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# Collaboration in CALL for Developing ESL Learners' Academic Writing Skills

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### ABSTRACT

The focus of the current study was to investigate the effectiveness of collaboration in Computer Assisted Language Learning (CALL) for developing English as a Second Language (ESL) learners' academic writing skill. The study was conducted for thirteen weeks with 82 second year undergraduates from General Sir John Kotelawala Defence University in Sri Lanka. Switching Replication was used for the research design. The data were analyzed using mix method approach. The findings indicate that the participants preferred the in-class environment more than the CALL environment for collaborative academic writing skills, yet their performance was better in CALL for academic writing skills. Participants' lack of experience in CALL, poor writing and vocabulary skills and the negative interference from the technical issues were some of the issues that had negative effect on the participants in the CALL environment for successful collaboration. Nevertheless, the success of the intervention both in the first and second phases indicates the effectiveness of collaboration in CALL for developing academic writing skills.

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### 1. Introduction

Writing is one of the most difficult skills to master both in one's first language (L1) and second language (L2). Therefore, mastering writing in L2 must be strategic and realistic. One of the ways in which writing can be developed is through collaborative learning which is salient to academic settings. It is a pedagogically researched and an accepted concept that collaborative learning aims to produce academically stronger students [1]. According to the research findings of Montero [2] collaboration promotes learners' self-confidence, productivity and increases individual participation by making activities interesting for learners.

Collaborative processes can also be adapted to the development of academic writing skills. Research has indicated that collaborative writing supports learners in sharing their ideas and giving and receiving feedback which is absent in individual learning [3]. Furthermore, it leads to better writing with fewer mistakes, compared to individual pieces of writing. When students work collaboratively in writing, they can support each other to improve one another's writing skills [4]. It also supports the learners when they practice how to work with each

other successfully while respecting others' ideas and values. Most educators have therefore integrated collaborative group work into the curriculum and instructional strategies, which is also very important for future career excellence [5]. In addition, collaboration in writing is strongly recommended by many teachers/lecturers and researchers mainly because learners should be the center of a classroom and should interact with their classmates as much as possible [2, 6].

Collaborative academic writing skills can also be successfully integrated with new technologies. As Bunch et al. [5] state, collaborative writing skills in technology-based environments are rapidly expanding in the world. The use of computers can motivate L2 learners to improve their academic writing skills in an innovative and effective manner [7]. In this context, as Sun and Chang [8] point out web-based teaching is one form of technology that is vital for developing collaborative academic writing skills. Computer Assisted Language Learning (CALL) is one such web based technology that assists collaborative academic writing.

## 2. Literature Review

### 2.1 Collaborative Academic Writing

Collaborative learning has long been popular at the primary and secondary levels and, in recent years, in higher education as well [09]. Gokhale[10] defines collaborative learning as a process where learners from different competency levels work together towards a common goal and the students are responsible for the learning of their fellow group members as well as for their own. The success of one student leads to the success of others.

To achieve the basic literacy skills in English for academic purposes (EAP), EAP teachers have chosen collaborative learning in classrooms. As perceived by EAP teachers, collaborative learning is a learner-centered method of instruction which helps in achieving higher learning outcomes than teacher-centered learning. This is why collaborative learning has become indispensable in EAP classrooms and it also helps in achieving lifelong learning skills [1].

Most of the studies in collaborative writing have been focused on language and socio-cognitive processes in interactions, but the writing process and the written text produced have gained little attention. At the same time, there are a very few studies on comparisons between compositions produced individually and collaboratively. According to Storch's [3] study, collaborative writing supports learners to share their ideas and to give and get feedback, which is absent in individual learning. In return, this helps to create writing with fewer mistakes compared to individual writing activities.

Storch [3] further emphasizes the importance of the attitudes of the learners towards writing tasks done in pairs/groups. Most of the studies have focused on the attitudes of the learners towards group/ pair work in general but not on the activity of collaborative writing. According to the findings in Storch's [3] study on collaborative writing, many opportunities were provided to the students to interact and focus on different aspects of writing. This encourages students to generate ideas successfully. Collaborative writing also supported the learners to get immediate feedback from peers which is missing in individual writing activities. In Storch's [3] study, the participants were happy to get peer feedback and their responses overall were very positive.

In collaborative writing activities, all the members in a group should contribute equally from the initial stage of planning through composing to revision. Sharing responsibilities is very important in these collaborative efforts where students gather information, negotiate and engage in decision

making as a collective effort. This also gives an opportunity for the learners to appreciate each other's contribution to the final output rather than producing it as an individual output. Further, the group members get the opportunity to form closer bonds with each other and learn from one another being in a natural and safe environment. However, little light has been shed on the effectiveness of these collaborative writing activities and how a better collaborative writing experience be provided to learners [11].

