

Factors Influencing Technology Integration in ELT

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Abstract: *According to research on technology integration in teaching, effective technology use has not been achieved in many instructional settings. The main purpose of the present study was to explore the factors and barriers influencing Computer-assisted Language Learning (CALL) integration in English Language Teaching (ELT) in Indian context. Using a 5-point Likert-scale questionnaire, 105 ESL teachers were surveyed for the study. The questionnaire focused on the perceived pedagogical, technological, personal and administrative factors influencing CALL integration in ELT. In addition, 15 teachers were interviewed to get additional information to answer the research questions. Overall, the survey results found that the barriers influencing CALL integration in the study context were moderate. However, the administrative and training areas were found to be significant barriers to CALL integration. The practical barriers to CALL integration manifested in the interview findings were from administrative, pedagogical and attitudinal point of view. The study suggests that the follow up activities and retraining are required for successful CALL integration in ELT.*

Key words: *Barriers to technology, CALL, ELT, ESL, ICTs.*

1. INTRODUCTION

Many schools in India have integrated Information and Communication Technologies (ICTs) in education. The educational policies of the country also focus on the necessity of successful technology integration (NCERT, 2006; NCTE, 2009). Although technology has been shown to facilitate learning, there is still difficulty in getting teachers to adopt it willingly. What influences the teachers' preferences toward ICT integration, especially when extensive investment in technology by the schools has been made? What types of barriers do teachers encounter in Computer-assisted Language Learning (CALL) integration in English Language Teaching (ELT)? This study will contribute to an understanding of teachers' motivators of CALL integration in ELT. It will provide relevant information that will help educational administrators arrange CALL assistance to those who seek to improve skills, awareness, and confidence, and it will help them better evaluate technology needs for language teaching.

2. FACTORS INFLUENCING TECHNOLOGY INTEGRATION

Though we live in the digital age, there is a slow change in instructional practices using technologies due to various levels of teacher's acceptance of e-learning tools. Still many teachers view technology as a supplementary teaching tool, and not as an essential component of successful teaching-learning process of our time. The barriers to the use of innovations are understandable. However, teachers need to be convinced of the value of CALL applications in English as a Second Language (ESL). It is becoming reality that today's effective teaching requires effective technology use. However, research suggests that we have yet not achieved high levels of effective technology use even in technologically advanced countries (Kozma, 2003; Mueller, Wood, Willoughby, Ross, & Specht, 2008; Smeets, 2005; Tondeur, van Braak, & Valcke, 2007).

The practical barriers to CALL practices are many and varied, and these imitations make it impossible to implement everything in the short amount of time allowed for CALL (Hatasa, 1999). Some researchers have suggested that lack of adequate teacher training poses a challenge to technology-enhanced instruction (Egbert & Thomas 2001). Some teachers feel uncomfortable using educational technology in their classrooms because they are not well prepared for technological problems; therefore, teachers tend to view CALL classes less favorably (Chambers & Bax, 2006). It is also found that sometimes new users of technology lack the ability to use language learning technologies

timely and appropriately (Clark & Gorski, 2001), that results in undesirable activities. Teachers' technological competency has been an issue in CALL barriers in many parts of the world. This lack of technical skills has been identified among pre-service and in-service teachers. Sometimes the ranges in teachers' ICT competency make teacher training complicated (Murray, 1998). Sometimes, teacher trainings fail to achieve the desired objectives as the outdated nature of the technology during training time bars teachers to use latest technologies (Abdal-Haqq, 1995). Most often, trainings lack follow up activities and retraining that is required when new technologies and materials become available (Northrup & Little 1996).

