INTEGRATING NEW TECHNOLOGY TO COMMERCE CURRICULUM: HOW TO OVERCOME TEACHERS' RESISTANCE?

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ABSTRACT
The electronic frontier is not something that education has embraced with open arms. There is a natural tendency to resist new ways of doing things. Our commerce teacher's attitude is responsible for the slow acceptance of modern technology in the educational environment. The paper explores the apprehensions of teacher in the implementation of technology and offers suggestions to integrate technology in the classrooms. Though the study is confined to Udupi District, the findings may be relevant to the entire commerce education.

INTRODUCTION
Change is the need for the day. The rapid pace at which technology is transforming the process of learning in many countries is almost unbelievable. The imperceptible momentum gathered by the engines of technology while at work in education will change the entire learning scenario like nothing else during the next few years. What is really amazing is that the developments are being telescoped into shorter and shorter time spans and this is the crux of the matter. As a result, the learning tools at the command of the children are getting more effective and sophisticated. At the root of this revolution is the personal computer, the television set, video cassettes, the satellite network and what not. And there is no stopping this avalanche of change as the world approaches the 21st century. Our commerce teachers cannot keep away from these changes.

The pressure for colleges to reform and faculty to change the method of instruction have intensified during the last decade Until teachers use the computer and become comfortable and confident using the computer, the computer may remain an isolated tool with either the potential to increase student learning, or the potential to increase the amount of dust it collects (Deborah, 2000). When teachers do not use computers, the likelihood of students using and becoming computer literate is drastically affected.   One must ask. "What can be done to encourage teachers to use computers in order to bring about change in the methods in which teachers instruct?" Therein lies the problem.

This paper brings about the actual and perceived difficulties faced by teachers in implementing new technology in the commerce classroom. The use of technology at colleges has left many teachers feeling rather perplexed.

The problem consists of five parts:
1. What are the factors that motivate a commerce teacher to use a computer?
2. What are the factors that impede a commerce teacher's use of a computer?
3. What are the personal needs that motivate a commerce teacher to use a computer?
4. Is there a significant difference between "new", "experienced" and "senior" commerce teachers' years of experience and the factors that motivate a teacher to use a computer? and
5. Is there a significant difference between "new", experienced" and "senior" commerce teachers' years of experience and the personal needs that motivate a teacher to use a computer?

"You can be given computers, but if you don't have the capacity and ability to use them, it can be disappointing," said KK Pai, educational administrator and former Chairman of Syndicate Bank   Teachers are teaching students in the same way they have done for years.   How can businesses, the community, and parents expect teachers to teach students how to use the computer, when faculties, themselves, do not use a computer?   What will it take to get faculties to become computer literate?   From previous studies, much has been written regarding factors that encourage and impede teachers to integrate technology into the curriculum. Very little has been researched regarding what it takes to get faculties, themselves, to use a computer.

Does the blame really lie with the teachers who think a mouse is something you don't want to find in the kitchen? Getting computers into colleges is not the answer. Our biggest stumbling block is getting teachers to recognize how technology can serve education and provide access to training. An attempt is made to probe this aspect by conducting a survey in selected colleges of Udupi district.

SIGNIFICANCE OF STUDY
It was anticipated that information gained from above questions would yield data presently not available to colleges and educators.   This information would also be helpful to faculty developers to determine the training teachers need in order to use a computer. With more teachers using the computer, teachers' proficiency levels would increase and more students would have the opportunity to become computer literate.   The goal to

transform our commerce colleges into the twenty-first century with effective teaching and learning strategies using computers would be achieved.

REVIEW OF LITERATURE
There are many studies conducted on ICT and applications of computer technology. Much work has already been carried out by researchers who themselves evaluated and analysed the existing research into ICT barriers and related topics. Albaugh, (1997) suggested that the factors that influence teachers' use of technology include: accessibility of hardware and software, administrative expectations and support for the implementation, and adaptability of classroom and work settings. As practical professionals, teachers are often suspicious of new claims and the implementation of new ideas without proof of effectiveness. Teachers tend to adopt a new technology when that technology helps them do what they are currently doing better; thus, they be seen as reinforcing the status quo.

