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"Application of ICT in Rural Colleges: A Study With Reference To Commerce and Management Education Offered by Bangalore Rural Colleges"

Dr.Usha Devi.N., *MLA First Grade College for Women*
Smt. Bhagya GB., *NITTEE College*
Smt.Shashikala.K., *Vivekananda Degree College*
Smt.Rukmini K., *RC Govt. College*

Abstract

This is an empirical research study which investigates the application of ICT in rural Colleges, Bengaluru. Two hundred and twenty-five (225) teachers were selected as the sample for the study. A self-developed instrument on the availability and use of ICT was used for data collection. The instrument contained 25 items. The reliability co-efficient of the instrument stood at 0.88. The data collected were analyzed using mean percentages. The findings revealed: acute shortage of learning materials such as on-line/ internet-connected computers, e-mail facilities, multimedia television, multimedia computer and digital library. It was also revealed that the few available ones such as off-line/ordinary computers, scanner, printer and ready-made courseware are not utilized because the teachers lack the knowledge and skills of computer application. The only material identified as available and in use is the telephone. It was recommended the authorities should embark on a massive computer training program for teachers. Teachers should be trained and retrained through in–service training, seminars, workshops and conferences for acquisition of the knowledge and skills needed for ICT application in Colleges.

Key words: *ICT (Information Communication Technology), RC (Rural Colleges)*

Introduction:

Over the last two decades, the use of ICT has been an important topic in education and studies have shown that ICT can enhance teaching and learning outcomes. As a result, most of the curriculum documents state the importance of ICT and encourage teachers to use them. However, teachers need to be specifically trained in order to integrate ICT in their teaching process. ICT proficiency is not a straightforward process, but is the one that asks for a careful, multilayered approach. First, a need assessment is important to find out what ICT skills and knowledge teachers need at management institutions. Second, designers of teacher education programs should know the teacher's perceptions of ICT and their attitudes toward ICT integration into curriculum as these attitudes and perceptions are instrumental in how future teachers will use ICT in their teaching.

Although there is a great deal of research on technology and teacher education, because of specifics of various teacher education programs, changes in population trends, and rapid technology advancements, there is a constant need for more research about the role of ICT in teacher education programs in this specific context. We are at the threshold of a beautiful and eventful phase in the area of education. The mind of a learner wanders as and when it is bored and it's the responsibility of the facilitator to keep it on the right track. So the teacher should realize that in the right set of circumstances, the use of ICT can lead to profound learning gains. However, rather than falling into

the trap of arguing whether ICT is "good" or "bad", we need to move the debate into a much sounder intellectual basis.

In this age of Information and Communication Technology (ICT), there is growing concern for the use of ICT resources such as the computer, scanner, printer, Intranet, Internet, e-mail, videophone systems, teleconferencing devices, wireless application protocols (WAP), radio and microwaves, television and satellites, multimedia computer and multimedia projector in curriculum implementation. In e-learning, curriculum content in the form of texts, visuals, e.g. pictures, posters, videos, audio/sound, multicolor images, maps, and graphics, can be simultaneously presented online to students in both immediate locations (classroom model of e-learning) and various geographical distances (Distance Education model of e-learning).

E-learning in education is the wholesome integration of modern telecommunications equipment and ICT resources, particularly the internet, into the education system. Tracy (1995) defines the internet as the international network of communications in which computers in the Wide Area Network (WAN) talk to each other. *Shavinina (2001)* defines ICT as all the digital technologies, including: computer, scanner, printer, telephone, internet, digital satellite system (DSS), direct broadcast satellite (DBS), pocket-switching, fiber optic cables, laserdisc, microwaves, and multi-media systems for collection, processing, storage and dissemination of information all-over the world. E-learning as an aspect of ICT is relatively new in educational system. It is a departure from the conventional approach in curriculum implementation. The main purpose of e-learning is to transform the old methods and approaches to curriculum implementation and not to silence the curriculum or to extinguish or erase the contents of curriculum. E-learning is driven by the curriculum. It should follow the curriculum and should not rob the curriculum of its essence.

E-learning should ensure effective pedagogy and curriculum implementation in the computer age.

According to *Nicholls and Nicholls (1980), Mkpa (1987), and Offorma (2002),* curriculum implementation is the planning and execution of the contents of curriculum in order to bring about certain changes in the behavior of the learners and the assessment of the extent to which the changes take place.

