Critical considerations for planning and implementing a CALL program

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Abstract: The field of Computer Assisted Language Learning (CALL) has transformed dramatically—from the days of the behaviourist approach that dominated CALL in the 1970s to the dynamism of Interactive approach in the 1990s under the immense influence of information communication technology (ICT). Regardless of these periodic changes and improvements, successful implementation of CALL programs in schools decisively hinges on critical assessment and decisions that are undertaken by schools. As such, the responsibility of the technology adopters in this respect must reflect school's aspirations and understandably, students' abilities, interests and needs. This paper attempts to clarify these issues through a case study of implementation of CALL in an urban secondary school in Malaysia. The outcome of the case study establishes critical considerations that need to be arbitrated to successfully implement CALL programs for English language teaching (ELT) at the school level.

Key words: CALL; critical practices; program planning and implementation

1. Introduction

In the last 30 years, Computer Assisted Language Learning (CALL) has significantly changed, especially when the uses of computers literally expanded, revolutionizing the mode of communication, presentation of ideas and materials, and knowledge seeking and sharing. With the advent of information and communication technology (ICT), particularly the Internet, these "reformations" of CALL have become even more intense and require effective hybrid approaches to ensure successful implementation of CALL-based materials and programs. Hence, many practitioners and institutions of higher learning integrated and incorporated e-learning, web-based learning, and networked learning—wholly or hybrid—to enhance and solidify their English language learning and teaching programs. Parks, et al (2003, p. 28) explains that because of these changes, new forms of literacy have emerged and educational institutions worldwide are beginning to think about the "revision of curricula and modes of functioning in order to better prepare students for life outside school". This stems from the fact that governments throughout the world, since the mid 1990s, are turning to these new forms of technology and literacy, "not only acknowledge their importance in the world of education, but perhaps also a means of improving the educational process economically …" (Cameron, 1998, p. 1).

Accordingly, platforms that support CALL programs, the development techniques of CALL materials, and pedagogical approaches to CALL changed as well. For example, online environment or networked environment flourished, paving the way for a truly hybrid effort to support interactive approaches to CALL programs. Also, multimedia and hypermedia tools were freely integrated to perfect the development of CALL materials, and constructivist and socialist theories of learning were strongly incorporated into the overall structure and conduct of CALL programs. All these culminate into an engaging learning culture that requires English language students

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to learn together and from each other, construct and reconstruct knowledge, critically analyze and evaluate the reconstructed knowledge, and share the reconstructed knowledge (Kabilan, 2005, 2004; Clark & Mayer, 2003). In computer mediated communications (CMC) based activities, such learning experiences will assist students to apply "a range of coping and comprehension strategies, make connections and observations, transfer learning from other contexts, and demonstrate an increasing degree of audience awareness" (Mynard, 2004, pp. 23-24).

In Malaysia, many of the CALL initiatives undertaken by schools, under the supervision and auspices of the government, have their own set of objectives. The Ministry of Finance, Tun Daim Zainuddin, in his 2001 Malaysian Budget Speech in Kuala Lumpur on October 27, 2000, outlines the aims of the government-led initiatives for the schools:

> … to produce more computer literate students who have initiative and are intelligent, creative and independent. It is my hope that students will also take the opportunity to learn the English language as it is the main language of the ICT world.

One of the main initiatives implemented nationwide is the Smart School Programme, which started in 1998 with the first phase involved 100 schools throughout Malaysia and was completed by 2002. Through this project, 2,200 computer laboratories were built and were fully equipped with computers and educational software and courseware. However, most schools embarked on "quick-fix" strategies to enable students to gain immediate information and skills that will facilitate students' English language learning for examination purposes rather than build the students' personal skills, intelligence, creativity and independency as envisioned. To make things worse, the quality of the CALL materials, which basically comprised of CD-ROMs, software and courseware became obsolete—As time went by, the materials were no longer utilized by teachers, and became outdated in a relatively short period of time. The main reason for this is the manner in which the materials were developed—The consortiums awarded the project were given very little time to think critically about the curriculum, develop the materials and soundly pilot the materials. In addition, the pedagogical approach to its implementation was damagingly ignored, and training and support system emaciated drastically. Eventually, the CALL materials and programs were deemed as "a disappointment" by teachers and academics (Kuldip & Kabilan, 2005; Supyan, 2004).