Bosley and Moon (2003), Fabry and Higgs (1997), Mumtaz (2000) and Wild (1996)) and many other researchers, in addition to carrying out their own literature reviews, undertook studies to obtain primary evidence of the barriers to teachers' use of ICT, using a range of qualitative and quantitative methods and instruments. For example, much of the literature is based on surveys of practitioners, with questionnaires being completed by varying numbers of individuals. Studies ranged in size, from those with samples of as few as 22 practitioners (Snoeyink and Ertmer, 2001) to surveys of as many as 350 teachers. Other studies used interviews of practitioners to gain information (Butler and Sellbom, 2002; Granger et al., 2002; Guha, 2000).

Wild (1996) comments that while some research highlights poor access to technology and lack of opportunity as major causes, other reports suggest poor support in schools, lack of personal confidence in using learning technologies, and the nature of pre-service teacher education courses.

In an extensive literature review, (Cotton, 1992) found that computer-assisted instruction results in improved student attitudes in a variety of areas. These areas included improved attitudes towards themselves as learners, the use of computers in education, and towards computers in general, course subject matter, quality of instruction, and school in general. Studies cited by Cotton also indicate that computer-assisted learning results in higher levels of self-efficacy, higher school attendance rates, increased time on-task, and increased pro-social behavior.

Bianchi (1996) presented research identifying factors motivating teachers to integrate technology into the curriculum. These factors included staff development, availability of technology, district and school site support, student interest, and motivation.

Judged by the efforts done by those authors, it is pertinent that the barriers are still obvious, but these obstacles are slowly decreasing their magnitude and significance, teachers have started recognizing the importance and effectiveness of new technology in the classroom. This study is undertaken by keeping in view of the difficulties and institutional constraints faced by the teaching faculty of Udupi district.

OBJECTIVES
There are two fold objectives of this study. They are (i) To find out the opinion of Commerce Teaching College teachers about their inability to use modern technology in their classrooms and (ii) To offer suggestions and methods to overcome these constraints to use modern technology in their classrooms.

METHODOLOGY
The sample consisted of 76 Commerce Teaching College lecturers from 20 colleges belonging to Udupi District. The sample is based on random sampling method. The sample consisted of 46 male (60.53%) and 30 female (39.47%) Only first grade colleges imparting arts, science and commerce and computer science were being covered. Both Government and Private Colleges were selected.

We interviewed commerce teachers regarding their beliefs about adopting technology in their classroom. To prompt a discussion of this topic, the teachers answered an open-ended questionnaire. This survey asked questions about availability of computers and modern technology in colleges used for teaching, and the amount of use of these computers and modern technology, the factors that motivate a teacher to use a computer, the factors that impede a commerce faculty's use of a computer, the needs that motivate a teacher to use a computer, and the like. Questions on e-mail, power point, internet, computer graphics, LCD Projector, OHP, computer literacy, different applications were asked. Questionnaire items were written to elicit teachers' personal beliefs about technology adoption. Results from these questionnaires and interviews were transcribed.

Three-forth of teachers (57 or 75%) did not have any formal training in computer usage. However, 19(25%) of the teachers had some computer experience. This suggests that those teachers are proactive in that they did not wait to take required computer courses; instead, they learned to use computers informally. Computer ownership among the teachers was low. Only one-third of the teachers owned a computer. Most of them (62, or 81.57%) believed that college management as being not supportive toward efforts to improve their staff's computer literacy.

RESEARCH QUESTIONS
Research Question One
What are the factors that motivate a commerce faculty to use a computer?
First, there were four factors that proved to be conducive for commerce faculty to use computers.   Faculty wanted a computer located in the classroom. Every time bringing the computer and LCD to the classroom discourages the teachers. Secondly, they believed that computers saved time. Thirdly, faculty are interested in computers and. finally, they want to know that they will receive help (technical support) when needed. Continuous training and support for teachers is necessary for teachers who are beginning to use a computer. The second research question examined the factors that negatively impact computer use.

Research Question Two
What are the factors that impede a commerce teacher's use of a computer?
The factors that impede a teacher's use of a computer totaled four within this study.   The factors found to impede a teacher's computer use were:

1. The college did not organize any training to the commerce lecturers on how to use computers.
2. The teacher does not have required time to use the computers.
3. There are no financial incentive like additional pay to learn how to use a computer.
4. The teacher does not need a computer to complete his tasks. Some teachers teaching language felt that chalk and talk method is the best method of teaching.

Research Question Three
What are the personal needs that motivate a teacher to use a computer?
Teachers are motivated by personal and student interests before considering organizational goals. The location of the computer was a key to teachers' use of computers.   Teachers want computers accessible to them in the classroom.

