Virtual teams are defined as teams that are dispersed with respect to location. In addition, asynchronous virtual teams are also dispersed with respect to time. Outsourcing is creating virtual work, making teams a necessity. As outsourcing booms, so will the number of virtual teams. Outsourcing diffuses across all operational aspects of the organization, i.e., manufacturing, software development, telemedicine, and IT services like call centers, account processing, etc. It is growing at an annual rate of 35% and this trend is expected to continue into the foreseeable future. Not only operational but some managerial jobs are also being outsourced and this trend is going to accelerate as outsourcing moves up the value chain. Managerial jobs require team work. Local or continent outsourcing in addition to off-shore outsourcing is creating teams that must work irrespective of time and distance.

Information is quite sporadic on virtual teams, especially global virtual teams. Many questions arise when work is done in virtual teams. How will the teams communicate? Is the infrastructure adequate? What can be done to improve team performance? This is further complicated when teams are globally dispersed. Will a global virtual team be as alert in the synchronous (day/night) environment when critical tactical decisions need to be made? Will multinationals trust their trade secrets in a global work group environment? How will the different time zones be handled?

As in any group setting, it is important to consider issues related to infrastructure, and organizational, behavioral, and technical and group dynamics. In global virtual teams, political, social and local norms also become important. We will assume the infrastructure is already in place and team members are savvy and knowledgeable about the technology, hence we will concentrate on other issues. Following is a list of factors that should be considered while developing and working in a virtual team. The list is derived from the author’s experiences and

see “Virtual Teams” on page 4
Assessing the Value of e-Learning Systems
Dr. Yair Levy, Nova Southeastern University, USA

Q: What is unique about this book?
A: This book provides an extensive literature review, pulling theories from the field of information systems, psychology and cognitive theories, distance and online learning, as well as marketing and decision sciences. Additionally, this book provides empirical evidence for the power of measuring value in the context of e-learning systems. The book gives a set of benchmarking tools such as the Value-Satisfaction grids and LeVIS index to help administrators of e-learning programs realize the key effective characteristics of their program. The book concludes with a “cookbook” guidelines approach on how to implement the proposed theory and tools in your own e-learning program.

Q: What is the most common measure of system success or effectiveness?
A: The current most common measure of system success or effectiveness is user satisfaction only! However, this book contains extensive empirical evidence that measuring user satisfaction doesn’t give practitioners the accurate picture. The central aim of this book is to build the argument for the use of the value construct in conjunction with the commonly used, user satisfaction, to provide a true picture of system success or system effectiveness.

Q: Where do current measures of system success or effectiveness fail?
A: Current measures of system success or effectiveness measure only user satisfaction. As in the case of AT&T, where 90% or more of its customers reported to be highly satisfied in the 1990s, yet the company lost many of them to competitors. This is just one example for a company that concentrated all their efforts on measuring user satisfaction (or in this case, its customers’ satisfaction), but ‘totally missed the boat’. Users can report being highly satisfied by the characteristics of a given system; however, they may also find most characteristics not important. So if a company bases their measure of success or effectiveness solely on user satisfaction measures, they will report very high effectiveness or success. If the measure of value is incorporated and combined with the measure of user satisfaction, this system will not show such an effective or success scores. Therefore, measuring value in conjunction to the measure of user satisfaction is a must in order for companies to truly evaluate the success or effectiveness of e-learning systems or programs.

Q: How does this book define ‘value’ in the context of e-learning systems?
A: Values of e-learning systems are enduring principals learners use to evaluate the importance of e-learning system characteristics. Whereas e-learning system characteristics are the attributes (or features) associated with e-learning systems (e.g. quality of technical support, interaction with professor, quality of course content, learner’s comfort with technology, etc.). This study also defines the term ‘value of e-learning systems’ as an enduring core belief about the level of importance learners attribute to an e-learning system as a whole.
Q: Why measure ‘value’?

A: Measuring value provides a brand new prospective on the e-learning system or program performance and how close the current performances are with what learners find important. By measuring what is important to the learner, aside from measuring the learner’s satisfaction, we get a clearer picture of what is desired by the user vs. the current actual performance noted by the user.

Q: What tools does the book provide for assessing value and imply effectiveness of e-learning systems?