As Storch [03] suggests, when introducing collaborative writing tasks in L2 classrooms, the nature of the task, students' level of language proficiency and the mode of communication should be considered. To implement collaborative writing activities successfully, the teachers should train students to successfully collaborate and should also monitor the students carefully when they are engaged in collaborative writing activities.

In Fung's [11] study on collaborative writing, she observed that there were some students who resisted for collaboration. They preferred individual writing instead of being a member in a group. Conflicts play a major role in collaborative work. Working in groups is very helpful in making the learners improve negotiation skills which in turn help to improve team spirit, collaboration and patience. In her study, those who were willing to work collaboratively, saw working in a group as a good opportunity because it reduced the workload and stress of producing a piece of writing on their own. In addition, sharing responsibilities made writing less intimidating.

In Rahmat's [12] study on improving writing skills through collaboration it was found out that collaboration helped in lowering the anxiety in writing and completing the assignments alone. While improving learners' confidence, collaboration also supported the learners in improving social skills which in return supported fostering accountability, cooperation and community. In addition, collaboration motivated the participants to learn and how to be tolerant with the fellow group members. Further, collaboration offered them the opportunity to communicate using the target language.

One of the major challenges of integrating collaborative writing in classrooms is the time factor. Allocating time for the students to engage in writing activities in class and evaluating writing by pointing out and explaining mistakes sometimes takes more time than the allocated time for language learning each day [4]. Though there are some drawbacks in collaborative writing, most researchers encourage and promote collaborative

writing due to its pedagogical benefits for the learners [13].

As [14] posit 'With advances in communication and interactive technologies and the growing use of such technologies in the educational context, new perspectives for the practice of collaborative learning have opened up' (p.308). The internet and the facilities it provides for communication help both learners and teachers to work together even when not being at the same place. Students too can get together and engage in discussions which support problem-solving. Studies have proved the use of these new techniques in language learning and making students work with others effectively which gives more benefits than learning individually or competitively [14]. CALL is one such technology that facilitates collaborative practices.

## 2.2 Collaborative Academic Writing in CALL

In recent years, collaborative writing has developed through technology. With the development of web 2.0 tools, collaborative writing has gained much attention of researchers. Collaborative writing supports building confidence as the group members do the editing themselves. As this is done in a web-based environment, it allows learners to view, edit and have ownership of their texts which is not possible in traditional pen and paper work collaborative classrooms. Identification of the best teaching strategies to cater to all the learners through collaborative learning is a research area which needs to be focused on [15]. Further, research on collaborative in-class learning with or without technology can give insights to the challenges and benefits of such writing. "As technologies continue to become more interactive and individualized, CALL-based collaboration among L2 writers has the potential to provide increased benefits and expanded creativity for both students and educators" [16 p96].

The use of educational technology can facilitate writing processes and interactions even beyond the traditional classroom setting [17]. As Al Fadda [18] suggests, CALL can be used to improve the academic writing competency of ESL learners. However, more research is needed on collaborative writing and "should consider a diversity of writing tasks performed with the support of available social technologies" [17 p65].

In another study which was conducted to find out the impact of web-based collaborative academic writing, the researchers analyzed the texts produced in Google Docs in order to observe the participants' behavior in web-based word processing. Survey information indicated that the participants felt that they collaborated successfully in the web-based environment for academic writing

activities. The participants' collaboration in a web-based environment makes them realize the impact of emerging technologies on collaborative learning [19].

In the study "The Role of Online Collaboration in Promoting ESL Writing", Choi [20] observed an ESL class in Hong Kong consisting of 36 students. The results show that the participants were motivated by online collaboration while improving their writing competency. In addition, the participants concluded that the online collaborative writing supported them to engage in writing activities with less pressure and most of them enjoyed the online collaboration for writing than writing in class. Further, the participants became aware of the audience which made them focus more on their writing and revising.

Another study which was conducted by Barile and Durso [21] on the effectiveness of computer mediated education for collaborative writing concluded that compared to asynchronous communication, synchronous communication supports groups to provide quality work without many serious errors in writing. Ke and Chan's study [22] which was conducted to promote academic literacy through computer supported collaborative learning (CSCL) among undergraduates found that teacher-student scaffolding which was done through CSCL, supported the undergraduates in improving argumentative development in academic writing skills.

Incorporation of EAP teaching materials with new technologies will enhance student-centered learning in collaborative learning environments where the interaction between the teachers and students can also be improved [23]. *The biggest benefit of collaborative efforts is that the weaker-level students can get the support of higher-level students. While the students discuss and work on a computer, they can also share additional materials and useful links to make the collaboration more effective. Teachers should use necessary strategies to incorporate social skills in the curriculum, helping students to use social interactive skills in an appropriate manner to succeed in language learning skills [24].*

## 3. Theoretical Foundation

### 3.1 Social Interdependence Theory

Grouping students and asking them to work collaboratively will not make the learners develop effective collaboration. There should be proper instructions, measurements and monitoring to guide the students and to support them to make the group efforts a success. Teachers who act as facilitators

can play a major role helping students to succeed in their collaborative efforts through better social interaction. According to the Social Interdependence theory, there should be five principles and elements to ensure the effectiveness of cooperation. In the current study, the participants were taught to adopt these five elements to make collaborative effort more successful.

