

LAWFUL INSTRUCTION OF USING CALI FOR HIGHER SECONDARY LEVEL STUDENTS IN PAKISTAN: THE POST COVID-19 CONTEXT

¹ASMA ABDUL AZIZ, ²DR. MEHMOOD UL HASSAN, ³DR. MOHD HILMI BIN HAMZA

¹Assistant Professor, Department of English, Mir Chakar Khan Rind University Sibi, Balochistan-Pakistan

eshmallinks@gmail.com

²Associate Professor, Department of English, Mir Chakar Khan Rind University Sibi, Balochistan-Pakistan

drmehmood.eng@mckru.edu.pk

³Assoc. Professor. SLCP Universiti Utara Malaysia

hilmihamza@uum.edu.my

ABSTRACT

Post-Covid-19 pandemic situation has created a dire need to use computer in the instructional methodology synchronising with other online resources in the classrooms. The present study was conducted to examine the effects of using computer synchronised by Penzu software as online source for teaching English to the higher secondary school students in Punjab, Pakistan. The study used experimental design and conducted a classroom experiment of 40 higher secondary school students (20 experimental & 20 in control group) through pre/post-tests over different period of time to examine development in students' writing skills. On post-test-I, it was observed that students in the control group showed sudden rise in the development of writing skills compared to experimental group. But, on post-test-II and III, students in the experimental group showed consistency in the development in writing skills while control group could not maintain their consistency of development in writings. Hence, findings of the study revealed that using computer as a tool for instructions and Penzu as online resource to conduct writing activities proved more useful in improving students' writing skills compared to the students in the control group. Finally, findings also revealed that students became more independent in self-corrections in the experimental group and continued to expand their learning outside the classroom while control group was dependent on teacher and could only find time in the classroom for corrective feedback which limited students' learning to their classroom. In addition to this, the study recommends that further computer applications and other online resources can be more useful in language instructions apart from teaching writing skills. Besides, findings of this study have significant theoretical and practical implications pertaining to EFL teachers' professional development, teaching skills and students' learning environment.

Keywords: EFL students, Post-Covid-19 issues, secondary schools, professional development, teaching strategies.

INTRODUCTION

For the last two decades, the interest in the development of computer technology in language teaching has grown among researchers (e.g., Alderson, 2019; Fidelia, 2019; Murray, 2018; Wedell, 2019). The basic barriers in using CALI in EFL classes, according to Markee (1997), are divided into three groups: teacher-related, system-related, and school-related. Teacher-related barriers are related to the teachers' lack of knowledge and understanding; gender, age and experience are not in harmony with the teachers' own beliefs and values. They may have negative opinions and consider CALI as an additional workload. They may bind themselves to the existing and traditional practices, and the new change becomes a threat to them (Wahaba, et al., 2019; Yani, 2019). System-related barriers are due to the lack of mutual understanding and trust between providers and users, such as between administrators and teachers (Hassan & Sajid, 2019). Wedell (2019) argued that there is a need to put the teachers in the hub of the technological process. Likewise, Carless (2011) emphasises the contextual-based approaches (using CALI in the teaching environment so that students may learn through practical and actual experience with a subject rather than just teaching theoretical parts like computers, the Internet and multimedia). The extensive field of linguistics requires paying more attention to the importance of using CALI that can contribute to language i.e. teaching reading, writing, listening and speaking skills according to the context



(Hussain et al., 2022; Waters, 2017; Zakaria et al., 2019). School or institutional- related barriers are mostly due to a lack of supportive culture for change in societies. There is also a very conservative atmosphere in educational institutions with a dearth of supportive management and inadequate school resources. In response to the COVID-19 pandemic and government or policymakers, districts and schools became more attentive to using CALI to teach writing skills and support EFL students. However, school heads and teachers were found not to have ample skills to implement CALI effectively to instruct their students (Altavilla, 2020; Saidi & Afshari, 2021).

The progress in EFL teaching in writing skills demands administrators as well as instructors to engage EFL students through distance- learning outside the classroom in Pakistan (Farooq & Soomro, 2018). In this regard, multi-media and computers with the additional application of the Internet may be helpful to English teachers and students. Being skilled in using technological equipment, teachers can be a powerful source to bring changes in the educational system by encouraging and applying these powerful devices in English language teaching in Pakistan.