A: The book proposes and empirically validates an extensive survey to assess value and satisfaction of e-learning systems. The book also proposes and validates two benchmarking tools, Value-Satisfaction grids and the LeVIS index, to help us get a full picture of effective characteristics and less effective characteristics of the system. Using these tools enables administrators of e-learning programs to direct resources, both in monetary capital and human capital, from characteristics that have low-value and low-satisfaction to characteristics that have high-value and low-satisfaction.

Q: Who should read and benefit from this book?

A: The main aim of this book is to help administrators of e-learning programs improve the overall performance of their program by measuring value and satisfaction. However, researchers in the area of information systems, e-learning and distance education, marketing and decision sciences will have an interest in reading this book.
“Virtual Teams” From Page 1

discussions with several team members working in virtual teams across the globe. This list relates to several dimensions of culture, infrastructure, protocols, group dynamics and overall performance.

♦ Understand “Corporate Culture” of outsourcing and outsourced company
♦ Identify project “Goals”
♦ Identify “Team Leader”
♦ Define “Outcomes” and “Deliverables”
♦ Develop “Communication Protocols”
♦ Consider “Equal” partners
♦ Build “Trust” among team members
♦ Understand “Diversity”, culture and work habits of team members

Team members must understand the corporate cultures of both the client and vendor companies. In many cultures deadlines are assumed to be flexible. For operational tasks, there may be some flexibility, but in tactical tasks there may not be any room for deadline negotiations. In such cases, the importance of deadlines and accuracy must be stressed.

“Team members must understand the corporate cultures of both the client and vendor companies.”

A team must be composed of members who understand the global social culture. Since virtual teams are typically made up of members from different strata, an effort should be made to encourage team members to express their views without regard to retribution from power. The client company should not present itself as a “know it all,” and not try to impose its form of culture on the vendor. This can inhibit a free exchange of information and may lead to suboptimal performance from team members. Misunderstandings and miscommunications can create

Continued on Next Page

International Journal of Web-Based Learning and Teaching Technologies
New for 2006!

Editor-In-Chief: Liliane Esnault; E.M. LYON, France

Although a considerable amount of exploration has been conducted regarding web-based learning technologies, the breadth and scope for dialogue and experimentation needs to be broadened. International Journal of Web-Based Learning and Teaching Technologies provides a place for the dialogue and support of a diverse community interested in taking the challenge further.

Some of the topics covered in IJWLTT are:
• WLTT implementation: models, methods and frameworks
• Web-based Technologies enabled pedagogical scenarios
• Network learning using WLTT
• Building Web-based Learning communities
• Web Based CSCL
• Project Management for implementing WLTT
• Best practices
• The management side of Web-based Learning and Teaching

For paper submission information, contact Liliane Esnault at esnault@em-lyon.com.
hostility and breakups in many cases. Cultural sensitivity is an important factor that team members must learn.

Before virtual teams start, a basic cultural training should be provided to make team members aware of the acceptable norms for each culture represented on the team.

Communication protocols must be established early. There should be a group leader who can direct, schedule, conduct and create a cohesive work environment. Leaders typically send task-oriented messages related to logistic coordination and act as integrator (Yoo and Alavi, 2004). The team leader emerges or should be identified before the virtual team begins operating. A team leader should develop communication protocols about synchronized and asynchronous meetings, keeping in mind that team members may be operating from several different time zones. It may be desirable to rotate synchronous meetings based on zonal conveniences of individual team members. This will reinforce the importance of team members.

Team members should be respected and encouraged to contribute, and the meeting order must be established. Team members should be rotated as session leaders, which would give them an appreciation of what can be accomplished and what is not feasible. Goals and deliverables must be clearly identified. Milestones should be established and deliverables should be checked for accuracy and timeliness. This will build “trust”, which is a major factor for global virtual teams.

Another important dimension is the level of cooperation and power of the client over a vendor. If a client dictates every aspect of the project, then virtual teams become enablers and facilitators, and not innovators. In such cases, synchronous meetings may not even be necessary. However, when managers are involved and tactical tasks

are outsourced, then “equal” partnership becomes a necessity (Aggarwal, 2005). This will promote innovation, cohesiveness and equal participation and will result in a successful project.

In this article we have described some basic factors necessary for a successful and productive virtual team environment. The list is not complete and will keep evolving as we learn more about the virtual groups working independent of time and place.