Another challenge to technology integration is teachers' inhibitions. Some teachers are not intrinsically motivated to use technology and react negatively to situations, which require them to do use technology (Egbert & Thomas 2001). Many teachers do not have favorable attitudes toward the effectiveness of educational technology even though it is viewed often as an effective instruction strategy (Akbaba & Kurubacak, 1999). These teachers stop to continue using technology in a pedagogic manner once training has ceased. Butler-Pascoe (1995) observes that technology-training programs often incorporate funding that allows participants to have access to resources for the duration of the course or some limited time that follows. Once these resources become unavailable the teachers often neglect to continue practicing the technology related skills they have learned, which shows little impact of technology teacher training programs on how teachers think about and implement technology in the class room (Feiman-Nemser & Remillard 1996). Another serious issue is that though some teachers' beliefs regarding technology integration are quite positive, each step they take to the actual implementation of technology is slow and narrow (Chambers & Bax, 2006; Meskill, Mossop, DiAngelo, & Pasquale, 2002). Similarly, some other explanations regarding insufficient CALL training are lack of funding to expand programs, too many other issues that require attention, and a wide spread belief that those who are interested in CALL will simply "pick it up" (Kessler, 2006).

Ertmer (1999) categorizes the barriers that negatively influence teachers' decisions to use technology and subsequent behaviors teachers might encounter as first-order or second-order barriers:

Thus, *first-order barriers* to technology integration are described as being extrinsic to teachers and include lack of access to computers and software, insufficient time to plan instruction, and inadequate technical and administrative support. In contrast, *second-order barriers* are intrinsic to teachers and include beliefs about teaching, beliefs about computers, established classroom practices, and unwillingness to change. While many first order barriers may be eliminated by securing additional resources and providing computer skills training, confronting second-order barriers requires challenging one's beliefs systems and the institutionalized routines of one's practice. Thus, in terms of technology integration, this may require reformulating basic school culture notions regarding what constitutes content and content coverage, what comprises learning and engaged time, and even, what behaviors define 'teaching.' (p.48).

Mahdi (2013) concluded that for CALL normalisation to be occurred, five major issues should be addressed i.e., personal, technical, pedagogical, socio-cultural, and institutional. Hani (2014) attempted to highlight the barriers to CALL. The findings revealed that the most significant barriers were: (1) inadequate number of computers, (2) technical problems, (3) needs more teacher training, (4) more time is needed, and (5) the cost is high. Hedayati & Marandi (2014) found that the obstacles in implementing CALL in language classrooms could be classified into three categories: teacher, facility, and learner constraints. According to findings of Lin, Huang, & Chen (2014), the most critical barriers to these language teachers' adoption of ICT were insufficient support and insufficient time for developing technology-driven pedagogy and activities. Studying on teachers' perceptions on blended learning situations, Mohsen & Shafeeq (2014) categorized the barriers into three: teachers' incompetency in IT, students' incompetency IT, and Technical Problems.

Thus, the factors influencing and barriers to CALL integration are many and varied. They vary according to situations. However, there are few studies that highlight factors influencing CALL integration in Indian ELT scenario. The present study attempts to fill this research gap, and is expected to give a sense of perception for effective future CALL ventures in Indian contexts.

3. METHODOLOGY

The main purpose of this study is to explore the factors influencing CALL integration in ELT. The study seeks to answer the following research questions:

1. What factors influence teachers’ use or non-use of different technological tools in their teaching?
2. What are the main barriers that English teachers have to CALL integration in their classes?

105 ESL teachers were selected as a sample of this study. They were teaching English at secondary schools. A manual survey was used to gather data from the participants. The survey was constructed by the researchers, containing two unfold sections: demographic information about the participants and their perception of the factors influencing CALL integration in ELT. Using a 5-point Likert-scale, the questionnaire ranged from 1-5 (1 means “strongly disagree” to 5 means “strongly agree”). To ensure the validity of the survey, it was first piloted by 10 teachers; their feedback was useful for modifying some items. The survey was also given to two experts in the field to examine its validity. Some items were modified as per the experts' suggestions so as to achieve the content validity. A reliability analysis was calculated for the survey. The reliability results were (Cronbach’s alpha) 0.78 for all the survey items, indicating the items were very high and acceptable. In addition to the survey, 15 ESL teachers were interviewed to get additional information to answer the research questions.