In the globalized world, sometimes governments and policymakers are forced to adopt and borrow the technological innovations that other countries are applying (Ali et al., 2021; Iqbal & Rafi, 2018). In Pakistan, the government and policymakers have been for some time been planning to introduce the latest technologies in education, but the instability of the political situation prevents the benefits of this system (Farooq & Soomro, 2018). In the Pakistani education system, English teachers are divided into two sections: (1) those that have no tendency to use CALI in language teaching and want to continue using the traditional methods of teaching; and (2) those who want to use CALI in EFL teaching. From primary to secondary levels, all the teachers are provided with periodical training on using computers so that they can upload assessment or evaluation reports online to the administration in the COVID-19 situation (Chong, 2019). However, the focus on using computers for instructional purposes is entirely ignored. At the higher secondary level, EFL teachers do not have opportunities to attend computer training organised by the district administration.

LITERATURE REVIEW

Unlike second language acquisition in general, CALI does not have a specific theory. However, the concept of CALI comes from various sources, including general learning theories like social constructivism, the community inquiry theory and the online collaborative learning theory. The practical goal of CALI users and researchers is to produce and analyse learning opportunities. Through this, CALI pushes language instructors to consider a number of already established foreign language learning (hence forth FLA) acquisition theories. These existing theories were developed partially in response to meet the need to theoretically construct the role of CALI in FLA. This was the gap in which existing language learning theories had to be filled with the induction of computer technology so that multiple theoretical perspectives (social constructivism, community inquiry theory and online collaborative learning theory) could be merged. This induction of CALI into FLA theories can be the useful development of language materials and tasks. A similar theoretical idea was mentioned by Hubbard (2015) who suggested a typology for the connection of multiple theories to research in CALI and practice. In the past, much of the CALI work were theoretically produced without any particular framework or theory, though it was going through a great change.

Hence, the present study constructed the theoretical framework that could be used to produce better results in improving students' writing skills. This is where the present study revealed the theoretical contribution. The effect of cognitive theories, e.g., information processing and sociocultural theories like the activity theory and the online collaborative theory, is very much evident in connection with CALI (Mahdi & Al-Dera, 2020). However, in many of the earlier studies, either the quantitative or the qualitative method was used (see, e.g., Pathan, 2018; Riasati et al., 2018). This provided a methodological gap in using a mixed-methods research design in the present study, as recommended by Hubbard & Levy (2016). Exploring the impact of the main factors such as gender, age and experience on using CALI in teaching English in Pakistan is much needed (Memon et al., 2020). This can help policymakers, administrators and parents to decide how to make CALI more useful for EFL students' writing skills in English.

In Pakistan, employment and educational tests are based on writing, but due to the traditional method of teaching writing skills, students' writing skills are alarmingly weak (Haider, 2020). Although English language users in Pakistan exponentially increased to 59% in 2015 from 2% in 1961 (Dar & Khan, 2019), they still face issues in the English language, particularly in writing. These issues as dealt with in advanced countries, can be resolved if teachers and students make it a habit of applying CALI. Thus, The current study used the Penzu software in CALI to improve students'

writing skills by involving teachers and English language learners. The class time at the higher secondary level lasts for only 40-45 minutes, and for this reason, EFL teachers cannot provide ample feedback to correct and provide comprehensive instructions to students' writing in a traditional classroom. Besides, students cannot get sufficient time to receive proper instructions (Ahmed & Qasim, 2019). These issues, generally arising in the classroom, make students incompetent in syntax, coherence, idea expansion, content selection, topic sentence, rhetorical conventions, mechanics, organisation, lack of vocabulary, and inappropriate use of vocabulary (Atique & Khan, 2019). In order to deal with these issues, the researcher used CALI with the additional use of the Penzu software in the computer labs. This software is particularly designed to help students in improving their writing skills. The use of Penzu in CALI saves students' as well as teachers' time and energy.

