister, Shri Pranab Mukherjee, is mandated to skill 150 million citizens by the year 2022. It's a Public-Private Partnership Enterprise aims to uplift skills and potentials in 30% of on the whole target of 500 million people by the said year. Immediate action is going to be undertaken in terms of setting up sector skill councils (SSC) which is a role that entrusts to NSDC in National Policy of Skill Development (NPSD). And this NPSD envisions in creating SSCs through NSDC targeting to perform wide range of activities and functions like competences, standards, qualifications, curriculum development, potentials in examination, certification as well as accreditation. This scheme of NSDC can be adopted while incorporating e-learning as a tool in higher education of West Bengal and this may result to perfection in standards of teaching and learning process.[8]

From 10 districts of West Bengal 300 students of rural schools are taken as the respondent sample. As the students are not at all aware of the concepts about the benefits as well as the shortcomings of e-learning, they are channelized through a session on e-learning to make them well versed with the emerging concept. The survey narrates that before explaining the e-learning concept the interested students' percentage of willing to go for higher education was just 54% and rest 46% students said their unwillingness to higher education. But, after the session of e-learning, the students' percentage in favour of higher education through e-learning hiked up to 76%. The hike of 22% in favour of higher education through e-learning is really exceptional. And this study focuses that higher education through e-learning can be a significant way out to get the students interested in higher education in West Bengal.

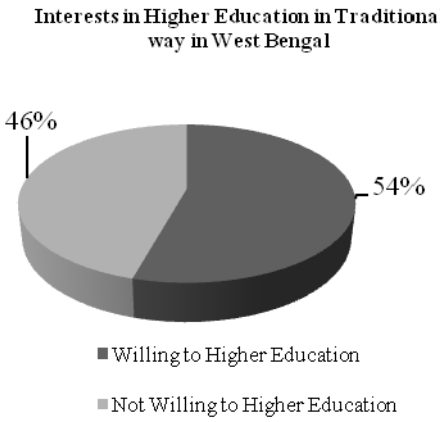

Fig. 2. Interests in Higher Education in Traditional way in West Bengal

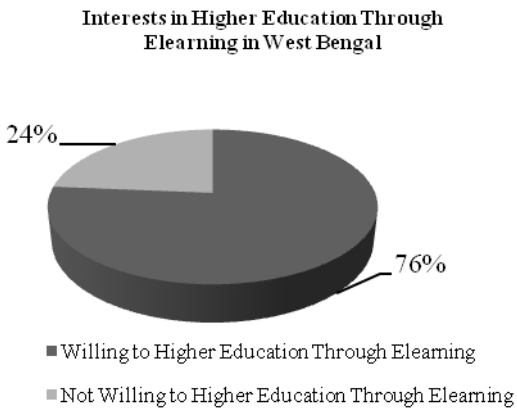

Fig. 3. Interests in Higher Education Through E-learning in West Bengal

From Fig2 and Fig3 it is clear that students are getting highly interested to higher education through e-learning as Interests in higher education increases 22% (from 54% to 46%).

From the e-learning centers, the host machines will be connected to the Server machine through remote login. This will make the students facilitated to connect the e-learning web portal. With specific digital credentials the students will be able to carry on their desired courses through electronic learning.

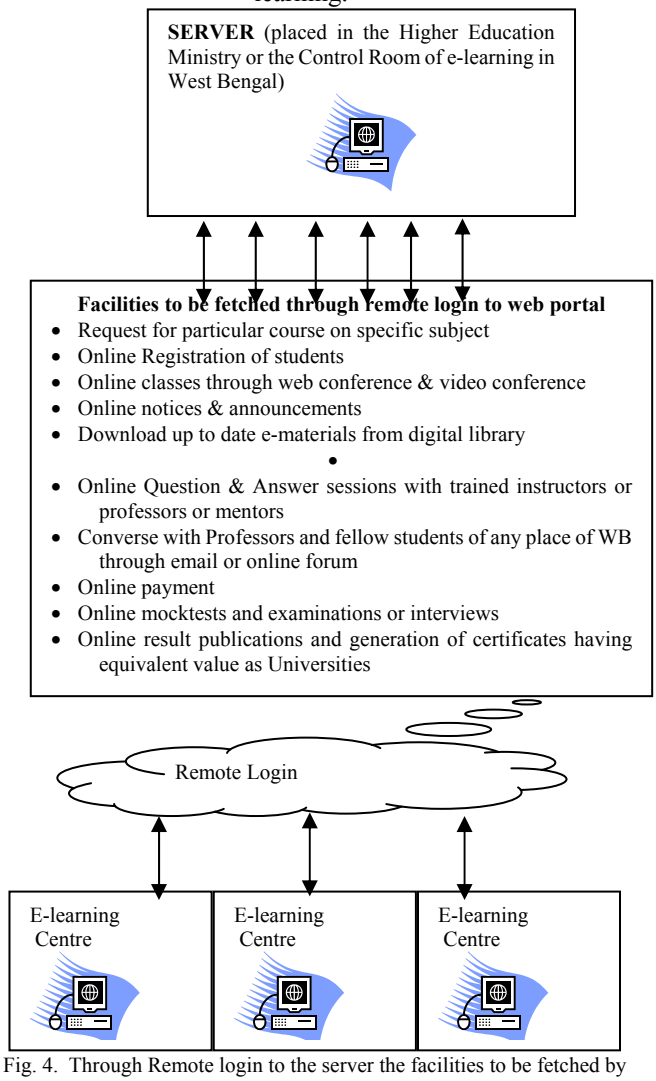

Fig. 4. Through Remote login to the server the facilities to be fetched by e-learning centers