References


Dr. A.K. Aggarwal is a Fulbright Scholar and a Professor in the Merrick School of Business at the University of Baltimore. Dr. Aggarwal has published in many journals, including Computers and Operations Research, Decision Sciences, Information and Management, Production and Operation Management, Journal of EUC, Transactions of DSS, and many national and international professional proceedings. He has edited two books on web-based education: Web-Based Teaching: Opportunities and Challenges and Web-Based Education: Learning from Experiences. He has also been a part of several consulting projects for the State of Maryland and the City of Baltimore. His current research interests include web-based teaching, model-based organizational systems, web-based systems and educational issues in MIS.
EDUSAT: TAKING INDIAN DISTANCE EDUCATION TO NEW FRONTIERS
Ramesh Sharma
Indira Gandhi National Open University, India

SATELLITES IN EDUCATION
Distance Education can be immensely benefited by satellite communication owing to its potential of making available best qualified teaching resources simultaneously to vast number of learners (Jensen & Kristiansen, 1996). Pelton and Quigley (1992) also consented that satellite communication can bring high quality information and specialized expertise to rural and remote areas, along with reducing the costs of traveling. There have been some experiments to use satellite communication in education. A satellite-based computer network called USPNet-2000 delivers education through distance education to students living in the remote Pacific islands [http://www.vanuatu.usp.ac.fj/student_resources/Resources_Main/usnet.html].

In Taiwan, the Ministry of Education started an experiment with the cable TV provider, ERA Digital Media (IDTV), to broadcast English learning through communication satellite for elementary school students in rural areas to compensate for the lack of qualified teachers and teaching resources [http://www.tdva.org.tw/04-1.html]. Tanigawa, Ileura, Anzai, & Kaneko (2002) reported about a cooperative distance education project between Japan, China, and Thailand. This project, SCS, a satellite communication network developed to facilitate the video conferencing, provides for classroom-type distance education in which students receive lectures and demonstrations from a central station, and are able to ask questions via satellite.

Developing nations can take full advantage of such communication mediums. In an Indian setting, the formal system of education is not able to fulfill the educational demands of learners but the launch of EDUSAT (Educational Satellite) on September 20, 2004 has heralded a new era in Indian distance education. Although the growth of educational institutions has been noteworthy, the partaking in higher education has been far less (6 percent of the concerned age group). There are more than 638,500 primary schools, 206,269 upper primary schools, 126,047 secondary and higher secondary schools, 10,152 colleges and more than 250 universities in India. On a distance education front, this comprises 12 open universities and more than 100 institutes of correspondence courses operating in India. Still there is a large mass which is yet to be brought under the net of education. Although distance education is four decades old in India, extending the outreach of quality education to rural and remote areas seems to be a Herculean job where multi-lingual and multi-cultural population is separated by vast geographical and difficult terrain.

EDUSAT: Educational Satellite
The idea of beaming educational programmes through satellites was successfully established for the first time in India when in 1975-76 the Satellite Instructional Television Experiment (SITE) was conducted successfully using the American Application Technology Satellite (ATS-6). About 2,400 Indian villages spread over six states were involved in this unique sociological experiment telecasting programmes related to health, hygiene and family planning. Later on in 1983, when INSAT (Indian National Satellite) was commissioned, a diversity of educational programmes was telecast through it. Other successful initiatives include the Jhabua Developmental Communications Project (JDCP) and Training and
Continued From Previous Page
Developmental Communication Channel (TDCC). These initiatives led to the development of a satellite dedicated for educational service and ISRO (Indian Space Research Organization) started the EDUSAT Project in October 2002.

EDUSAT is the first exclusive satellite devoted to the educational segment. It is particularly configured to cater to the growing demand for an interactive satellite based distance education system through an audio-visual medium. With the launch of this satellite, India has become the first country in South Asia that has a dedicated educational satellite, which can boost universalisation of education in the country. EDUSAT is principally intended to provide connectivity to school, college and higher education sectors, and also to support non-formal education including developmental communication. It was launched from Satish Dhawan Space Centre (SDSC) SHAR, Sriharikota, India.

SCOPE AND COVERAGE
The satellite contains multiple regional beams covering different parts of India- five Ku-band transponders with spot beams covering northern, north-eastern, eastern, southern and western regions of the country, a Ku-band transponder with its footprint covering the Indian mainland region and six C-band transponders with their footprints covering the entire country.
The potentialities of EDUSAT will be exploited when nearly 100-200 classrooms are connected in each beam. In addition to Karnataka, Maharashtra and Madhya Pradesh included under the first phase, coverage will be extended to two more states and one national institution. Later on, when the EDUSAT network becomes fully operational, the main stress will be laid on developing of ground infrastructure, where EDUSAT will be able to support about 25 to 30 uplinks and about 5000 remote terminals per uplink.