The review of the research discussed above provided a methodological, theoretical and demographical gap with reference to using CALI at the higher secondary level in Pakistan.

RESEARCH QUESTIONS

The following research questions are addressed in the current study:

1. What is the effectiveness of CALI in improving higher secondary school students' writing skills?
2. Is there any gender-based difference among EFL teachers' attitudes towards the use of CALI for writing skills?

SIGNIFICANCE

The present study would significantly encourage administrators to establish EFL teachers' professional development on practical grounds so that they can use CALI in EFL classes (Madhavi, 2019). This study highlighted the need for stakeholders, administrators and policymakers to invest in the technological infrastructure to fulfil the professional requirement.

The use of the Internet is an essential element for online teaching and learning. Shehzad et al. (2018) informed that the first international electronic network at the University College London began in 1973. For the last few decades, demand for the Internet is increasing globally in the realm of education (Jadoon et al., 2022; Rehman, 2020; Shehzad et al., 2018).

It is proved by several studies that CALI is an approach to teaching and learning in which the computer and computer-based resources such as the Internet are used to present, reinforce and measure the material to be learned (e.g., Tahira et al., 2020). This wave of internet usage particularly increased during the COVID-19 pandemic in Pakistan, where using the Internet was not in fashion before (Rehman, 2020; Ullah et al., 2020). However, the sudden breaking out of the COVID-19 pandemic has changed the present cult of teaching methodologies in Pakistan. The present study contributes to these emerging trends in Pakistan by using CALI and the use of Penzu software. Therefore, the integration of computer technology has been considered suitable in the current scenario.

RESEARCH METHOD

The study was experimental in nature in which 40 student participants were the population selected through purposive sampling technique. The experimental group were given training before the study regarding the use of the software (Penzu) while control group was provided no treatment. Hence, they attended EFL classes according to their routine. The details of the training are given in Table 1 below.

Table 1
Time Table to Train Students to Use Penzu (N= 40)

Lectures	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
Contents	Introduction to Penzu	Adding new entries	Solving multiple choice test	Cloze/Fill in the blanks	Open-ended tests	Reflecting on writing
Time	10-11 am	10-11 am	10-11 am	10-11 am	10-11 am	10-11 am

The students in the experimental group were given lectures on how to use Penzu for six days. On the first day, students were introduced to Penzu and its functions and on each day one hour of training was given. Students learned how to log in and how it works for improving writing. On day 2, they learnt to make new entries and blogs. They made their entries and revised this practice thrice. On day three, they were told about solving MCQ tests. On day 4, Cloze/fill in the blanks questions



were solved by them and on day 5, they learned about writing open-ended questions and on the last day, they learnt to reflect on their writing. Each day, the students logged in and made new entries and hence, they were ready for the experiment. Table 2 shows quantitative sampling. The participants of the study were selected by the purposive sampling technique. The experimental (twelve males and eight females) and control groups (twelve males and eight females) consisted of 20 participants each, since the language laboratory for the experimental group could accommodate only that number. They had just started to use computers while taking the ICS (Intermediate in Computer Science) course which aims to provide the students with the basic uses of computers in word-processing, sending e-mails, etc. Procedure of the experiment for pre and post-tests is given in the table 2.

Table 2
Pre-/Post-tests' Time and Content

Type of test	Time of test	Topics/items
Pre-test	Beginning of experiment	Criterion-referenced multiple-choice cloze/fill-in-the-blanks Open-ended Open writing (How is school life? Describe in your own words)
Post-test-I	After 8 weeks	Criterion-referenced multiple-choice cloze/fill-in-the-blanks Open-ended Open writing: You visited a zoo in your town with your friends. Write your experience of how you planned and how you enjoyed yourself?
Post-test-II	At the end of the experiment	Criterion-referenced multiple choice, cloze/fill-in-the-blanks, open-ended and open writing: What is your future plan after your exams? What and do you want to be and why?

VALIDITY OF THE INSTRUMENTS

Reliability is referred to as the accuracy and consistency of the measuring instrument. It is also alluded by research scholars like Greener (2008) and Harvey (2018) that the instrument, procedure or strategy utilised in the study reasonably estimates the suggested idea. On the other hand, Ahmad and Rao (2019) upheld the significance of face validity.