Presentation, demonstration and the implementation of data using productivity tools

Use of curriculum – specific applications such as educational games, drills and practice, simulations, tutorials, virtual laboratory visualizations and graphics, representations of abstract concepts, musical composition and expert systems.

Use of information and resources on CD-Rom, online encyclopedia, interactive maps and atlases, electronic journals and other references

Similarly, the role of ICT in curriculum implementation is recognized by the Indian National Policy on Education, where it is stated that, "the government shall provide facilities and necessary infrastructures for the promotion of ICT and e-learning." It is against this background that the researcher intends to find out the extent of availability and use of e-learning materials by teachers in rural colleges.

Statement of Problem

The call for application of ICT in colleges is to infuse and inject efficiency and effectiveness in curriculum implementation. However, in India, ICT is challenged with the problem of material devices such as computer, computer laboratories, internet and e-mail facilities, videophone systems and teleconferencing devices, fax and wireless applications, digital library, digital classrooms, multimedia systems and also there is dearth of trained teachers for ICT. The problem is that ICT in colleges is challenged by the new technologies in terms of availability and use. It is against this background that the present study is carried out to find the answers to the following questions:

1. To know the various ICT materials available to teachers for curriculum implementation.

2. To what extent are the available ICT materials currently used by the teachers?
3. To understand the strategies for improving the use of ICT materials in secondary schools.

Methodology

The study employed a survey research design. The sample for the study was comprised of 225 teachers who were randomly selected from different colleges. Structured questionnaire on a four-point scale was prepared. The content validation of the instrument was established by ten experts. The reliability of the instrument was determined using the Pearson Product Moment Correlation. A reliability coefficient of 0.88 was obtained, an indication that the instrument was reliable for data collection. The copies of the questionnaire that were administered by the researcher were returned and used for computation. The data collected were analyzed using frequency distribution and mean. Since the items were structured on a four-point rating scale, the decision rule was based on the mid-point of the scale, 2.50. Therefore, items with mean scores of 2.50 and above were regarded as agreed or positive responses while items with below 2.50 were regarded as disagreed or negative responses.

Results

Table 1

Table showing the *mean responses on the availability of ICT materials for curriculum implementation*
N = 225

S/N	Items: Availability of Materials	SA	A	D	SD	X	Decision
1	Off-line/ordinary computers	52	138	23	11	3.03	AV
2	Telephone/wireless Applications	191	32	02	0	3.84	AV
3	On-line/Internet Computers	0	0	04	221	1.02	NA
4	Scanner	43	119	40	23	2.81	AV
5	Printers	46	152	19	08	3.05	AV
6	E-mail facilities	0	0	10	215	1.04	NA
7	Multimedia Television	0	0	03	222	1.01	NA
8	Multimedia Projectors	0	0	0	225	1.00	NA
9	Digital Library	0	0	0	225	1.00	NA
10	Ready-made courseware: CD-Rom, etc	35	116	57	17	2.75	AV

Table 1 shows that items 1,2,4,5 and 10 with mean ratings of 3.03, 3.84, 2.81, 3.05 and 2.75 are available. They include: off-line or ordinary computers, telephone and/or wireless applications, scanners, printers and ready-made courseware. The Respondents affirmed that items 3,6,7,8 and 9 with mean ratings of 1.02, 1.4, 1.01, 1.00 and 1.00 are not available. They include: on-line or internet connected computers, e-mail facilities, multimedia television, multimedia projectors, and digital library.

Table 2
Table showing the mean Responses on the Use of Available Materials

N = 225

S/N	Items: Use of Available Materials	SA	A	D	SD	X	Decision
11	Off-line/ordinary computers	0	04	08	213	1.07	NIU
12	Telephone/wireless Applications	193	30	2	0	3.85	IU
13	Scanner	0	0	5	220	1.02	NIU
14	Printers	0	04	06	215	1.06	NIU
15	Ready-Made courseware: CD-Rom, etc	0	0	0	225	1.00	NIU

Table 2 indicates that items 11, 13, 14 and 15 are available but not in use. They have mean ratings of 1.07, 1.02, 1.06 and 1.00. However, the only material available and in use is item 12 that is telephone and/or wireless applications with mean rating of 3.85.