The first element is *positive interdependence*, which means each member has to give his/her fullest cooperation for the success of team work. If the outcome is to be successful, the students have to realize that the success of the one, depends on the success of the others. They have to understand the value of each and every member's support to reach their ultimate target. In *individual accountability*, each student has to master the given materials for the success of the team effort. When each member is assessed, the rest knows who needs more guidance and support in completing the assigned tasks. In *face to face promotive interaction*, group members should promote each other to achieve the targets of the group. They have to encourage, praise and support to maximize the contribution of the group members. In *interpersonal and small group skills*, the team mates have to use appropriate social, interpersonal, collaborative and small group skills among their group members. Each and every student should develop trust building, leadership, decision making, communication and conflict management skills to succeed in their group efforts. In *group processing*, team members have to have group goals and they have to make the necessary changes depending on their earlier performances on how to enhance their future cooperation for better academic achievements [25].

Johnson and Johnson [26] argue that collaborative learning has been clearly defined in terms of cognitive development theories, behavioral learning approaches and on the basis of Social Interdependence theory. Though the Social Interdependence theory provides a foundation on which cooperative learning is built, in the current study, by considering the close relation the elements have with collaborative learning, the same foundation was applied to measure the effectiveness of working in groups for improving academic writing skills in CALL mode.

Social Interdependence theory has been used as a guide in introducing many practical procedures in different disciplines in a successful manner. Peace is the most needed aspect in education which promotes cooperation and not competition. In achieving peace, the application of Social Interdependence theory is highly recommended [25]. Moreover, this is a very consistent theory for

several reasons: it defines more clearly the difference between cooperative and competitive learning, it is well formulated and identifies psychological aspects clearly. Most research which was conducted using this theory and the number of dependent variables which was used in those studies became expanded from one research to the other. Finally, the definition of cooperation and competition supported the application of this theory to many different settings such as education, business, and international relations [27]. There can be many barriers to implementing and practicing a theory in an effective manner: economic conditions, prejudice, cultural change and resistance to change are some of these barriers. Nevertheless, social Interdependence theory is a valid theory due to several reasons; for example it is "strategic", "profound" and "powerful" [28 p940].

#### 4. Methodology

The current study was intended to answer the following research question:

- 1) To what extent is collaboration effective in developing academic writing skills among ESL learners in CALL mode?

##### 4.1 Participants

The participants of the study were chosen from the General Sir John Kotelawala Defence University (KDU) in Sri Lanka which is a state university that is governed by the Ministry of Defence. Out of the seven Faculties at KDU, the Faculty of Allied Health Science (AHS) was chosen for the current research, mainly because in other faculties there are foreign students whose L1 is English. AHS is the only Faculty which has only local day scholars who speak English either as a second or third language. If there had been foreign students whose L1 is English in the sample, the researcher would not have been able to achieve her main research objective which is gauging to what extent there is an improvement of the academic writing skills of ESL learners.

The proposal for this research and the data collection instruments were submitted for review to KDU's Research Committee for the Protection of Human Rights. The consent of the university was granted and permission was given to utilize the undergraduates selected as the sample of this particular study.

##### 4.2 Research Design

In the current study, the overall research design adopted was Switching Replications (SR). SR is a hybrid experimental design which is considered to be one of the strongest in experimental designs.

Similarly, SR is also a two group design: treatment and control which has random assignment of subjects and with three waves of measurement: pre-test, mid-test and post-test as shown in Figure 1.

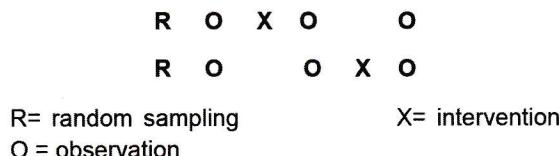


Figure 1 Switching Replications Design [29].

In the SR, the treatment is repeated or replicated. In the replication of the treatment, the two groups switch roles; the original control group becomes the treatment group and the original treatment group becomes the control group in the second phase. By the end of the second phase, both groups have received the treatment. Through drawing lots, the participants can be placed in the control and treatment groups which can decide who gets the treatment first. Simultaneously, the replication provides additional data for analysis which supports in strengthening the research findings. Moreover, the replication strengthens generalizability and reproducibility [29, 30].

