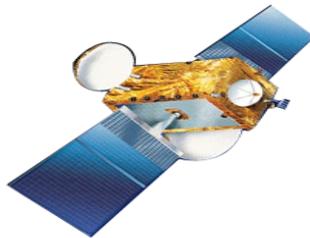Theme- Formal Education

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Qualitative and Interactive e Learning through "VSAT"

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Introduction

"Nothing is permanent except change". In a world where change is the only constant there is a need for tools techniques to help institutions become more effective. In a competitive world there is a need for ways to stay ahead or to up before it is too late. In the twenty first century, people are fading up with old styles, they need change very fast. To stay in the competing world, Institutions have to take initiatives to compete with all the challenges of changing world. *"Change your self before they change you".*

Let's take communication system as an example, in the early phase of communication, people are sending their messages through birds. Then the process got a spark of change and it burnt out with the new ways like mail, telephone, pager, email, mobile, internet etc. In the same way, in the early phase of education system, black board and chalk provided education. Than books and materials come into picture. And now computer and Internet play a vital role in providing effective education. With the reference of World Wide Web in 1969, the world of teaching and learning has adopted it as one of its main innovations. However, in spite of extensive use of the web in education, varieties of terminologies are used to depict this new field of knowledge.

E-Learning
"The term e-learning covers a wide set of applications and processes including computer-based learning, Web based learning, Virtual Classroom and digital collaboration".[3] However, the term e learning is becoming widely accepted as a substitute for online learning and web-based learning.

e-Learning Developments
The real impetus for e Learning came from the National Task Force on Information Technology and Software Development constituted by the Prime Minister of India in 1983. The Task Force report presents the master plan that India has in place as a long term policy for capacity building of institutions, human resource development in IT related areas, and use of ICTs in Education

In the 21st Century, VSAT Satellite Technology is one of the best technologies through which you can provide qualitative and interactive distance education.

Strengths and Advantages of e Learning
e-Learning has become popular amongst educationists because of its inherent strengths and advantages it provides to the institutions' instructional process. Some of these are:
   ♦ Access to educational resources from outside the institution on a global and instant basis;
   ♦ Quick and easy way to create, update and revise course materials.
   ♦ Increased and flexible interaction with student through e-mail and discussion forums;
   ♦ Location and time independent delivery of course materials such as course notes, diagrams, reading list, etc.;
   ♦ Ability combine text, graphics and a limited amount of multimedia, enabling instructional designers to prepare quality-learning materials.
   ♦ Increased learner control through hypertext based presentation of information;
   ♦ Opportunities for international, cross-culture and collaborative learning; and
   ♦ Ability to serve a large number of students at a potentially reduced cost.

What is VSAT?
VSAT is small, software driven equipment for the reliable transmission of data, video or audio via satellite. It covers the entire spectrum of interactive distance learning from Synchronous to Asynchronous, Classroom to Desktop PC based solutions and high quality video over IP networks.

VSAT (Very Small Aperture Terminal) is a satellite communications system that serves educational institutions and business users. A VSAT end user needs a box that interfaces between the user's computer and an outside antenna with a transceiver. The transceiver receives or sends a signal to a satellite transponder in the sky. The satellite sends and receives signals

from an earth station computer that acts as a hub for the system. Each end user is interconnected with the hub station via the satellite in a star topology. For one end user to communicate with another, each transmission has to first go to the hub station, which retransmits it via the satellite to the other end user's VSAT. VSAT handles data, voice, and video signals.

VSAT technology represents a cost effective solution for users seeking an independent communications network connecting a large number of geographically dispersed sites. VSAT networks offer value-added satellite-based services capable of supporting the Internet, data, LAN, voice/fax communications, and can provide powerful, dependable private and public network communications solutions.

Quick Installation	A satellite network can be installed in a matter of weeks, since there are not countless miles of wire to be installed
Geography	Versatile satellite networks provide the capability to span rain forest, deserts and mountainous terrain, or connecting remote island locations.
Bandwidth Advantage	Satellite networks offer bandwidth advantages that provide a bigger "Pipe" for transmitting Video, Voice and Data.

Satellite

In general, a satellite is anything that orbits something else, as, for example, the moon orbits the earth. In a communications context, a satellite is a specialized wireless receiver/transmitter that is launched by a rocket and placed in orbit around the earth. There are hundreds of satellites currently in operation.

Why Satellite?

As Internet traffic continues to grow at exponential rates worldwide, Internet services providers (ISP's) everywhere are faced with the challenge of keeping up with demand for network bandwidth and developing creative solutions for squeezing more use out of existing bandwidth. Satellite-based Internet connections are one of those solutions. VSAT has offered ISP's and telecommunications service providers easily scalable, cost-effective Internet access.

Key Benefits of Satellite
- Faster installation
- Better network performance
- Lower network costs

How YASHADA utilize the VSAT Facility

The Ministry of Panchayati Raj, Government of India, New Delhi has made a provision of Interactive Satellite Training under Backward Regions Grants Fund Programme through Indian Space Research Organization (ISRO). In the 12 districts covered under the BRGF the capacity building initiatives towards strengthening the Panchayati Raj Institutions has carried out. The BRGF initiative includes concept of BRGF, drawing up of District Plans through grass root

planning and also other aspects. The present system consists of one extended c-band transponder of INSAT-3B for training purpose. The Yashwantrao Chavan Maharashtra Open University (YCMOU), Nashik is a hub for satellite communication provided by Development and Educational Communication (DECU) Unit, ISRO Ahmedabad. At present there are 55 Satellite Interactive Terminals (SITs) in operation in all 35 districts of Maharashtra. YASHADA with the help of ISRO has established a studio in Pune.