Research Question Four
Is there a significant difference between "new", "experienced" and "senior" teachers' years of experience and the factors that motivate a teacher to use a computer?
This research question investigated whether there was a significant difference in responses by any of the three groups, related to motivations and personal needs. The research findings suggest that there is no significant difference between "new", "experienced" and "senior" teachers' years of experience for three of the four factors.

Research Question Five
Is there a significant difference between "new", "experienced" and "senior" teachers' years of experience and the personal needs that motivate a teacher to use a computer?

Only three of the ten motivating factors determined that there was a significant difference between "new," "experienced." and "senior" teachers' years of experience and the personal needs that motivated a teacher to use a computer.   The answer to the research question is "yes" for these three factors.   The three factors recognized significant difference between the groups were: (1) "I want to use the computer to assist with grading": (2) "I like sharing my knowledge about computers with others"; and (3) "I like being recognized as someone who uses computers."   The factor with the strongest agreement among the three groups of teachers was "the ability to use a computer is an essential skill for the twenty-first century."

OTHER FINDINGS
1. Teachers are motivated to use a computer when a computer is available in their classroom.
2. An element of compulsion may speed up the process. There is, at present no compulsion on the part of commerce teachers of Udupi District to study and to use the modern technology in the classroom. "I get my salary without using modern technology in the classroom" a respondent remarked.

3. Many teachers believe that lack of adequate computers in the colleges is responsible for effective implementation of new technology. Even proper training facility is not available to teachers to acquire ICT. Two colleges are not having any computers in their college.

4. Computer access in colleges is also a determining factor in acquiring this knowledge. However, it is not necessarily the case that a college with low access does not have enough equipment; it may be that the amount of equipment is adequate but inappropriately organized in the college. Equipment should be organized in such a way to ensure maximum access for all users. There are lot of restrictions for the teachers to have access to those computers, a teacher felt.

5. Lack of internet access in colleges is a stumbling block in many colleges. Udupi District revealed that 70 per cent of the colleges are not having internet access, 80 per cent of the Government Colleges are not having adequate computers. There is no free internet access to teachers in any of the colleges of Udupi District. Out of the internet having college, majority of colleges are having slow dialup connection, which is used for computer department purposes. Teachers are not having free access, any motivation to use this access.

6. Teachers are not having training in the skill of power point presentation; still they use the chalk and talk method. Out of 76 respondents, only 23 are having their own e-mail access, many are not having knowledge about its effectiveness and utility.

7. 70 per cent of the teachers felt that modern technology has very litter scope in Indian Higher Education. They felt that unless teachers are trained, adequate numbers of modern equipments are provided; ICT has little scope in Udupi District.

8. Resistance to change is a factor which prevents the full integration of ICT in the classroom. This resistance can be seen in terms of teachers' unwillingness to change their teaching practices, and also in terms of institutions finding it difficult or being unable to re-organize in ways which facilitate innovative practices involving ICT. Out of 20 colleges surveyed in Udupi District only 8 colleges are having LCD Projectors. 13 colleges are having Overhead Projector.

9. Teachers who do not realize the advantages of using technology in their teaching are less likely to make use of ICT. Any training program needs to ensure that teachers are made aware of the benefits of using ICT. Such training programs are not being organized in Udupi District.

10. Little evidence was found to support the view that age affects levels of teachers' ICT use. There are some very senior teachers who are experts in ICT. Younger teachers are no more likely to make use of ICT in their work than their more experienced colleagues.

11. There are some evidences to suggest that male teachers belonging to sample population use more ICT than female teachers. One of the female lecturer remarked that the compelling conventional household responsibility was a constraint to prepare extensively ICT oriented class.

12. It is also observed that while students almost always have some contact with computers during their secondary schooling, the same is not true while they undertake PUC of Degree. It is probably true that except Mangalore University every Indian University provides some type of computer facility for undergraduate students. However in Mangalore University courses there is no expectation or encouragement for students to use these computing facilities as an integral part of their course. Some faculty felt that this is one of the constraints for the development of modern technology in classroom in Udupi District.

13. Large classes may be a constraint in implanting new technology.

DISCUSSION AND SUGGESTIONS
Training
ICT training can help overcome barriers, yet it is also observed that there are weaknesses in the design and delivery of many courses. By focusing on basic ICT skills, training fails to prepare teachers to integrate ICT in their pedagogy on the other hand, found that computer novices preferred to be taught basic skills before addressing pedagogical integration of technology. This illustrates the need for differentiated training, taking into account teachers' varying levels of computer experience and learning styles. Within institutions offering initial teacher training, access to ICT can be problematic but a perhaps more serious barrier lies in the fact that tutors often have little experience of using technology to deliver the curriculum. A lack of encouragement to use ICT during teaching practice is another barrier.