#### 4.3 Procedure

The current study was conducted without creating any disturbance to the ongoing two hour language learning programme of the participants. Initially, (week one) participants were given a needs analysis and a learner analysis. The first two weeks were allocated for the analysis of the collected data from the needs analysis and learner analysis and to prepare the lessons required by the participants.

In the meantime, after obtaining the consent of the participants, they were divided into two groups: treatment and control. To group the participants, a random assignment method was used. When grouping the participants, eighty-two cards which were numbered from one to eighty-two were given and each participant was asked to take one card out of the lot. Then, they were divided into twenty-seven groups consisting of three participants per group. The twenty-seven groups then had to select a leader for each of their groups and the chosen leaders were asked again to take a card. This helped to decide which of the fourteen groups got the intervention first while the rest of the thirteen groups worked in class. Further, the participants were instructed not to use their names to refer to themselves but use the number in the given card throughout the study.

The participants were also instructed on how to collaborate effectively with their group members to gain better learning outcomes in writing. As

Johnson and Johnson [31] claim, collaborative working is, not group members sitting side by side without any cooperation and one person completing the exercises on behalf of the others. In Social Interdependence theory, Johnson, and Johnson [31] discuss five elements which could be used to collaborate successfully. They were instructed and guided to adopt the five elements in Social Interdependence theory to collaborate successfully.

- a) Positive Interdependence - the participants were constantly reminded that they should cooperate with each other to make the collaborative efforts a success. The close monitoring and constant reminders encouraged the participants to share ideas and give feedback and comment on the work that they were engaged in. It was mentioned and they were reminded from time to time, that the success of the group work and the individual improvement depend on the effort each individual put in as a group.
- b) Individual accountability- the participants were advised that they should study the given materials at home before coming to the class/CALL. Each group member should be aware of what they were supposed to do during each week and should be able to support other group members when they sought support.
- c) Face-to-Face interaction - the participants were constantly encouraged to interact with group members/ share their views and comment on others' points of view to make the working in groups more effective.
- d) Social Skills - if the learners are more skillful collaborators, they can get and share more feedback and comments [32]. The participants were encouraged to share ideas with group members as much as they could and also to give feedback and support fellow team members to make the work a success. Effective use of social skills would also support in building trust, mutual bonds among group members and leadership skills.
- e) Group Processing - each week the participants were given the specific intended learning outcomes and encouraged to achieve the set targets in groups. Further, all the groups were advised to make necessary changes depending on earlier performances on how to enhance future cooperation for better achievements from academic writing skills.

#### 4.4 Reliability and Validity

Reliability and validity are important in order to ensure trustworthiness, credibility and accuracy in research, tests/ assessments and questionnaires. [24]. Hence, the below mentioned actions were

taken to increase the reliability and validity of the current study:

- Assessments and tests were evaluated using the ESL Composition Profile [33] in treatment and control groups both in the first and second phases. Apart from the marking of the tests and assignments by the researcher, another lecturer in the Department of English at KDU was chosen as a rater to mark 30% of the randomly selected assignments and test papers to increase the validity and reliability of the findings [34]. The randomly given papers were named by number to prevent the rater identifying the participants.

The use of interclass correlational coefficient in research is supported in assessing the inter-rater reliability [35, 36]. Thus, in the current study, in order to find out the inter-rater reliability between the two raters, interclass correlation coefficient was used and the findings indicate that the overall inter-rater reliability was "Good" between the two raters.

- In order to collect valid and reliable data from questionnaires and the interviews, the participants were informed in the questionnaires and at the interviews that the main aim of the study was to find out the effectiveness of collaboration on developing academic writing skills in CALL classrooms. Further, it was stated that if the programme was successful, it would in return help to plan a successful CALL programme to improve competency in academic writing skills of the undergraduates at KDU. In addition, it was stated that the marks for the assignments or tests would not influence any grading of semester performance. Further, by giving the instructions in such a way, it was assumed that full and genuine cooperation would be extended for the success of the data collection.
- Finally, the intervention was given to both treatment and control groups; in the first phase the intervention was given to the original treatment group and in the second phase, after the switch, the intervention was given to the original control group. By giving the same content, assignments, tests and questionnaires for both groups in both phases, it was assumed that the credibility of the findings was ensured.

#### 4.5 Learning Management System

Moodle was used for the Learning Management System (LMS) and the main focus was given to find out whether collaborative academic writing could be improved in a Virtual Learning Environment (VLE). The topics were finalized based on the evaluated

result of the needs analysis. The researcher uploaded the selected academic writing materials and exercises into Moodle and enabled the forum discussion facility for group discussions. Synchronous communication was promoted more than asynchronous communication while participants were interacting with the group members. Scaffolding was encouraged in collaborative efforts to overcome the difficulties which occurred in the CALL/in-class learning process.