Interactive Satellite based training uses a dedicated satellite channel for beaming programmes to specified centres for being viewed by trainees. Each reception centre is also equipped with a talk back facility, which enables trainees to ask questions to resource persons located at the central studio. Replies given by such studio based resource persons can be heard over the entire network. Satellite transmission, when combined with face to face participatory training methodology provides a intermixed programme combining the triggers provided by a central audio-visual programme, with facilitation provided by appropriately oriented resource persons at the local training centres. Large numbers of trainees can be rapidly and effectively covered through this composite approach. Training can also be locally focused according to the group's needs.
Sessions can be interesting and retain attention, with inclusion of games, exercise pictures related to day-to-day life of the Panchayats and elsewhere in related fields, so as to make it more interesting and with a more enduring impact.

There are two ways of teleconferencing i.e. 1) one-way video and two-way audio and 2) two-way video. To run this satellite mode of training establishment of Virtual Learning Center (VCL), talk back/interactive sessions-normal telephone and fax lines are used. These teaching end facilities are to be used by the user agencies that have set up their own receiving terminals, i.e. Direct Reception Sets (DRS).

There are two types of DRS- i) Receiving Only Terminals (ROTs) and ii) Satellite Interactive Terminals (SITs). ROT system is used for one-way video and two-way audio teleconferencing and SIT is used for two-way video-conferencing network. The SIT is the latest innovation now suggested by DECU-ISRO. The TDCC is an unconventional one and has several advantages as such:
- Simultaneous training of large number of geographically dispersed people in the shortest time.
- Multiplier effect as a result of training of trainers.
- Uniformity of the training content.
- Access to the best available learning resources, irrespective of geographical location of the learners.
- Repeatability of training courses/educational packages, easy updating and dissemination.
- Enhanced involvement of the trainers/learners because of its interactive nature leading to greater learning gains. Enterprise-wide participation.
- Capability to share the same network by different user groups. Specific topics for specific locations and even specific groups within the location are possible.
- Significant savings in expenditure due to economy in travel, logistics and replication of teaching infrastructure. More frequent training.
- Ability to effectively supplement the conventional system of training, in some cases it can become the major component of the training system.

In comparison with the Conventional Training, the satellite-based interactive training has following advantages:
1. Comparatively less reach.
2. Target group is very focused.
3. No loss information.
4. No degradation of training quality.
5. Long lead-time is avoided.
6. Great savings in the travel costs.

7. Programme production is very inexpensive as most of it is live.
8. Interactivity is inherent.
9. Involves target group very actively.
10. Uniformity of training is inherent.
11. Repeatability is possible.
12. Non-askers at all classrooms can also benefit.
13. Comprehension is determined immediately.
14. Training timings are convenient for target group.
15. Instant feedback is possible.
16. Attendance level and attention level is known.
17. It reduces travel costs of the participants.
18. Eminent experts can reach and interact with participants.

The Satellite Interactive Terminal network consists of four major elements.
1. Teaching end facilities (uplink and studio).
2. Receiving end facilities (Classroom, SIT with all accessories),
3. Point-to-point leased line from Pune to Nashik.
4. One extended C-band transponder—EDUSAT Band-width.

1. **Teaching end:** The teaching end consists of uplinking facility and studio. At present YASHADA, Pune have made teaching end facility for this purpose. The studio equipment suggested by DECU-ISRO/BEL/YCMOU will be procured and made available in the studio for uplinking facility.
2. This uplinking will be undertaken by providing point-to-point lease 2 MBPS capacity line for networking through YASHADA, Pune and YCMOU, Nashik. We have approached the BSNL or RAILTEL or TULIP authorities to provide the cost estimates.
3. **Studio**: The studio consists of floor, video and audio consoles and audio-video mixer and a telephone/ fax line. The studio floor is equipped with cameras, microphones and caption stands (i.e. backdrop), display boards, black and green boards, dais, chairs, monitor, sufficient illuminating lights, sound monitor system etc. The specifications for this propose have been approved by the YCMOU and will be procured and installed in the studio. The technical advice/expertise is being provided by DECU-ISRO/BEL and YCMOU, Nashik and Electronic Media Resource Center (EMRC), Government of India, located in Pune University campus.
4. **Receiving ends**: The Satellite Interactive Terminals (SIT) capacity of receiving signals to any extended C-Band from EDUSAT satellite will be uplinked through main hub at YCMOU, Nashik.

What are the benefits of VSAT?

- Standardized education
- Benefits of other learners' questions
- Improves the ICT skills
- Quality education
- Provide the practical experience
- Contact the faculties through e-mail
- Save the amount of faculties' pays.
- Cost effective with qualitative and interactive distance learning through VSAT.

Conclusion

Now Educational Leaders has to think **"Beyond Chalk and Talk".** So start thinking about new ways of providing qualitative and interactive education. ***"Change your self before they Change You"***

E-Learning environments are evolving rapidly in terms of tools, techniques and standards. There are major pedagogical, technological and evaluation issues that must be addressed in deploying the above technologies. With rapid growth of the Internet and mobile communications, the prospects for a country like India are vast in terms of socio-economic benefits. It is important to recognize that our primary concern must always be human learning. Low-cost technology and relevant educational content with appropriate deployment strategies are needed to address the digital divide situation that still persists. More formal approaches in the form of development and evaluation methodologies have to be evolved.

The experiences of these Institutes could be taken to accelerate the reach of training to even remote parts of India. Public-Private Partnerships in this field would go a long way in achieving rapid literacy thereby bridging the digital divide through e learning. Advancements in technologies such as Open Source will make training more affordable. In addition rapid advancements being made in regional language interfaces as well as voice and touch screen interfaces along with satellite technology will make training easily accessible to the rural people

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