4. RESULTS

The results are discussed in two sections: survey results and interview results.

4.1. Survey Results

The survey questionnaire included 13 statements on factors influencing CALL integration in ELT. Since the focus was on barriers, all items were worded in negative tone. These items were focused on the perceived factors influencing CALL integration in ELT, which include pedagogical, technological, personal and administrative points of view.

Table1. *Descriptive Statistics of Factors Influencing CALL Integration*

Statement	Percent						
	SA	A	N	DA	SDA	M	SD
I think CALL materials are too expensive to use in education.	2.86	45.71	20.95	27.62	2.86	3.18	0.97
Computers at our school are outdated.	1.90	16.19	27.62	48.58	5.71	2.60	0.89
I do not have knowledge in using ICTs.	2.86	12.38	10.48	55.23	19.05	2.25	0.99
We do not have good instructional software in the local market.	1.90	41.90	24.76	28.57	2.86	3.11	0.94
I am concerned about students’ access to inappropriate materials.	5.71	53.34	31.43	8.57	0.95	3.54	0.77
I think teachers do not have time to use computers or the Internet.	4.76	16.19	16.19	51.43	11.43	2.51	1.05
I think students do not have time to use computers or the Internet.	0.95	15.24	18.09	54.29	11.43	2.40	0.92
I think training opportunities are inadequate to integrate ICTs in teaching English.	8.57	53.34	11.43	19.05	7.61	3.36	1.12
I do not have administrative support to integrate ICTs in teaching.	0.95	31.43	23.81	40.95	2.86	2.87	0.93
There is lack of technical support or advice at my workplace.	1.90	47.62	18.10	27.62	4.76	3.14	1.00
I do not have pedagogical knowledge to integrate ICT into language teaching.	1.90	23.81	22.86	44.76	6.67	2.69	0.97
The present curriculum does not require CALL applications.	0.95	17.14	19.05	42.86	20.00	2.36	1.02
Most teachers at my school do not want to change from the traditional methods.	3.81	36.19	13.33	38.10	8.57	2.88	1.11

Note. N=105; SA=Strongly Agree; A=Agree; N=Neutral; DA=Disagree; SDA= Strongly Disagree; M= Mean; SD= Standard Deviation.

Table 1 shows percentage of the responses, mean, and standard deviation of the participants' perceptions of the factors influencing CALL integration. The mean scores ranged from 2.25 to 3.54. The total mean of the 13 statements is 2.84, indicating that the overall mean of the statements is *moderate*. This shows that the participants, in general, had mixed responses to the statements. It is interesting to note that while the participants agreed to some factors that play as barriers to effective CALL integration, they did not agree to some other factors. Most participants agreed or strongly disagreed to item 5 (59.05%, $M=3.54$, $SD=.77$) and item 8 (61.91%, $M=3.36$, $SD=1.12$). Analysis of item 5 and 8 shows that the participants had concerns regarding the students' access to inappropriate materials. In addition, most participants thought that the existing training opportunities were inadequate to integrate ICT/CALL into the given ELT context. The participants agreed moderately to item 1 (48.57%, $M=3.18$, $SD=.97$), item 4 (43.8%, $M=3.11$, $SD=.94$), item 9 (32.38%, $M=2.87$, $SD=.93$), item 10 (49.52%, $M=3.14$, $SD=1.00$) and item 13 (40 %, $M=2.88$, $SD=1.11$). Those items covered the areas of the cost of CALL materials, the unavailability of suitable materials, lack of administrative and technical support, and teachers' unwillingness to change from the traditional mode. Participants moderately agreed to those issues. On the other hand, most participants disagreed or strongly disagreed to item number 2 (54.29%, $M=2.60$, $SD=.89$), item 3 (74.28%, $M=2.25$, $SD=.99$), item 6 (62.68%, $M=2.51$, $SD=1.05$), item 7 (65.72%, $M=2.40$, $SD=.92$), item 11 (51.43%, $M=2.69$, $SD=.97$) and item 12 (62.86%, $M=2.36$, $SD=1.02$). Those items covered the areas like the outdated computers at school, the teachers' lack of ICT/pedagogical knowledge, lack of time for teachers and students, the non-requirement of CALL for the curriculum. Teachers, in general, disagreed to the idea that lack of knowledge or time hinders effective CALL integration.