External and internal barriers
Problems such as lack of equipment, unreliability, lack of technical support and other resource-related issues; organizational culture and teacher-level factors such as beliefs about teaching and technology, and openness to change are also obvious in the study.

Attitudes
Basically, the problem lies in attitude, awareness, application, access, and accomplishments. The electronic frontier is not something that education has embraced with open arms. There is a natural tendency to resist new

ways of doing things. Our commerce teacher's attitude is responsible for the slow acceptance of modern technology in the educational environment. Some respondents felt that it was less effort to keep on doing things the way they have always been done than to learn new ways of doing those things. Most of these people held the belief that the textbook should be focal point of instruction and the primary learning tool.

Some other commerce teachers were not exactly excited to use modern technology. They had the let's wait, and wait, and wait, and see attitude.

In most of the colleges the leadership tended to be traditional and hierarchical, and the commonest view of commerce teachers was that the principal was responsible for bringing about change. Any perceived 'backwardness' in ICT was put down to lack of infrastructure, support, or leadership from the management. Restrictive models of school administration, limited expertise, and no apparent stimulant to initiate ICT-related learning inhibited organizational learning in these schools. In seven of the colleges surveyed, every cheque pertaining to colleges were being signed by Chairman of the Managing Committee. The College Principal cannot take any financial decision.

Words like modem, email, upload, bps, ASCII, Internet, and file attaching are foreign and meaningless to some commerce teachers.. They are unaware that using electronic communications as a tool in the classroom can be very motivational to students as well as a medium for developing effective oral and written language skills, and geographical, cultural, and socio-political understanding on a global scale.

SUGGESTIONS

1. **Leadership:** The role of college leadership is clearly central in meeting several of these constraints. In those colleges which used modern technology, the leadership was collaborative, supported innovation and risk taking, and included others in decision-making experiences with others. An American case study (Dexter et al., 2002) paints a similar picture of successful schools and innovative schools. In six such schools Dexter and her colleagues found a strong commitment to, and support for, teachers' individual learning and widespread use of technology with a student - centered approach. "The presence of this need to learn and the supportive conditions to do so appeared to be reciprocal, or mutually supportive, of the development of professional community around technology use." (ibid.).

2. **College Planning and Implementation of Change:** All the stakeholders like classroom teachers, management, parents, students, educational experts must be involved in the planning and implementation of change. Only one college of Udupi district conducted "Developing Vision and Mission Workshop" which involved all the functionaries as noted above. Out of 20 colleges surveyed, 12 colleges are not having any formalized vision and mission statement, except some frequently changing statements written by some senior faculty without involving any stakeholders. These plans were seen as setting directions and priorities, as well as decisions about the deployment of learning support assistants, the hardware, software and infrastructure required (Evans, 2002).

3. **Whole College Use and Promotional of Resources:** There is considerable increase in the use of technology in the modern colleges. For instance, Manipal Academy of Higher Education is reported to have provided for senior teaching staff, personal notebook computers and email access and workspace. Video conferencing is available and the college has established its own intranet, placing all its resources on-line. The services of People soft have also been used. A striking feature in several of the studies is the move to viewing curriculum resources as something to be jointly developed by the staff. UGC has already initiated this kind of step through Consortium for Educational Communication (CEC). It has been planning in integration of theory of learning with modern technology. Many teachers are being trained in the development of e-content. CEC has been integrating in the development of teaching material which has been available to pupils on-line, for home or classroom use. The uses e-learning, satellite and video conferencing which allow pupils to present their questions, which are answered on-line are in the process of implementation.

4. However a move to whole college access to shared resources creates a need for training in their production and classroom use. The reluctance may be avoided by associating the training and acquisition of skills as part of a salary award. Teachers were expected to use the skills learned in creating online content, assessing students' work and collaborating with students, parents and colleagues. Appropriate resource analyzing and flexible, forward-looking planning, linked closely to what teachers actually want and need at any given stage, will be essential (Peter Scrimshaw, 2004)

5. **Sharing and Training**: There should be mutual confidence, mutual sharing of expertise and knowledge, then only imparting of educational technology in classroom and curricula can be developed. Willingness to learn and support each other may be kindled by this mutual confidence and trust. In study (McDermott & Murray, 2000) the authors felt that asking questions of each other, no matter how simplistic these seemed, and as they became more skilled they discovered more ways of integrating technology into the curriculum.