#### 4.6 Data Collection Instruments

There was a learner analysis questionnaire to collect demographic information, information on first year language learning experience and computer experience of the participants. The data were collected through open and close - ended questions. A Needs Analysis was given to gather data on participants' present situation in writing, target situation in academic writing and the strategy/ies that they need in learning academic writing skills. The post questionnaire survey was formed to investigate course satisfaction, preferred learning strategy/ies and social experience.

Interview guide approach was used for interviewing the selected participants. Under interview guide approach, structured and semi-structured interviews were conducted to gather data on the experience, preference and satisfaction of the participants in the CALL and in-class learning for collaborative academic writing skills. The interviews were conversational and situational having greater flexibility and freedom [37].

#### 4.7 Data Analysis

For the data analysis a mix method was used. Thematic analysis was used for qualitative data analysis. The main purpose of using thematic analysis was to identify and to analyze the patterns in qualitative data in the current study. In the current context, the use of thematic analysis supported in analyzing the preference of the participants' for working in CALL/in-class for collaborative academic writing skills.

### 5. Findings and Discussion

#### 5.1 Collaboration and its Impact on Academic Writing Skills in CALL/in-class

##### 5.1.1. First Phase

Collaboration and performance of the participants both in Treatment Group (TG) and Control Group (CG) in the first phase is shown below in Figure 2.

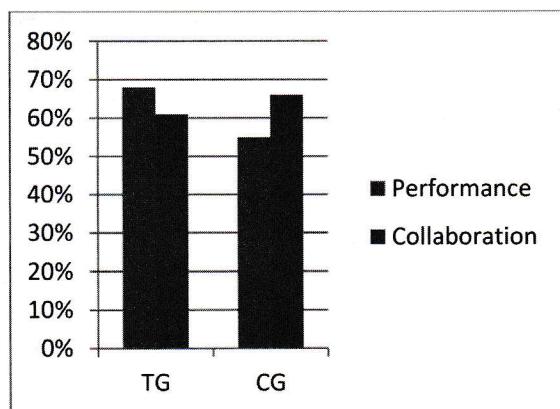


Figure 2 Collaboration and Performance in phase one

### 5.1.2. SECOND PHASE

Collaboration and performance of the participants both in TG and CG in the second phase is shown below in Figure 3. After the switch in the second phase, the original TG became the CG and worked in-class in collaboration and the original CG became the TG and worked in CALL in collaboration.

In the first phase, the collaboration of the TG (60%) was lesser than the collaboration of the CG (66%) for academic writing skills. In the second phase also, the collaboration of the TG (63%) was lesser than the collaboration of the CG (67%) for academic writing skills. Yet, on the contrary, the performance of TG both in the first (68%) and second phases (60%) was higher than the performance of the CG in both first (55%) and second (55%) phases.

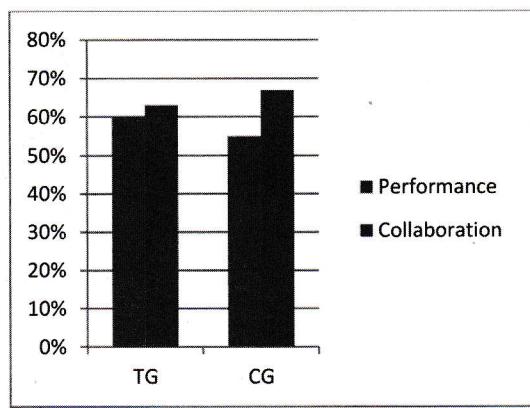


Figure 3 Collaboration and Performance in phase two

As it was found out both in the post-questionnaire and interviews, the participants' preference to collaborate in-class over CALL is mainly because of the inexperience of the participants to collaborate in virtual learning environments for writing activities, technical faults in Moodle which interrupted very often on communication and some of the group

members' poor writing competency in English which resulted in failure in expressing what they want to communicate which in return affected negatively on effective collaboration among group members.

Though many of the participants prefer face-to-face collaboration and the physical learning experience for academic writing due to the familiarity of in-class learning, the better performance in academic writing by TG both in the first and second phases proves that they must be successful in collaboration and learning experience in CALL because otherwise they would not have performed better than the CG both in the first and second phases.

## 5.2 Preference for Social Experience

In the post-questionnaire, a Likert scale was used to measure the social experience of the participants.

### 5.2.1 First Phase

In the first phase, the original TG received the intervention and worked in CALL in collaboration while the original CG worked in-class in collaboration for academic writing lessons. Figure 4 shows the social experience of both TG and CG in the first phase.