4.2. Interview Results

Among the participants of the quantitative stage, fifteen selected ESL teachers were interviewed to get additional information. In this study, the interview included two questions: "What factors influence teachers' use or non-use of different technological tools in their teaching?", and "What are the main barriers that English teachers have to CALL integration in their classes?"

Interview Question 1. What factors influence teachers' use or non-use of different technological tools in their teaching?

Two subthemes emerged from the theme regarding the factors influencing CALL practice. The theme, subthemes and issues are summarized in Figure 1.

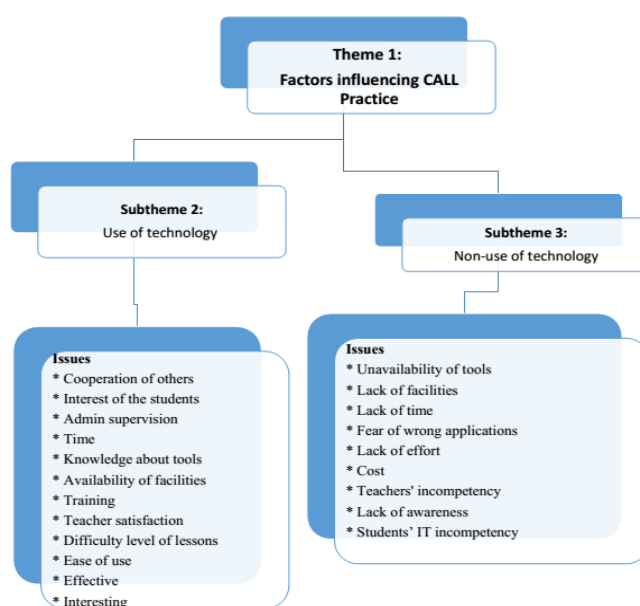


Fig1. Summary of Factors Influencing CALL Practice

Use of technology. The first thing mentioned by some of the participants was cooperation. There should be cooperation among colleagues, students, technical staff, and administrators to integrate CALL to teaching-learning process. Another factor mentioned by the participants was interest of the students, which would make the teachers interested to practice CALL activities. One of them

suggested, there should be constant supervision of the administrators to make CALL a regular practice. Time factor was another idea suggested by some of the participants, that is, the teachers should be given enough time to practice CALL related activities. Most participants viewed knowledge about the technology tools as an important factor deciding the teachers' use of CALL. Teachers should know about the importance of technological tools in their teaching, so that they would try to implement in their classroom practice. Availability of facilities was cited as another important factor for CALL practice. Many participants agreed to this. Teacher satisfaction was another factor that one of the teachers mentioned. Teachers who excel in using CALL might enjoy high job satisfaction. Another teacher viewed difficulty level of lessons prompts teachers to use CALL as a supplementary tool. One of the participants was thinking that the ease of use might make some teachers use CALL. Another recurring idea about the use of CALL would be its effectiveness in teaching-learning process. Apart from its effectiveness, the interesting nature of CALL practices also played a significant role for the use of CALL.