At the same time their open-minded approach made it possible to accept researchers' suggestions about giving students more choice and freedom, and time to problem-solve independently.

6. **Roles of technical support staff:** It is absolutely necessary to have close cooperation between all parties concerned is required. College should work to convince computer staff that reliability is very important, especially concerning technology in classrooms. They have to encourage the purchase of highly reliable technologies. There should be adequate support staff to maintain and train the application of technology.

SCOPE FOR FURTHER RESEARCH

While the research on the barriers to effective use of modern technology in general is undoubtedly important, more focused research on the barriers relating to the use of specific technologies is increasingly necessary. The reasons behind teachers' attitudes and anxieties also craving further research. There is ample opportunity for undertaking research on impediments and barriers and factors conducive specific to individual technologies, such as the internet, file sharing, e-contents or digital video. Such work could help in increasing the use of these technologies in the classroom. Necessary interventions may be made to streamline the use of these technologies in the classroom.

REFERENCES

Albaugh, P. (1997). The role of skepticism in preparing teachers for the use of technology. 'Education for community': a town and gown discussion panel, Westerville, OH, January 26, 1997.

Avalanche of change in the world of learning: The Hindu. Chennai: Sep 16, 1997. pg. 1

Bianchi, Pamela A. 1996. The identification of factors motivating teachers to integrate technology with the curriculum. Ed.D. diss.. University of La Verne, La Verne, CA.

Bosley, C., Moon, S. (2003). Review of existing literature on the use of Information and Communication Technology within an educational context. Derby: Centre for Guidance Studies, University of Derby.

Bosley, C., Moon, S. (2003). Review of existing literature on the use of Information and Communication Technology within an educational context. Derby: Centre for Guidance Studies, University of Derby.

Butler, D., Sellbom, M. (2002). Barriers to adopting technology for teaching and learning. Educase Quarterly, 25 (2), pp.22-28.

Cotton, K. (1992). *Computer-assisted instruction.* Northwest Regional Educational Laboratory. Retrieved October 26, 2001, from http://www.nwrel.org/scpd/sirs/5/cu10.html.

Deborah Y. Roddey Meyers (2000), The Factors That Motivate And Impede Computer Use By Teachers, Dissertation, Proquest Dissertations.

Dexter, S., Seashore, K.R. & Anderson, R.E. (2002) Contributions of Professional Community to Exemplary Use of ICT, Journal of Computer Assisted Learning, 18, pp. 489-497.

Evans, M. (2002) Open windows: becoming an e-learning school. National College for School Leadership (NCSL).

Fabry, D., Higgs, J. (1997). Barriers to the effective use of technology in education. Journal of Educational Computing, 17 (4), pp.385-395.

Granger, C., et al.. (2002). Factors contributing to teachers' successful implementation of IT. Journal of Computer Assisted Learning, 18 pp.480-488.

Guha, S. (2000). Are we all technically prepared? Teachers' perspectives on the causes of comfort or discomfort in using computers at elementary grade teaching. Paper presented at the Annual Meeting of the National Association for the Education of Young Children Atlanta, GA, November 8-11, 2000.

Ingwerson, Donald W. 1996. Meeting the technology challenge. Thrust for Educational Leadership 25, no. 6 (April): 6-8.

McDermott, L. & Murray, J. (2000) A study on the effective use and integration of technology into the primary curriculum. Saint Xavier University, Chicago.

Mumtaz, S. (2000). Factors affecting teachers' use of information and communications technology: a review of the literature. Journal of Information Technology for Teacher Education, 9 (3), pp.319-341.

Peter Scrimshaw. (2004). Enabling Teachers to Make Successful Use of ICT, Educational Resource Information Centre (ERIC) retrieved on October 2005 from http://www.eric.ed.gov/

Snoeyink, R., Ertmer, P. (2001). Thrust into technology: how veteran teachers respond. Journal of Educational Technology Systems, 30 (1), pp.85-111.

Susan Reimer (1996) Don't forget to teach the teachers; [FINAL Edition]. The Sun. Baltimore, Md.: Sep 29, 1996. pg. 1.J

Wild, M. (1996). Technology refusal: Rationalising the failure of student and beginning teachers to use computers. *British Journal of Educational Technology, 27*(2), 134-143.

Wild, M. (1996). Technology refusal: rationalising the failure of student and beginning teachers to use computers. British Journal of Educational Technology, 27 (2), pp.134-143.