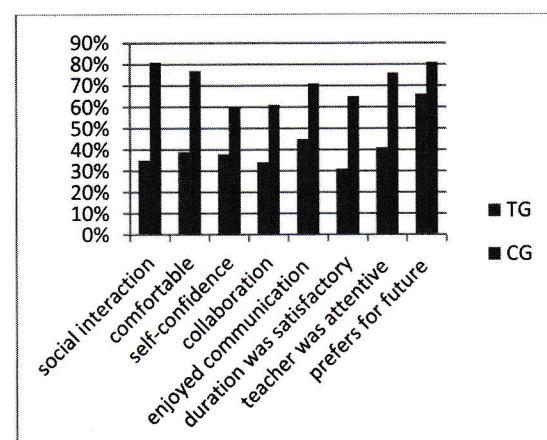


Figure 4 Social experience in phase one

Overall, in the first phase the participants were more satisfied with the social experience in-class than the social experience in CALL. For social interaction, 35% of the participants preferred CALL and 81% of them preferred the in-class context. The disparity between their preference for social interaction was 46%, but the disparity between CALL/in-class for future preference for collaborative academic writing was 15% which indicates to a satisfactory extent, the ESL learners prefer CALL for collaborative academic writing skills in future. When considering to what extent the participants' were comfortable with their respective learning environment, 45% of them in CALL and 71% in-class stated that they enjoyed their communication

in the respective learning mode for collaborative academic writing skills. The attentiveness of the teacher was also preferred more in-class than in CALL. One major reason for this is the familiarity with the face-to-face interaction the learners have been experiencing since their first year in their regular language learning classrooms.

### 5.2.2 Second Phase

In the second phase, after the switch, the original TG became the CG and worked in-class in collaboration and the original CG became the TG and worked in CALL in collaboration. Figure 5 shows the social experience of both TG and CG in the second phase.

In the second phase, the participants were not that much dissatisfied with the social interaction in CALL as in the first phase. The lesser percentages of disparity between TG and CG are a positive indication for the effectiveness of CALL for improving collaborative academic writing skills. The preference of the TG for CALL for future collaborative academic writing skills (see Figure 5) also highlights the willingness of the participants to collaborate in CALL for developing academic writing skills in future.

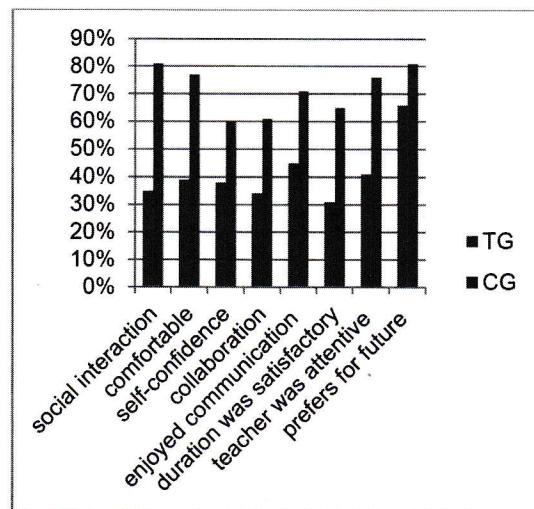


Figure 5. Social experience in phase two

According to the participants, the major reason for their preference for in-class is the facility for face-to-face interaction which they have been using since their first year and in which they are more comfortable. As the researcher observes, the preference for in-class for social interaction was also affected by participants' inexperience in learning in CALL. The researcher assumes making the participants experienced in CALL for academic writing for a considerable period would make them get used to CALL and would also increase their willingness to work in CALL. Although the participants prefer in-class more than CALL for

social experience, as Szendeffy [38] points out learning in CALL rendered some facilities for interaction which are not available in class; such as the delivery of different multimedia contents, an alternative source of delivering and sharing knowledge without solely depending on the teacher and availability of different tools for creating group work.

## 6. Conclusion

### Collaboration in Academic Writing skills in CALL

The results of the study indicate that there are positive and negative aspects in relation to collaboration in both learning environments. Among the main issues participants experienced in CALL was the lack of experience in the use of Moodle for language learning. Participants took time to adapt and to be familiar with the learning mode. Technical issues such as problems in loading the web pages, logging into Moodle and connection failures, of some participants had a negative impact on social interaction and on completing the assigned tasks. The participants' inability to use L1 in CALL and limited writing abilities may also account for participants' preference for the in-class environment for developing collaborative academic writing skills. The lack of opportunities for face-to-face discussions in CALL also affected some of the participants' enthusiasm in collaborative learning in CALL. Due to these issues, some of the participants expressed less enthusiasm for collaborative learning in CALL and preferred the in-class face-to-face learning environment for the development of collaborative academic writing skills.