This study is initiated in the wake of the failure of the CALL program implementation. The author believes that lack of serious considerations of various aspects of planning, developing and implementing led to the unsuccessful CALL materials and programs. So, what would a successful implementation of CALL program entail? In which conditions would the program be successful, and for whom it would be most successful? The latter, the author considers of utmost importance to really understand the fundamental issues that ought to be addressed before even planning a CALL program at the school level. As Towndrow and Vallance (2004) conclude in their book, "using IT in the language classroom", understanding this fundamental issue may prove crucial in terms of facilitating "transformation of language pedagogy across a broad spectrum of classroom practice" (p. 308).

So, what is the current stand on the effective implementation of CALL programs at school level? Means (1994) states that computers do not "provide adequate instructional in and of themselves" (p. 13), and goes on to argue that planning activities supported with computers is far more influential in establishing an industrious CALL program. Egbert, Paulus and Nakamichi (2002) assent to this by singling out activities planned and framed by curriculum that influences outcomes for the use of computers. Nadzrah and Mickan (2004) also scrutinize that

the CALL program in their study was “highly dependent on they syllabus and the objectives of the curriculum” (p. 20). These severely indicate that CALL programs have a tendency to adhere to the curriculum and syllabus sphere of the concerned educational settings. Such an approach gives rise to the question whether the CALL programs introduced should reinforce existing curriculum or explore into new areas of language learning. Another significant aspect, as Warschauer (2000) mentions, is the students’ understanding of the purpose of computer based-activities and how they make the connections between the planned activities to their cultural and social surroundings. It is not only the students, but as Ghayth (2004) aptly stresses, teachers roles must change with the changing times—Teachers need to “re-think, re-examine and re-discover their roles”, so that connections can be made between “educational institutions, like schools and universities, and society to make the educational process vital and workable” (p. 105). It is obvious that many factors are associated to the successful implementation of CALL program at the school-level, but this study should offer somewhat meaningful insights in terms of how a CALL program should be implemented, and how the educational goals and objectives, streamlined with the local educational settings and context, are met from the perspectives of teachers and students.

Therefore, this study has the following objectives:

(1) What are the positives experiences or learning gained by the students, teachers and school as a result of implementing a CALL program?

(2) What are the negative experiences or learning gained by the students, teachers and school as a result of implementing a CALL program?

(3) From the positives and negative experiences or learning, what are the critical considerations that need to be thought of before implementing a CALL program?

2. Methodology

This study is a qualitative study, utilizing open-ended structured questions and interviews with teachers and students, with the main aim of understanding the conditions in which a CALL program would be successful and for whom it would be most successful, and eventually identifying and determining the critical considerations for the planning and implementing of CALL in a school. According to Mohd. Majid (1994), qualitative studies such as in this study, can aptly be used to understand a phenomenon in examination.

The coding strategy is used to analyze the data. This technique enables the researcher to direct the reoccurring patterns or themes, and physically extract and separate a particular type of themes of the implementation of CALL program at the school level. The coding is based on “situation codes” and “activity codes”. The aim of the situation codes is to place units of data that tell the researcher how teachers and students define a successful CALL settings. The questions that frame the situation codes are: (1) What do the teachers hope to accomplish in the CALL program, and how they accomplish them? (2) How do the teachers and students define what they accomplish or benefit from the CALL program? (3) How do the teachers view their world in terms of the successful CALL program? (4) How do the teachers see themselves in relation to the successful CALL settings? (5) What is important to the teachers in terms of CALL? As for activity codes, they are directed at regularly occurring kinds of teachers’ behavior in implementing CALL and also students’ reactions to CALL. Questions are like: (1) What positive experiences or/and learning are gained from the CALL program in place? (2) What negative experiences or/and learning are ascertained and discovered from the CALL program in place? Both these codes could be informal and formal in nature (Bogdan & Biklen, 1992). The meanings deciphered from the data