Table 3

Table showing the mean *Responses on the Strategies for Improving ICT learning Applications*

N = 225

S/N	Items: Strategies for Improvement	X	Decision
16	Massive computer literacy program for teachers.	3.81	Agree
17	Adequate provision of online computers/e-mail.	4.00	Agree
18	Connection of classrooms/Auditorium to the internet.	3.91	Agree
19	Procurement of multimedia systems.	3.75	Agree
20	Provision of incentives for courseware development.	4.00	Agree
21	Provision of digital libraries.	3.97	Agree
22	Employment of computer technicians for routine repairs.	3.70	Agree
23	Provision of standby generators for regular power supply.	3.88	Agree
24	Provision of security for safeguarding e-learning materials.	3.67	Agree
35	Training & retraining of teachers through seminars, workshops, and/or conferences.	3.94	Agree

The table 3 shows that all the respondents agreed that adequate provision of online computers and e-mail, and provision of incentives for courseware development, with mean ratings of 4.00 and 4.00 respectively will promote ICT applications in curriculum implementation in colleges. The table also shows that all respondents somewhat agreed that items16, 18, 19, 21, 22, 23, 24, and 25 with mean ratings of 3.81, 3.91 3.75, 3.97, 3.70, 3.88, 3.67 and 3.94 respectively will promote ICT applications in curriculum implementation in colleges.

Discussion

Research question 1, indicates the availability of five out of the ten items listed for ICT applications. The five that are available are: off-line or ordinary computers, telephone or/and wireless applications, scanner, printers and ready-made courseware. This supports the findings of *Akinola (2005)* in which only five out of the twelve ICT tools needed for Business Education were available. This study is also consistent with the findings of *Ikemenjima (2005) and Jegede and Owolabi (2008)* that there are

infrastructural deficiencies and shortage of facilities, including: computers, computer laboratories and online-classroom for the study of Computer Education in colleges.

Research question 2, addresses the use of the available ICT materials for curriculum implementation. The respondents affirmed those items 11, off-line or ordinary computers; 13, scanners; 14, printers; and 15, ready-made courseware: CD-Rom, etc., were available but not in use as indicated in the mean ratings of 1.00 for each of them. The respondents indicated that the only material available and in use is item 12, telephone or wireless applications with mean rating of 3.85. This confirms the results of *Effiong (2005) and Jegede and Owolabi (2008)* that ICT materials such as computers, computer labs, printers, scanners, e-books, textbooks, workbooks and books on ICT are not available and not in use in colleges.

Research question 3, indicates that the vast majority of respondents agreed with items 16 through 25 as measures to take to improve ICT application in curriculum implementation in colleges. Providing a massive computer literacy program for teachers had a mean score of 3.81. Adequate provision of online computers and e-mail facilities had a mean score of 4.00. Connection of classrooms and auditoriums to the internet had a mean score of 3.91. Procurement of multimedia systems had a mean score of 3.75. Provision of incentives for courseware development had a mean score of 4.00. Provision of digital libraries had a mean score of 3.97. Employment of computer technicians for routine repair had a mean score of 3.70. Provision of standby generators for regular power supply had a mean score of 3.88. Provision of security for e-learning materials had a mean score of 3.67. Training and retraining of teachers through seminars, workshops, and conferences had a mean score of 3.94. The findings agree with *Sundarajan (2005), Evoh (2007), and Nwana (2008)* that teachers should have adequate training for computer education.

Recommendations for Prospective and Effective E-learning

In view of the problems hindering ICT in colleges, the following recommendations are offered for prospective and effective ICT learning:

- The government should embark on a massive computer literacy training program nation-wide particularly for teachers and learners at all levels. This should be accomplished through in-service training of teachers, workshops, seminars, and conferences. For students computer education should be a compulsory subject at all levels.
- All classrooms and auditoriums in colleges should be connected to the internet in order to enhance web-based instruction. The government should do this by paying internet connection fees to Internet Service Providers (ISP) to provide internet services.
- Videophone, teleconferencing and multimedia systems e.g. multimedia computers and multimedia projectors should be provided in adequate quantities by the government for effective ICT learning.
- Teachers in colleges should be motivated and encouraged to develop and use multimedia courseware and software relevant to teaching and learning. The government should motivate teachers through provision of adequate funds for courseware development.
- The government should provide digital libraries in every educational institution. The library is the highest reservoir of knowledge and no educational institution can do without it. Ensure that each digital library has a server for storage, retrieval, uploading and downloading of information.
- The government should employ technologists and technicians to take care of internet facilities and equipment and to carry out routine repairs within education facilities.
- The government should set up standby generators and uninterruptable power supplies

(UPS devices) to tackle the problem of epileptic or inconsistent power supply in order to support the use of electronic equipment for e-learning.