TEST-VALIDITY AND RELIABILITY

Tests selected in the study were sent to three experts in mathematics from the University of Sargodha and the Mir Chakar Khan Rind University in Sibi, Pakistan. They were full professors. The tests were reviewed by them, and after two weeks, their reviews were received with positive comments.

They recommended checking the test-retest reliability because when researchers measure a construct that they assume to be consistent across time, the scores they obtain should also be consistent across time (Cacioppo & Petty, 2019). Assessing the test-retest reliability requires using the measure on a group of people at one time, using it again on the same group of people at a later time, and then looking at the test-retest correlation between the two sets of scores. This is typically done by graphing the data in a scatterplot and computing Pearson's *r*. Figure 3.0 shows the correlation between the two sets of scores on the Rosenberg Self-Esteem Scale, administered two times, a week apart. Pearson's *r* for these data is +.95. In general, a test-retest correlation of +.80 or greater is considered to indicate good reliability.

DATA COLLECTION

Students in the CALI grammar instruction group for writing skills received computer-assisted language learning grammar instruction from the Interactive online programme in the classroom. Students logged in to Penzu as they were already given the training to operate Penzu. All twenty students made their diaries for understanding the verbs in tenses, conditional sentences and passive forms, sentence completion and use of adverbs and adjectives. Every student created a

schedule of his/her own. This permitted the students to work even outside the classroom. Each student practised daily on each grammatical item and writing task. In the third week, they made a general diary for open writing on travel, school, work, friends and family. Students were free to look back in their diaries to see how they had progressed. On week 8, post-test-1 was conducted. All twenty students completed their open writing test, and their written draft was printed out for assessment, and the results were compared with the pre-test results. Students continued their similar practice, and post-test-II was conducted. Again the students' written draft was printed for assessment and compared to see any improvement in writing.

DATA ANALYSIS

The data were analyzed by using the IBM Statistical Package for Social Sciences (SPSS) (Version 28). To assess the open writing, first, the errors of the pre-test from both the experiment and the control groups were recorded, coded, graded, and input into the software package SPSS. The number of initial postings and reply postings was calculated. An independent samples t-test and paired samples test were conducted to examine the differences between those two groups. The areas of grammatical errors were analyzed.

RESULTS

Table 3
Independent Samples' t-test (Pre-test) Analysis of the Gain Score Difference in Total

	Group	N	M	SD	T	df	Sig.
	Control	20	8.000	4.123			
Total diff.	Experimental	20	5.35	6.623	1.445	32	.160

Table 3 above shows the statistical results of the pre-test in which all effects were reported at the 0.5 level of significance. The reported difference between the control and the experiment groups' gain scores was not statistically significant, $t(26, 545) = 1.445$, $p = .160$, $r = 0.25$. The mean scores were 5.35 (experimental group) and 8.000 (control group). Results of the t-test analysis indicated that there was no significant difference in the acquisition of writing accuracy.

Table 4
Independent Samples t-test (Post-test-1) Analysis of the Gain Score Difference for test-1

	Group	N	M	SD	t	df	Sig.
	Control	20	2.432	2.221			
Total diff.	Experimental	20	3.057	2.322	-.745	32	.465

Table 4 shows the statistical results of test-1, in which all effects were reported at a 0.5 level of significance. The reported difference between the control and the experiment groups' gain scores on the pre-test (written), though it had increased, was not statistically significant, $t(32) = -.745$, $p = .465$, $r = 0.13$. The mean scores were 3.057 (experimental group) and 2.432 (control group). The results of the t-test analysis indicated that there was no significant difference in the acquisition of writing accuracy.