are then categorized into a schema that detail out critical considerations that contribute to the successful implementation of CALL program at the school. Three teachers and 20 students of the lower secondary school and upper secondary school participated in this study. They responded to the above questions regarding the planning and implementation of the CALL program at the school.

3. CALL in a school

The selected school is situated at the outskirt of Kuala Lumpur and is assigned the status as an urban school by the Minsitry of Education (MOE). Though urban, many of the students are from the surrounding areas that are quite under privileged in terms of facilities, social-economic background and safety. The school is an all-girls school, with almost 2,200 students. These students are studying in lower secondary classes (form 1-3) and upper secondary (form 4-5). In terms of CALL, the school has been using CLE, a courseware developed by an American company, since the year 2000. The program envelops various skills and aspects of reading, writing, grammar, listening, speaking and pronunciation. It also caters for various levels of difficulties, ranging from “beginner” to “advanced” and different levels of education—lower secondary and upper secondary school. Though CLE is an American product, its content and syllabus were “localized” to fulfill the curriculum specifications of the English language subject taught in Malaysia.

The English teachers in this school initiated the CLE program with the consent and support by the school administrator and parent-teacher association (PTA). The CLE is installed in the school’s computer lab that has 21 networked computers. All students are involved in the CLE program, and they are guided, facilitated and assisted by 16 English language teachers. Each student is allocated about 80 minutes per week to use the CLE. During those 80 minutes, the students attempt to complete the lessons and tasks that are pre-assigned to them by their respective teachers. Each student is assigned different levels of lessons and activities as to cater to their language capabilities and needs. This allows the students to learn according to their abilities at their own pace and more importantly, with the assistance of teachers.

According to the teachers interviewed, they consider the implementation of CALL program at this school successful because the students’ performance in school-level examination improved, but more significantly, they made this observation also in relation to the increased proficiency level of the students and also their confidence in using the language in and outside the classroom. The teachers also notice that most of the students, over time, have become more active and participative in activities in classrooms. Albeit no systematic research is conducted to confirm their observations, the teachers are sentient of the behavioral changes within the students that are becoming more and more discernable, as far as English language learning is concerned. These positive outcomes have encouraged the school to invest more in similar technology to assist students in other areas of education. Namely, the school has upgraded the existing CLE program and purchased additional CALL programs to supplement and strengthen the current practices of teaching and learning of English. They have also hired, with the encouragement and financial support of PTA, a technical assistant to support teachers and students in ensuring a smooth teaching and learning experiences using the programs that are available in the computer lab.

4. Findings and discussion

The findings from the questionnaire and interview can be categorized into two major types of findings—positive findings and negative findings. Both reveal understandings and observations can be taken into

consideration while constructing the schema.

4.1 Positive findings

Apparently, as indicated by teachers and students, the CLE program encourages students' learning and boosts their confidence in using the language, especially weaker and average students, who thoroughly enjoyed learning using the CLE program. Student 5, for instance, is so delighted with the program, "because we can learn more English lessons by computer". The idea of using computer to learn English is an eye opener and amazement to many weak students. One student says she is very pleasantly surprised to see "a room of full of computers and the computer has all kinds of things"[1] (student 20). Some of them feel "very proud" to be given the opportunity to learn English using computers and be part of the CALL program at the school level, connecting to their confidence building as a student of English as a second language.