In contrast, experiencing virtual learning, being able to access online resources and improving writing and vocabulary skills made the learning of academic writing skills unique in CALL for some of the participants and therefore led them to prefer CALL over the in-class environment for developing collaborative academic writing skills. The use of visual media made learners collaborate and engage more actively in CALL without limiting themselves to printed materials. Further, the use of new technology in improving collaborative academic writing skills was considered as interesting by some of the participants in the current study because they had been learning English in a classroom environment since their first year of undergraduate studies. Therefore, this new learning exposure made some learners interested in both the learning mode and the environment. Further, the close monitoring of students' collaboration in CALL by the lecturer, which is not possible in the physical

learning environment, can be considered a positive feature of the virtual learning environment. The monitoring of interactions ensured that all participants contributed to the production of answers which many participants identified as a factor that enhanced their self-confidence and was felt to be a positive feature of CALL. Convenience was also noted as a benefit of CALL which supported in improving collaborative academic writing skills. Rather than staying after lectures which was tiring sometimes for the participants, it was possible to work off campus, which was more relaxing.

In measuring the preference for collaboration in CALL/in-class, the five elements in the Social Interdependence theory were also used. Positive interdependence of the participants in CALL in both phases was not as satisfactory as to the extent it was present in relation to the in-class environment. In both phases, the participants were responsible for individual accountability when they worked in both learning modes. Both in CALL and in-class, it is expected that the participants would improve the interpersonal and small group skills which would in return support them to improve group processing. Though the participants preferred the in-class environment for collaboration more than CALL, the better performance in academic writing by the treatment group both in the first and second phases proves that collaboration in CALL is effective despite the reservations expressed by some of the participants. If this had not been the case, the treatment group would not have scored better marks for academic writing in both phases as a result of the intervention. Addressing the difficulties which were faced by the participants when collaborating in CALL could promote and motivate ESL learners to work in a collaborative CALL environment for enhancing academic writing skills.

## **7. Implications and Recommendations**

There are many implications of the results of this particular study which needs consideration if collaboration in CALL is to be considered a viable option for the development of academic writing skills. To learn academic writing skills more effectively in CALL, the learners must be convinced that working on writing activities in CALL would be an advantage. Since the participants accept that there are both advantages and disadvantages in CALL and in-class for collaborative academic writing skills, initially it might be more productive to adopt a blended learning.

To facilitate learners' engagement in CALL, learners must be given gradual exposure to Moodle by working initially with particular collaborative

academic writing activities. Then, the learners should be encouraged to adopt a more learner-centered approach and learner autonomy in constructing knowledge on academic writing skills. Collaboration in CALL should be encouraged for gaining of communicative and social skills which would also support in making the learners more confident, pro-active and responsible.

To make the social experience more effective in CALL, the language lecturers should create the learning environment using effective strategies such as the five elements in Social Interdependence theory for successful collaboration for learners to have a sense of belonging in the group which would support in creating a friendly impression among the group members. This impression would definitely support comfortable interactions and participation. The inability to have personal discussions in CALL due to the close monitoring of the lecturer unlike in-class would also support learners to focus only on the given activities, which can also use to maximize the social presence and to improve collaboration in academic writing skills. Finally, it can be concluded that, by implementing the proposed suggestions, the competency of ESL learners in academic writing skills can be improved in a collaborative CALL environment.

## **References**

1. Lombana CH. Some issues for the teaching of writing. PROFILE Issues in Teachers' Professional Development. Profile 2002 Oct; 3(1): 44-51.
2. Montero A. What a feeling! Motivating EFL students through collaborative writing with poems. English Teaching Forum 2005 Nov; 43(3): 36-40.
3. Storch N. Collaborative writing in L2 contexts; processes, outcomes and future directions. Annual review of applied linguistics. Annual Review of Applied Linguistics 2005; Mar; 31: 275-288.
4. Speck BW. Facilitating Students' Collaborative Writing. San Francisco: Jossey-Bass; 2002.
5. Bunch GC, Kibler A, Pimentel S. Realizing opportunities for English learners in the common core English language arts and disciplinary literacy standards. Proceedings of the Understanding Language 2012; Palo Alto. California: Stanford University; 2012.
6. Luna AMR, Ortiz LSH. Collaborative writing to enhance academic writing development through