Implications of the study

ICT is a computerized and digital type of education in which texts, audio or sound, pictures, images, graphics and videos can be simultaneously presented online to students. Two models of e-learning are the classroom and distance education models. ICT enhances curriculum implementation through the development and use of multimedia courseware relevant to teaching-learning situations. Some multimedia course wares include Learning Activity Package (LAP), power point slides, and diskettes. Software may be ready-made or teacher developed instructional software. Problems hindering e-learning were identified as follows: a dearth of videophone and teleconferencing systems, massive computer illiteracy, difficulties in the internet application and use, difficulties in the use of World Wide Web (www), and problems associated with e-mail. Other factors include the opportunities for development and use of courseware, the high cost of digital libraries, cost of internet connection, cost of computer and its accessories, lack of multimedia systems, epileptic or inconsistent power supply, techno-phobia and resistance. In conclusion, the government should mount an intensive e-learning training program for teachers, as well as adequately provide all the materials needed for e-learning application in curriculum implementation.

References

1. **Akinola, C.I. (2005).** The Challenges of reform, information and communication technology in business education, curriculum and information technology. *Business Education Book of Readings*, 3(5) 120 – 125.
2. **Becker, H.J. (2000).** Who's wired and who's not: Children's access to and use of computer technology. *Journal of Children and Computer Technology,* 10(2) 44-49.
3. **Dutta, S. & Bilbao-Osorio, B (2012).** *The Global information technology report 2012: Living in a hyperconnected world*. Geneva: World Economic Forum and INSEAD.
4. **Effiong, J.E. (2005).** Business education in the era of information and communication technology: Issues, problems and prospects. *Business Education Journal,* 5(1) 3 – 7.
5. **Evoh, C.J. (2007).** Policy networks and the transformation of secondary education through ICTs in Africa: The prospects and challenges of the NEPAD e-schools initiative. *International Journal of Education and Development*, 3(1) 24 – 30.
6. **Federal Republic of Nigerian (2004).** *National policy on education.* Lagos: NERDC Press.
7. **Jegede, P.O. & Owolabi, A.J. (2003).** Computer education in Nigerian secondary schools: Gaps between policy and practice. *Meridian: A Middle School Technology Journal*, 6(2) 1 – 11. Retrieved from http://www.ncsu.edu/meridian/sum2003/nigeria/nigeria.pdf.
8. **Mac-Ikemenjima, D. (2005).** E-Education in Nigeria: Challenges and prospects. A Paper presented at the 8th UN ICT Task Force Meeting. Dublin, Ireland.
9. **Mkpa, M.A. (1987).** *Curriculum development and implementation.* Owerri: Totan Publishers, Ltd.
10. **Nicholls, A & Nicholls, H. (1980).** *Developing curriculum: A practical guide.* London: George Allen.
11. **Nwana S.E. (2008).** Information and communication technology (ICT) in education: The place of teleconferencing. *Journal of Adult Education Studies* (JAES), 3(1) 86-91.
12. **Nwana, S.E. (2009).** Computer education: A must for the development of the girl-child in Nigeria society. *Journal of Adult Education Studies*, 3(2) 38-44.

13. **Offorma G.C (2002).** *Curriculum implementation and instruction*. Onitsha: Uni-World Educational Publishers.

14. **Ololube, N.P., Ubogu, A.E., & Egbezor, D.E. (2007).** ICT and distance education programmes in a Sub-Saharan African country: A theoretical perspective. *Journal of Information Technology Impact*, 7(3) 181-194.

15. **Richmond, R. (1997).** *Integration of technology in the classroom: An instructional perspective.* Saskatchewan School Trustees Association - SSTA Research Centre Report, 97-02.

16. **Seiden, P.A. (2000).** Where have all the patrons of ICT gone. *Reference and User Services Quarterly*, *39(3) 2-10.*

17. **Shavinina, L.V. (2001).** *A new generation of educational multimedia: High intellectual and creative educational multimedia technologies.* New York: Mary Ann Liberty Publishers.

18. **Sundarajan, A. (2005).** ICT and education: Challenges and practices. *I4d: Information for Development*. Retrieved from http://www.i4donline.net/nov05/digitallearning.asp.

19. **Tracy, L. (1995).** *The internet companion.* New York: Addison-Wesley Publishers.

20. **Uhaegbu, A. (2001).** *The information user: Issues and themes*. Enugu: John-Jacobs Publishers.