Non-use of the technology. Most of the participants were of the view that unavailability of suitable tools make the teachers not use CALL in their teaching. Similarly, most participants asserted that lack of facilities at workplace would be another important factor influencing teachers' non-use of technology. Some participants thought lack of time another factor. Interestingly, one of them viewed fear of wrong applications would make teachers not to use technology. Some of them viewed cost of technology another factor influencing non-use of technology. According to these participants, arranging latest facilities would be expensive and many school administrations might not be able to afford it. As one of the teachers responded, some teachers who were new to CALL might find it difficult to shift their roles from a traditional face to face approach to a technology enhanced learning situation. This difficulty was partly because of their incompetency in handling technology. As many teachers' noted, non-availability of technical staff might deepen this difficulty situation. A few participants thought lack of awareness and lack of effort are other factors influencing teachers' non-use of technology. Students' poor response to CALL activities might be a matter of concern, as some teachers said. Another factor was the language barrier for lower level students as CALL applications would be in English and students might find it difficult to handle them in the absence of adequate training. Interestingly, one of the teachers was of the view that students would be distracted towards other online activities such as social networking and YouTube.

Interview Question 2. What are the main barriers that English teachers have to CALL integration in their classes?

Three subthemes emerged from the theme regarding the barriers to classroom CALL. The barriers were manifested as administrative, pedagogical, and attitudinal. The theme, subthemes and issues are summarized in Figure 2.

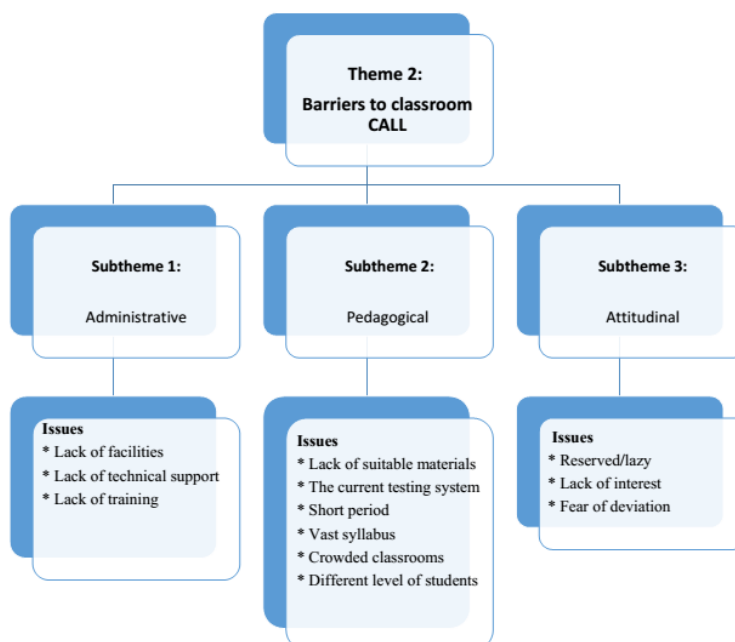


Fig2. Summary of Barriers to classroom CALL

Administrative. Among the barriers to CALL integration, administrative barriers emerged as the most frequent idea presented by most participants. Most participants asserted that lack of facilities played as an important barrier to effective CALL integration. For example, many schools did not have basic facilities to integrate CALL. Some schools did not have audio-visual room or Internet facilities. To make CALL a regular practice, most classrooms are not equipped with basic facilities. Sometimes, lack of technical support, including power failure, played as an important barrier. Some teachers thought of technology as an unreliable entity. Complex nature of some applications might discourage their use, as one of them observed. Another barrier come under this category is related to lack of training. Some teachers asserted that teachers were not trained enough use CALL applications in teaching-learning process.

Pedagogical. Many issues emerged in this category. As observed in the interviews, many participants found pedagogical concerns as barriers to CALL integration. Most teachers asserted that lack of suitable materials for the course requirements played as a barrier to many teachers. The available CALL materials might not be suitable for the course requirements. A few of the participants blamed the existing testing system, which is based only written form only. Some participants were of the view that teachers did not have enough time to practice CALL during their class time. Time constraint was caused by the reality of vast syllabus to be covered. Along with vast syllabus, crowded classroom is another barrier to effective CALL integration. This was an idea shared by some of the participants. Along with the crowded classrooms, different level of students might be another barrier.

Attitudinal. Teachers' attitude towards change played a significant role. Some teachers were found to be reserved or lazy. Participant no. 1 asserted:

Some teachers' attitude is negative. This attitude blame others/system for their own fault. This is mostly because of laziness to know CALL.