The Government of India has taken on a mission to achieve universal quality education by the year 2015. Keeping in view the success of Sarva Shiksha Abhiyan (Universal Primary Education) and better awareness towards education, there is a projected enrollment of 45 million students by the year 2015. The situation further gets compounded by the lack of properly qualified teachers and provision of schools within easy access of students. A substantial number of students may have to travel long distances for higher education. EDUSAT has been developed to meet such challenges through the use of tremendous information and communication technology, ensuring seamless education with equity in access and to promote social and individual development.

**EDUSAT TECHNOLOGY**

The EDUSAT would be capable of enabling technologies like:

- Virtual classrooms
- Online national repositories libraries
- Database access
- Radio networking
- Video on demand
- Online functional transactions

**CHALLENGES AHEAD**

*Developing infrastructure of networking:* There will be an emergent need for local maintenance support, along-with a reliable and compatible and adequate bandwidth for networking. Development of open source materials, quality assurance mechanisms, digital learning repositories, etc. will also be needed.

*Content generation and sharing:* Although ISRO would provide for the space on the satellite, the content generation will be the responsibility of the user agencies. Thus the success of EDUSAT would depend on the quality of content. Various educational institutions, government agencies and specialized technical institutes will have to collaborate in content development and sharing.

*Professional competence of teachers:* Technology can never replace a teacher. Although the content through EDUSAT will be beamed down throughout the nation, many programmes will seek involvement of teachers. Their commitment, skills and competence will be very vital, and will need appropriate training to acquire those skills and competencies.

*Timely relevance of learning:* Social change is a dynamic process, bringing out new developments. Thus it is of immense significance, while designing the content for EDUSAT, that newer aspects of learning are incorporated.

*Private-public partnership:* To bring awareness among masses about issues which affect our personal, social and economic life, appropriate thought is required to the public-private partnership, on how they will strive towards making life worth living.

**ENDNOTE**

There has been a phenomenal growth in the number of academic programmes, courses, students and the delivery system at viable costs in Indian distance education setting. But the estimates reflect that there will be a 15 to 17 percent increase in demand for higher education per year, whereas formal systems have the increase intake capacity of only 7 percent. Since the Government of India has ensured compulsory school education for all in the age group of 6 to 14, there is bound to be exponential growth in demand for higher education in the times to come. The extensive use of communication technologies and IT-enabled and IT-supported education will lead us to realize this goal. EDUSAT will certainly aid to fulfill this objective.

**References:**


The Handbook of Research on Literacy in Technology at the K-12 Level is the first reference work to provide comprehensive coverage of the issues, methods, and theories that define the converging worlds of literacy and technology at the pre-collegiate level. Over 50 international experts have combined their research and practical experience into 35 all-inclusive chapters, redefining the way teaching and learning is dispensed. This authoritative handbook details the needs of teachers, researchers, and scholars through state-of-the-art perspectives, exposing them to new ideas and interesting developments. The Handbook of Research on Literacy in Technology at the K-12 Level is instrumental in providing access to the latest knowledge in the field.

Key Features:

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- A single source for comprehensive information on an expansive field
- Over 260 key terms with detailed definitions
- More than 1,300 comprehensive references on existing literature and research on literacy and technology
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- Cross-referencing of subjects and information pertinent to research on literacy and technology
- Free online access for libraries for life of the edition with the purchase of a print copy
Q: What kind of book is this?
A: This book is neither textbook nor monograph. It is an edited book, collecting the latest research papers on a theme from leading researchers around the world.

Q: What is the theme of the book?
A: The theme of the book is to present the latest research results in the technologies and applications of web-based intelligent e-learning systems.

Q: What is inside?
A: This book collects the latest research results in the theory and applications of Web-based intelligent e-learning systems. It includes major aspects of Web-based intelligent e-learning systems standards and certifications, design and development, key techniques, prototypes, products, and applications.

Q: Who can use the book?
A: Researchers, engineers, and students interested in e-learning systems can use this book as a starting point and a reference source for research and development.

Q: Where can Web-based intelligent e-learning systems be applied?
A: Web-based intelligent e-learning systems can be applied in the learning/training activities in some areas, such as: course teaching, clinic competency examination, astronaut training, and more.

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