Table 5
Independent Samples' t-test Analysis for the Post-test-II

	Group	N	M	SD	t	df	Sig.
Total diff.	Control	20	3.294	1,794	4.002	32	.001*
	Experimental	20	1,764	4.892			

Table 5 shows the statistical results of post-test-2, in which all effects were reported at the 0.5 level of significance. The reported difference between the control and the experiment groups' gain scores on post-test-1 was statistically significant, $t(20, 228) = 4.002$, $p = 0.001$, $r = 0.58$. The mean scores were 1.764 (experimental group) and 3.294 (control group). The experimental group scored higher than the control group. The results of post-test-1 analysis indicated that the researcher should reject the null hypothesis. The effect size indicated that the difference in the scores obtained by the participants in the control and experimental groups represents a large and meaningful effect.

Table 6
Independent Sample's t-test Analysis for the Post-delayed Test difference

	Group	N	M	SD	t	df	Sig.
Total diff.	Control	20	5.094	0.594	4.211	36	-.002*
	Experimental	20	1.430	3.692			

Table 6 shows the statistical results of the post-test in which all effects were reported at the 0.5 level of significance. The reported difference between the control and the experiment groups' gain scores on post-test-2 was statistically significant, $t(19, 118) = 4.211$, $p = .002$, $r = 0.59$. The mean scores were 1.430 (experimental group) and 5.094 (control group). The experimental group scored significantly higher than the control group. The results of the post-delayed test analysis indicated that the researcher should reject the null hypothesis. The effect size indicated that the difference in the scores obtained by the participants in the control and experimental groups represents a larger and substantive effect.

CONTROL GROUP STUDENTS' RESULTS

Students' errors in the targeted linguistic features were identified, and corrections were provided in their writing samples in their notebooks. The accuracy in writing was calculated for the control group as the percentage of correct usage, e.g. if any student showed seven correct uses out of ten obligatory occasions, the accuracy rate was considered 70%. Besides, descriptive statistics in the pre-test and two post-tests were calculated separately, as mentioned in Table 8. The average errors for the control group students were recorded as 5.75 in the use of the targeted linguistic forms on the pre-test.

A two-way repeated measure ANOVA test was run to observe the writing accuracy over different periods of time and to examine the significant difference statistically. The tests' appropriateness and results were checked by two experts from the Department of Mathematics at the university.



Table 7
Descriptive Statistical Results for Mean Scores of the Control Group's Tests

Group	N	Pre-test		Post-test-1		Post-test 2	
		Mean	SD	Mean	SD	Mean	SD
Control	20	83.20	9.40	86.10	13.90	96.44	9.23

Table 7 shows the mean percentage for the three tests conducted over different periods of time. The mean scores reveal that although students in the control group appeared to be stronger at the very outset, they were not with so much significance difference later. They showed their improvement slightly on post-test-I, and this group also did not reveal any significant development in writing accuracy in the second post-test.

To further investigate the control groups' scores in one pre-test, post-test-I and post-test-II, a series of ANOVAs was calculated. As the one-way ANOVA revealed no significance difference within the group $F(3, 58.20) = .427, p = .76$, a two-way repeated measures ANOVA was run. Scores of the test were inserted as the dependent variable, with time and CALI as independent variables. The following Table 9 shows the results of the analysis.

Table 8
Two-way ANOVA Results for Control Group Students

Source	Df	F	p
Between subjects			
TDM	2	.427	.76
Within subject			
Time	3	16.13	.000
Time x TDM	9	1.819	.141

TDM= teacher- directed method

Table 8 shows that there is no significant relationship between time and the use of teacher-directed methods. However, a significant difference is noted regarding time and within the subjects. The impacts are observed. The control group did not show such consistency in improvement in writing accuracy (p value= .76). Time and CALI also showed a difference of effect (9) with a frequency of 1.819 and $p = .141$, which means that the teacher-directed method (traditional method) had no positive effect on students' accuracy. The control group, which started by showing a higher rate of writing accuracy at the beginning, did not show a significant variation in writing accuracy over the total course of the research.