Another positive outcome is that the students are beginning to realize the huge potential of the use of computers for language learning. They are cognizant of their own improvement and progress in the language. This is because the exercises in the CLE programs guide the students towards perfecting their understanding of the English grammar. Student 15 states that, "The CLE program gives more notes and exercises. This enables us to understand English easier … my English grammar has improved after using this CLE program". Student 13 concurs quite similarly, "In this CLE program, it gives more notes to us to understanding the grammar exercises … through this CLE program, my English grammar had improve very fast … (and) many (other) students had improve their English". While student 8 openly declared, "Yes, I had improve my English!" The fact that the CLE program is interactive and gives immediate feedback to the students, substantial and concrete learning takes place. Student 9 explains, "I do many questions in computer so that I can understand it … computer help me to do the terms or question based on the notes given"; by that she means the guided grammar exercises and answers given and the clear explanation that follows after the guided exercises. With the aid of CLE, the students are not only learning the language but also knowledge of the world, encapsulated by these excerpts: "The CLE make me know about many things" (student 16); "It gives me more information" (student 12); "The CLE program increase my knowledge in education" (student 1).

With the enhancement of students' language learning and knowledge attainment though attributed to the features of the CLE program, the teachers remark that the success of the CLE is also associated to the students' interest "to try" (teacher 1), and their willingness to take the initiatives to learn with the program (Teacher 3). However, on the overall, teacher 2 does not wholeheartedly agree that the CLE program has been successful in terms of students' learning. She argues that, "It may have helped a little in terms of exciting the school to use multimedia but on the whole they would learn more by reading other materials … it does not classify as a major factor in students' learning". Perhaps, she sees some validity of the questions asked by Moras (2001, p. 3), " … when there is language production, does it promote students' dual concern for communicating meaning using suitable forms? Does it elicit repetition or expansion of previous language?" But one thing that all three teachers agree is that the weak and average students are improving linguistically in the aspects of reading, pronunciation and vocabulary because of the high level of exposure to English materials that the students are experiencing with the CLE program. Tozcu and Coady's (2004) study also finds that students aided by a CALL program showed increases in vocabulary gain and reading comprehension. Tozcu and Coady's (2004) reason is that,

[1] All excerpts in this paper are cited as the students and teachers write them. Due to weak linguistic abilities, their written responses are weak. The proceeding interviews assisted the researcher in comprehending their responses accurately.

> Individualized vocabulary learning on the computer will almost certainly facilitate vocabulary acquisition. Moreover, this increased vocabulary knowledge is very likely to have significant positive effect on reading comprehension, and rate of speed for frequent word recognition… this study indicates clear and positive findings in support of such pedagogical method because a large benefit was gained for a rather small amount of time. Decrease in reaction time for frequent word also contributes to successful reading comprehension (pp. 491-492).

The three teachers are able to discern the progress of the students in terms of reading and vocabulary because of a tool in the CLE program that allows students' progress to be monitored, checked and documented. The teachers underpin this facet of the CLE program, which has the ability to "check students' progress on the spot" (teacher 1) and "check students' results immediately" (teacher 3).

From the students' learning perspective, the CLE program reinforces their learning in two ways. First, their learning experiences with the teachers in the confinement of the classroom is shifted and expanded in the computer lab later on, thus deepening their understanding of a particular topic or/and language input. Student 11 points out that when she "plays" the program, she remembers "what did I learn" earlier in the classroom. Student 12 agrees, "We learn the subject in the class and then we learn in the program". Second, the teachers allow their students to explore and venture into the program without prior classroom induction to the topic or lesson concerned. This is a strategy that engages the students to think about their own learning and of the topics, and to construct their own understanding and views of the topic without the teachers' imposing their set of beliefs on the students. Paulo Freire (1970; 1973) strongly supports and acknowledges students' capabilities to decode or make sense of ideas and concepts without labeling them as "empty vessels" that need to be filled in with "appropriate" knowledge and ideas. Teachers who fail to acknowledge students' individuality, as Kabilan (2000) reminds,

> … often lead a boring and unimaginative language classroom because of the minimal participation and involvement of learners. The learners will feel "left-out" and assume their opinions and beliefs as not relevant or important enough to be heard in classroom. Eventually, this would pave the away to a moulding process of passive language learners, and be a cause to the detriment of creative and critical thinking (p. 631).