This reservation was because of lack of interest. Another barrier noted by some participants was fear of deviation. Too much emphasis on CALL applications might discourage real classroom attendance, one of them complained. Though most teachers supported the benefits of learning with technology, there could be some observations like this (participant no.14):

“Well, it’s not valid to apply on all of the language skills. Learning a language always needs more real normal interactions”.

5. FINDINGS AND DISCUSSION

The items in the survey were categorized into four subscales: pedagogical, technical, administrative/training, and attitudinal. Four statements (4, 5, 11 and 12) were related to barriers to CALL from pedagogical point of view. The responses to the statement were varied (SA and $A=36.66\%$, DA and $SDA=38.81$, $N= 24.53$, $M=2.93$, $SD=.93$), indicating a moderate value. Two statements (2 and 3) were related to technical aspect. Most participants disagreed or strongly disagreed (64%, $M=2.43$, $SD=.94$) to the statements in this subscale. Contrary to some previous findings (Murray, 1998; Mohsen & Shafeeq, 2014), lack of technical knowledge and lack of updated technology are less significant barriers as compared to barriers related to pedagogical concerns. The subscale in which most people agreed or strongly agreed (48 %, $M=3.14$, $SD=1.01$) was related to administrative/training aspects. The four statements (1, 8, 9 and 10) belonged to this subscale. As almost half of the participants agreed to the items in the scale, the administrative/ training areas were significant barriers to CALL. This is in the line of some previous studies (Chambers & Bax, 2006; Clark & Gorski, 2001; Egbert & Thomas 2001). Though teachers were confident of their ICT skills, they perceive lack of training is a barrier to integrate CALL in actual teaching-learning process. As suggested by some researchers (Northrup & Little 1996; Halttunen, 2002), follow up activities and retraining are required when new technologies and materials become available. However, most participants disagreed or strongly disagreed (58 %, $M=2.6$, $SD=1.03$) to the statements in the subscale related to attitude. There were three questions (6, 7 and 13) in this subscale. The low mean shows that teachers' attitude does not play as a significant barrier, and most teachers possess right attitude towards CALL integration. Overall, the survey results show that factors/barriers influencing CALL integration in the study context are moderate.

The interview results listed a number of factors that determine the use and non-use of technology by teachers. Many of these factors have been recurrent in previous studies (Hani, 2014; Hedayati &

Marandi, 2014; Mahdi, 2013). In addition, the interview found some practical barriers to CALL integration. They include both first-order and second-order barriers (Ertmer, 1999). The barriers were manifested as administrative, pedagogical, and attitudinal. Such issues are discussed in previous studies as well. Lack of administrative support has been a recurring theme in many previous studies (Hani, 2014; Hedayati & Marandi, 2014; Mahdi, 2013; Mohsen & Shafeeq, 2014). In the line of the survey, during the interview many issues emerged from the pedagogical point of view. They are lack of suitable materials for the course requirements, unsuitability of available CALL materials, existing testing system, lack of time to practice CALL during class time, vast syllabus, crowded classroom, and different level of students. This is in the line of the findings by Hani (2014), Hedayati & Marandi (2014), and Lin, Huang, & Chen (2014). Though overall perceptions of teachers are positive, there are some minor attitudinal issues like laziness, lack of interest, and fear of deviation, which may emerge as moderate barriers in some contexts.

6. CONCLUSION

Practical barriers to CALL integration in language teaching can be varied in different contexts. However, there are certain issues that have been recurrent in many studies. The present study highlights some of these issues that need to be addressed for successful technology enhanced language learning process. As lack of administrative support has been a recurring theme in many previous studies, educational administrators need to equip the workplace of our time in such a way that enhances easy CALL integration. The administrators should be aware of the factors that determine the use and non-use of technology by teachers. An important area that needs attention is teacher training to use new technologies. It is also suggested, along with training, follow up activities and retraining are required for successful CALL integration in ELT.

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