Table 11
Comparison of eliminated Errors between the Experimental & Control Groups

Target	Experimental group	Control group
Eliminated the targeted errors.	14 (73%)	9 (41.93%)
Did not eliminate the targeted errors.	6 (29.26%)	11 (58.06)

Table 11 shows that out of the 20 students who received instruction through CALI, 14 (73%) students could eliminate their targeted errors in post-test-II. Only 9 (41.93%) students who received teacher-directed instructions (control group) were able to eradicate all their targeted errors in the last post-test-II. The following Table 13 describes these statistical results. In the experimental group, a few students (6 out of 20) were unable to eradicate all their targeted errors, which reveals that receiving CALI may not help all the students to eradicate their errors. On the other hand, 11 students in the control group were completely unable to eradicate all their targeted errors, which

indicates that receiving teacher-directed instruction is not helpful for students to eradicate most of the targeted linguistic errors.

Table 12
Multiple Regression Analysis Showing Contribution of Variables in the Use of CALI

Variables	B	T	R	R ²	df	F
Gender	.23	.13				
CALI	.31	.27*	.		2, (198)	
Age	.25	.15				
CALI	.31	.29*	.21	.045	2, (188)	20.17**
Experience	.26	.14				
CALI	.30	.28*	.		2, (192)	

Note *** $p < 0.01$; N =180.

On the contribution of all the independent variables (gender, age and experience) to the prediction of using CALI, the outcomes of the summary in Table 13 signify that all the independent variables, when pulled together, yield a multiple R of .21 and 21, R^2 of .045 [$F_{2, 198, 188, 192} = 20.17^{**}$, $p < 0.01$]. This is an indication that all the independent variables contributed 4.5% of the variance in the perceived efficacy of CALI to improve EFL learners' writing skills.

The result indicated that gender significantly predicted the influence of CALI [$\beta = .23$; $t = .27$; $p > 0.05$]. This implies that gender differences significantly predicted the use of CALI among EFL teachers from the public and private higher secondary schools in Central and Southern Punjab of Pakistan. Thus, the null hypothesis H_0 , that there is no gender-based difference among EFL teachers in using computer technology in EFL classes at the higher secondary level institution in Pakistan, is rejected

DISCUSSION

Statistical analysis and the t-test scores of the data revealed that the use of CALI for teaching purposes might have good and flourishing impacts on students' learning. It is also a fact that its use has been linked to some issues like lack of personal possession of up-graded versions of laptops, difficulty in the English language, unsuccessful examination system, lack of time for teachers, dearth of skilled persons, breakdown of electricity, non-acquaintance of teachers with computer technology, the unwillingness of teachers, the embarrassment of teachers from students' advanced skills in information technology, poor internet links, economic problems, the safety of equipment, lack of training, lack of inspiration, and lack of administrative support.

As a result of the findings of the study, several aspects of the study can be changed to improve students' writing skills or for further study. Other researchers can look to conduct the study on different levels and locations for the generalization of the results. Based on the findings, a more generalized population could provide better results for students' writing skills in comparison to the present study. Also, the students did benefit from the computer-assisted language instruction provided; therefore, the use of CALI by the teachers should prove to be beneficial by allowing the classroom to be more student-centred. In this regard, the present study has some theoretical implications.

The present study investigated the effect of using CALI on the writing achievement of Pakistani EFL students at the higher secondary level. The study provided theoretical implications to the activity theory first. It was assumed that teaching writing by using CALL within the activity-based framework through CALI would enhance students' writing performance. The findings pertaining to this revealed that activity-based CALI would significantly enhance Pakistani EFL learners' writing skills. The findings provided evidence that the students in the experimental group performed substantially better in the writing post-test than the pre-test after receiving activity-based CALI instruction.

These findings also show that the students made noticeable progress in writing as a result of using different mediating elements of this combined instruction to transform their writing activities by providing them with various tools (Penzu) and resources. These results can be justified and are in accordance with what the literature review shows regarding the nature and influence of CALI and the social constructivist theory, of which activity theory is part of it in writing achievement (e.g.,



Madhavi, 2019; Jabeen, 2020). According to social constructivism, knowledge is developed from individual interaction and learning is considered collaborative learning. The use of CALI expedites this collaborative effort through Penzu. Besides, CALI may provide students autonomy to continue their learning and continue their activities collaboratively. Constructivism also says that students gain knowledge on the basis of previous learning experiences. In this context, the study revealed that CALI could help students to improve their knowledge by comparing their previous writing drafts in their diaries created in the Penzu.