Ideally, the teachers should act more as a navigator. As teachers in this study, whereby they do carry out facilitating and assisting work with the students whenever difficulties arise. In contrast to the students' earlier experience with teachers as the "provider", the teachers' roles are now reversed—they are the "learning reinforcer" who help students with understanding the content, encourage students to make meaningful connections to the knowledge learnt, explain and clarify students' doubts and reservations. Some of the students do recognize and emphasize the teachers' dynamic participation in helping them achieve their learning goals while using the CLE program—"I ask my teacher when I don't understand" (student 11). "The teachers effectively use the program to teach me and when I don't know the word, she will explain with me" (student 16). "They were very helpful to us when we were learning in the lab" (student 8).

All three teachers imply that the use of CLE program serves as an alternative to the traditional methods and techniques of teaching and learning. It appears that the use of computers for learning and teaching English language in the school has brought about fresh and stimulating experiences for both students and teachers. Teacher 2 feels that such a program is beneficial and can be "variegated, and other elements introduced and it should be widened to other subjects", while teacher 3 states she is happy that she is presented with "an opportunity to learn to use the computer for teaching and learning". It also have spurred her on to "read up on the use of computers in teaching and learning" so that she can be confident in the use of the CLE program for teaching and learning purposes, and thus ascertain "effective teaching and learning". Teacher 1 similarly expresses her pleasure of using

computers in the teaching and learning process as she "love(s) computers". She has "mastered the program" and has "learnt some methods of trouble shooting", which means that she now has the ability to "be an independent and efficient facilitator".

Another critical issue highlighted by the teachers is the commitment of the school. School level commitment (Marjorie, 1994) with participation and cooperation from all teachers should forge strong collegiality which is the underlying factor to a positive, consequential and successful CALL program. Elsewhere, participants in Egbert, Paulus and Nakamichi's (2002) study also cites their colleagues as the most commonly used resources for finding out about new activities. This is perhaps because teachers seem to "learn best by seeing methods used in actual classrooms, by trying out new techniques and getting feedback on their efforts, and by observing and talking to fellow teachers" (US Congress, 1995, p. 80). Encouragement and support from administrator also play a key role in promoting and sustaining a positive culture in the school to integrate technology into teaching and learning of its school community. In addition, as mentioned earlier, the PTA's close ties with the school administration too generates and adds value of the whole program. According to teacher 2, she "was not in this school when the program was implemented", and though sceptical, she fully comprehends the magnitude of the impact it has on students by suggesting that such programs should include other subjects as well.

4.2 Negative findings

Some of the high proficiency students, as well as the weaker and average students do get bored easily after some time with the CLE program even though they believe it is useful for them in learning the English language. For instance, student 3 says it is "very boring and not fun", insinuating that the CLE program has to have more than just typical features of a CALL program. The teachers also note that exercises are stereotyped, predictable and repetitive. This problem is more of a challenge to provide a cognitively challenging computer enhanced learning environment that would stimulate students' minds and their interests, and thus maximize their language learning potential (Clarke, 2004). It is an alternative that ought to be given serious consideration to ensure students' interests are sustained and their motivation in using CALL programs to learn is heightened.