In the e-learning centers the way of learning will be following the proposed architecture. Basically this architecture is to be developed within the web portal that may be present in Server machine. While logging in to the server the host machines from e-learning centers will get resources and the students and instructors both will be able to get the facilities, as the portal will be supportive to both. In the Fig5 some important facilities are indicated from the both mentors' as well as students' perspective. While getting entry to the web portal through remote login, a common user interface is there where all the users including students, mentors and administrators will have to give credentials. All the facilities as already mentioned but not limited to that will be there in the portal in specific tabs or links. Just a few clicks will make the users get facilitated with their needs in terms to e-learning. Administrator section is present in the web portal through which the entire e-learning system will be controlled and administrated as well.

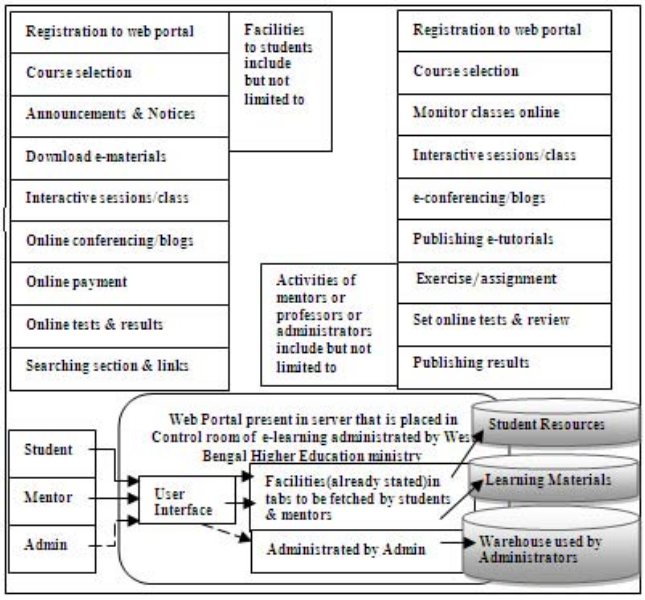

Fig. 5. Proposed model web portal for web based learning in West Bengal

Now a model e-learning classroom is prescribed through which the quality education can be provided to the higher education aspiring students in West Bengal. Single hall or auditorium is to be oriented in such a manner that at least 30 students can sit and study through e-learning. The hall is nothing but a computer lab having facility to connect to the web portal present in server. Each student will sit in a computer having headphone (optional initially) and in their scheduled class they start learning after logging in the portal by following the instructions from mentors or professors.

In the classroom there will be the facility of projector through which the video conferencing is possible and in the silver screen the students will able to view the conference as well as learning sessions which will be centrally controlled by the central control room of e-learning. In the control room the professors or mentors of expertise fields will teach the students and the session will be displayed online/offline in the scheduled classes in e-learning centers.

For practical classes, the nearest ITI/ polytechnic college instructors' assistance can be hired i.e. the students are sent to the laboratories of the adjacent to e-learning centre and the practical can be facilitated from there. Initially if it is not possible to provide single computer per student, two students can cooperate and sit with single PC.

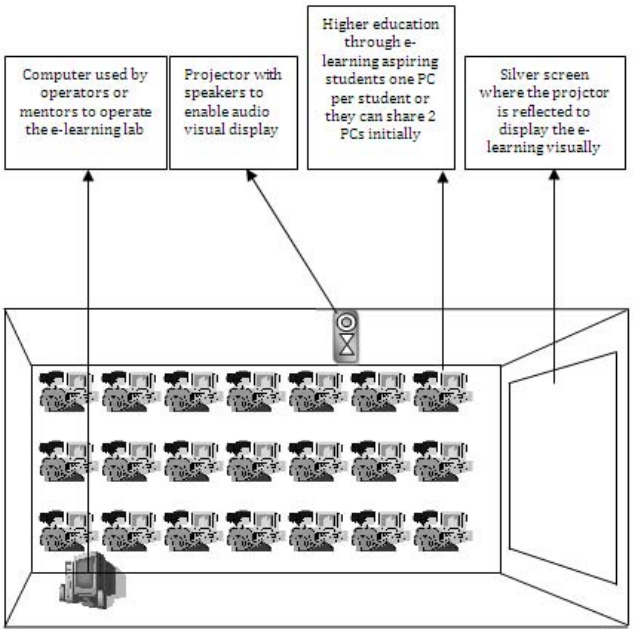

Fig. 6. Model e-learning classroom for higher education aspiring students in West Bengal

IV. Conclusion

In this paper an approach to e-learning is taken over targeting to increase the overall GER of higher education in West Bengal. Model architecture of establishment of e-learning in West Bengal is proposed where the entire process will be controlled by the control room of e-learning that may be present at higher education ministry of West Bengal and zone wise e-learning centers will be there to interact with the web server present at control room through some specific credentials. In this way the higher education aspiring students can be provided so many facilities by means of e-learning based education.

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