Moreover, the effectiveness of CALI instruction can be attributed to its sociocultural nature in the case of learners being members of a group practising in social contexts. This is the main aspect of social constructivism. This aspect illustrates how learners can assist each other and, at the same time benefit from other sources or artefacts and members of the community to achieve their goals through a consistent reciprocal relationship in the learning community. In fact, CALI, within the activity-based framework, can mediate students' writing activities in several ways by allowing the students to pursue different motives simultaneously. CALI, as a means of instruction, supports a variety of learning activities and facilitates collaboration, cooperation and interaction both within and beyond the classroom. This would be an additional advantage of using CALI.

With emerging technological developments and the evolution of technology use in language learning, EFL learners become the centre of the learning process as they can have control over learning because language learners construct their new knowledge on the basis of prior knowledge or experience. Therefore, the learner's cognitive operations should be taken into account in the language learning process. Besides, social interaction is also essential for L2 knowledge construction as it enables learners to enlarge, check and modify their interpretations of the target language. Regarding the development of internet technology, which promotes human-human interaction (synchronous or asynchronous) in language learning, we are led to adopt a more socio-cognitive approach to CALI, such as social-constructivism.

PEDAGOGICAL AND PRACTICAL IMPLICATIONS

The present study provides pedagogical implications pertaining to teaching English in EFL classrooms at the higher secondary level. The instructors in future classes may require additional supplementary instruction as regular graded assignments. Based on the students' responses to the short answer questions, the researcher feels that requiring the CALI to be graded with all the regular graded assignments rather than as extra credit will hold the students accountable for excelling in CALI and making it more of a priority in comparison to how it was perceived in the study. The CALI grades may affect the students' grades similar to all other assignments within the class; thus, the students should apply more efforts to ensure that all aspects of CALI get completed (Jabeen, 2020; Hakim, 2020).

Further studies involving the use of CALI are recommended since technology brings new applications and methods into language teaching and learning. In this study, the instructions provided to the experimental group were not integrated into the regular classrooms but offered as extra language time. Further studies can determine the effect of CALI which could be incorporated into regular classes and the students' learning styles.

CALI should be integrated into traditional classrooms where the instructor is also available for further assistance and questions so that students are not deprived of human contact.

Learners' autonomy can be maximized through CALI since fast and slow learners are given the opportunity to study or review the materials at their own pace. CALI can provide assistance in the structure of the lessons since it enables learners to get immediate feedback which is the basic purpose of CALI in almost all situations.

The implementation of CALI may provide a positive impact on EFL students' writing skills at the higher secondary level in Pakistan, which is why CALI was investigated in the present study. Increasing accuracy in writing may help EFL students to get through their competitive examinations held every year in Pakistan. Besides, more experiments at different levels of education in Pakistan would determine if there was an improvement in students' writing proficiency and test scores with the use of CALI as the method of instruction. The researcher anticipated the evidence from the present research which may be of interest to school administrators, teachers and policymakers. The findings of the present study might also impact the strategies used to assist EFL learners in building


their vocabulary and literacy skills by increasing their proficiency level in English and might also contribute to students' academic success. Continuous professional development of EFL teachers at the higher secondary level who teach EFL learners may improve their level of instruction. This would directly impact EFL learners' language proficiency.

CONCLUSION

To address the domains that could support the effectiveness of implementing CALI for the overall language proficiency of EFL learners, continuous professional development needs to be provided to the teachers and the administrators. These strategies can take them back to their classrooms to engage students effectively. District administrators and policymakers can be informed of the data collected from various investigations, through which they will come to know how EFL students can be helped to improve their language proficiency for their academic success. Moreover, the policymakers, administrators and EFL teachers may conduct evaluations and surveys, the effective input of which could be obtained to make changes where needed. However, like many other developing and developed countries across the world, Pakistan had to face the impact of the sudden COVID-19 pandemic. Finally, as the pandemic worsened, there was a demand to keep EFL and other teachers considerably skilled enough to use educational technologies and tools to fulfil students' academic needs in Pakistan. The present study has provided evidence that using CALI would be effective in this situation.

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