The teachers interviewed identify that some teachers lack the understanding of the CLE program, particularly in assigning lessons and tasks to the students, and the pedagogical aspect of using CLE. A number of teachers, who were directly involved with the CLE when first initiated, have transferred to other schools. Unfortunately, the new teachers who replaced them seem to be lost with the overall structure, system and aims of CLE. The school administration underestimated the power of retraining of teachers to refresh and upgrade teachers' knowledge and skills of handling CLE, and then use those knowledge and skills to construct new pedagogical ways of maximizing the CLE to support students' learning. The school did not realize the significance of continuous training, and as a consequence, it is felt that teachers are beginning to lose direction and interest with CLE. The training, as a standard procedure, must focus on "specific examples, but be based on general principles that can be called upon and re-used in order to simplify the acquisition for new hardware and software" (Windeatt, 1998, p. 22). The "general principle" should involve the technical training (operating the program) and more importantly, the pedagogical training (effective teaching and learning strategies via CALL) and curriculum training (familiarizing and understanding the content). The absence of training, coupled with the constant yearly increase of number of students, means that the ratio of student-computer is increasing beyond the school's capacity, and the school is becoming less and less capable in offering an ideal environment for CALL. The school needs to pursue a more systematic and meticulous plan to sustain teachers' active involvement in CLE and also fuel students' interest. Without a proper plan, the school is bound to lose its earlier success, and all the time and hard work put

so far into making the CLE as a rewarding CALL program will mean nothing.

5. Implication: Critical considerations for ELT

The two critical questions that framed this study are: (1) What would a successful implementation of CALL program entail? (2) In which conditions would the program be successful, and for whom it would be most successful? And against the backdrop outlined by these two questions, the author examined and inquired the teachers' and students' views of and practices with the CLE program. They narrate practical insights into best practices and policies that should be considered so that CALL programs could be effectually implemented. Fundamentally, the roles of teachers during the planning, implementing, and monitoring and evaluating stages are decisive. Also, the support and encouragement from school administration and PTA invigorate favourable situations for teachers to work towards the perfection of technology integration into everyday teaching and learning engagements with their students.

Table 1 Framework for planning and implementing CALL programs

Aspects of program	Teachers' roles	School administrator's roles
Cater to all students (with different abilities).	Identify students' abilities. Assign lessons corresponding to students' abilities.	Periodic and constant identification and evaluation of students' abilities. School level reports.
Program contents and structures should encourage students' learning and knowledge acquisition.	Identify and stress upon critical incidents from the program and immerse them into classroom teaching.	Pedagogical/curriculum training in the use of the program.
Program contents and structures should reinforce students' learning and existing knowledge.	Nurture the ability to make connections and link vital contents of the program to the syllabus.	Pedagogical/curriculum training in the use of the program.
To function as an alternative teaching technique.	To vary teaching methods and techniques, not to rely on solely on the program and replace the teacher.	Pedagogical training in the use of the program. This is to ensure that teachers act as facilitators in the use of the program.
Program should be able to monitor and track students' progress.	Constant tracking and monitoring of students' progress with the program.	Class and school level monitoring to assess effectiveness of the program and how much students have benefited from it.
Contents of program are regularly updated to mirror current issues and knowledge.	Understanding and know-how of the program. Training (new teachers) and retraining of teachers (existing teachers).	Allocation of funds: (1) purchase of new programs; (2) updating existing programs; (3) product training; (4) pedagogical/curriculum training.
Program contents are able to capture students' interest, excitement and curiosity (infrastructure and multimedia considerations).	Evaluation and assessment of programs; keeping in mind students' abilities and needs.	Provision of proper guidance and system of evaluating and assessing programs. Systematically managed program: (1) students' needs analysis; (2) teachers' needs analysis; (3) school's needs analysis.