- project work. *Colombian Journal of Teaching English* 2013 Oct; 20 (1):130-148.
7. Zhytska SA. Computer Assisted Language Learning. *Information Technology and Security* 2012 Jan; 2(2): 25- 33.
  8. Sun YC, Chang YJ. Blogging to learn: Becoming EFL academic writers through collaborative dialogues. *Language Learning and Technology* 2012 Feb; 16(1): 43-61.
  9. Herrmann KJ. The impact of cooperative learning on student engagement: Results from an intervention. *Active Learning in Higher Education* 2013 Sep; 14(3):175-187.
  10. Gokhale AA. Collaborative Enhances Critical Learning. *Journal of Technology Education* 1995 Apr; 7 (1): 22-30.
  11. Fung YM. Collaborative Writing Features. *RELC Journal* 2010 Jun; 41(1):18-30.
  12. Rahmat NH. Constructivism in the ESL writing classroom: A case for collaborative essay writing. *Journal of Creative Practices in Language Learning and Teaching* 2014 Nov; 2(1): 1-15.
  13. Kreijns K. Social Affordances, Sociability, and Social Presence [PhD's thesis]. The Netherlands: Open University of the Netherlands; 2004.
  14. Irala EA, Torris PL. The Use of the CMC Tool Amanda for the Teaching of English. *Handbook of Research on E-learning Methodologies for Language Acquisition*. United States of America (USA): Information Science Reference; 2009. 308-321 p.
  15. Li X, Todd RJ. Graduate students' sense making process in collaborative learning tasks. *Proceedings of the In I Conference*; 2015; New port Beach. California: Irene Donald Bren School of Information and Computer Sciences; 2015.
  16. Bikowski D, Vithnage R. Effects of web-based collaborative writing on individual L2 writing development. *Language Learning and Technology* 2016 Mar; 20 (1): 79-99.
  17. Elola I, Oskoz A. Collaborative writing: Fostering foreign language and writing conventions development. *Language Learning and Technology* [Internet]. 2010 Oct [cited 2019 April 02]; 14(3):51–71. Available from: <http://llt.msu.edu/issues/october2010/elolaoskoz.pdf>
  18. Al Fadda H. Difficulties in academic writing: From the perspective of King Saudi University postgraduate students. *English Language Teaching* 2012 Mar; 5(3):123-130.
  19. Kessler G, Bikowski D, Boggs J. Collaborative Writing among Second Language Learners in Academic Web-based Projects. *Language Learning Technology* 2012 Feb; 16 (1): 91-109.
  20. Choi J W. The role of online collaboration in promoting ESL writing. *English Language Teaching* 2008 Jun; 1(1): 34-49
  21. Barile AL Durso FT. Computer-Mediated Communication in Collaborative Writing. *Computers in Human Behaviour*. 2002 Mar; 18 (2): 173–190.
  22. Ke Z, Chan C. Promoting Academic Literacy in CSCL Environment for Chinese Tertiary Business Students. *International Journal of Computer Supported Collaborative Learning* 2008 Jan; 16 (2): 175-220.
  23. Hyland K. English for Academic Purposes: An Advanced Recourse Book. London: Routledge Readers in Education 2006.
  24. Chen Y. The Influence of Integrating Technology in Language Learning Courses [PhD's thesis]. United States (US): Graduate School of the University of Kansas; 2011.
  25. Johnson DW, Johnson RT. An Educational Psychology Success Story: Social Interdependence Theory and Cooperative Learning. *Educational Researcher* 2009 Jun; 38 (5): 365–379.
  26. Johnson DW, Johnson RT. Cooperation and the use of technology. New York: MacMillan; 1996.
  27. Johnson DW, Johnson RT. New Developments in Social Interdependence Theory. *Soc Gen Psychology Monographs* 2005 Dec; 131(4): 285-358.
  28. Stanne M, Johnson DW, Johnson R T. Social Interdependence: Interrelationships among theory, Research and Practice. *Psychology Bulletin* 1999 Nov; 5(11):133–154.
  29. Trochim WM, Donnelly JP. The research methods knowledge base. Cincinnati: Atomic Dog; 2008.
  30. Yoders SA. Integration of Simulation into Healthcare Education through Applied Constructivism: A Randomized, Switching Replications Experiment [PhD's thesis]. Florida: Nova Southeastern University; 2017.
  31. Johnson DW, Johnson RT. Computer Assisted Cooperative Learning. *Education Technology* 1986 Jan; 26 (1):12-18.

32. Graham CR, Misanchuk M. Computer-Mediated Learning Groups: Benefits and Challenges to Using Group work in Online Learning Environments. London: Information Science Publishing; 2004.181-202 p.
33. Jacobs H, Zinkgraf SA, Wormouth DR, Hartfiel VF, Hughey JB. Testing ESL Composition: A Practical Approach. London: Newbury Publishers House; 1981.
34. Baharum MA, Bujang NA. Simplified guide to determination of sample size requirements for estimating the value of interclass correlation coefficient: a review. Archives of Orofacial Sciences 2017 Jun; 12(1): 1-11.
35. Bobak CA, Barr PJ, O' Malley AJ. Estimation of an inter-rater intra-class correlation coefficient that overcomes common assumption violations in the assessment of health measurement scales. BMC Medical Research Methodology 2018 Sep; 18(1):93.
36. Trevethan R. Interclass correlation coefficients: Clearing the air, extending some cautions, and making some requests. Health Services and Outcomes Research Methodology 2016 Aug; 17 (2): 127-143.
37. Cohen L, Manion L, Morrison K. Research Methods in Education. 6<sup>th</sup> ed. London: RoutledgeFalmer Readers in Education; 2010.
38. Szendeffy J. Introduction to Computer Assisted Language Learning. Teaching English as a Second Foreign Language 2008 June; 10 (1):26-30.