The framework (Table 1) is drawn and constructed based on the positive and negative findings derived from the study. This framework shows critical considerations that are needed to successfully plan and implement a CALL program. This framework, which has to be kept in mind, is based on the setting of the school examined in this study. Nonetheless, it is applicable to other context and background with similar educational conditions, objectives and aspirations. Its focal point is on the teachers' and administrators' roles and functions in integrating CLE, which are discussed in terms of the features of CALL program. Leahy's (1998) important connection in her review of Michael Levy's *Computer-Assisted Language Learning: Context and Conceptualization*, " … between computer capabilities and actual CALL materials, and an acknowledgement of the 'fit' of technology with

language pedagogy should be considered from the outset of CALL materials production" (p. 18) implies that suggesting a framework is not a panacea to the successful implementation of CALL—big and all—encompassing considerations are needed. Nevertheless, the framework can be used to, at least, guide and advice teachers and schools on the basic requirements of successful implementation of CALL. The framework assumes and stresses the importance of localized and thematic elements that suit the needs and conditions of the school, as the findings of this study yields.

The suggested framework (Table 1) assumes that both students and teachers have the requisite computer literacy. Computer literacy of the school community is an extremely important factor that should be determined before a school-level CALL program is planned and implemented. If inadequate, appropriate provisions must be made to elevate the students' computer literacy (Nadzrah & Mickan, 2004) and teachers' competency in giving the students the needed computer literacy. The elements of the framework, it must be reiterated here, are based on the findings of the case study, and thus may not embody all aspects of CALL. Probably, in a positive way, this framework proposes that only aspects discovered by research and needs analysis should be taken into consideration for the planning and implementation of CALL programs for that school, which also means that a different school with different needs and findings from research should have its own framework as a planning guide, and its own structure and system for implementation of CALL programs. Nevertheless, this framework would serve as a general guideline for school administrators to seriously think and consider the critical and important practices, planning and implementation procedures for an effectual outcome.

The above framework postulates that there are seven main factors that need to be given critical considerations by schools if they were to plan and implement a school-wide CALL program. In order to ensure successful planning and implementation of the CALL program, both teachers and administrators have specific and crucial roles to play as far as the seven factors are concerned. All these seven factors need to be considered and put into place simultaneously, and appropriately aligned with pre-determined aims and objectives.

6. Conclusion and implication

The school in this study ought to consider these immediate suggestions so that their journey into making CLE as a successful CALL program to help the success that school desired be attained. From my personal observation and reflection based on interviews with the teachers and students, these two suggestions represent dynamic efforts that should resolve many of the emerging problems the school is to face:

(1) Increase the number of license of CLE program

This circuitously denotes the need to increase the number of computers and upgrade the system in the computer lab. Apart from making the CLE accessible to all students on a one-to-one basis, it will also minimize the technical errors and glitches, as identified by teacher 1.

(2) Put in place a proper school-level monitoring system that captures the progress of the students

At the moment, the practice is limited to the teachers' resourcefulness and initiatives to record and chart their own students' achievement and progress. A primed structured and systematic school-level monitoring and evaluation system will depict a translucent backdrop of the true extent of impact of the CLE. These kinds of information may also well set in motion future projection for the entire CALL scheme at the school, in chorus with educational targets set by the school.

As for CALL designers and developers, they can gain a great deal from this first-hand experience of the

school, and accordingly, may want to unlearn existing "know-what" and "know-how" information, and re-examine their research and development direction. In addition, as strongly suggested by Chappelle (1998), the designers and developers of CALL should also bear in mind the "hypotheses about ideal conditions for second language acquisition" (p. 21) that are derived from the research of second language acquisition. They need to take into account that language learning and teaching involves students and teachers from various backgrounds and abilities, contexts and learning situations, and motivation and beliefs as demonstrated by the students and teachers in this study. They may want to have this questions answered in the designing and developing stages, "Is the CALL program flexible enough so that teachers could manipulate the program's features to harmonize with school's situations (students, teachers, administrators), and manipulate school's situations (students, teachers, administrators) to harmonize with program's features? Is the program interactive, challenging, stimulating and exciting enough to sustain the students' interest, and as such, motivate the students to want to learn further with the program?" Answering these questions will enable the developers to come up with CALL programs that are meaningful for students, teachers and school administrators.

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