

Writing Performance and Attitude of ESL Learners Engaged in Smartphone Assisted Collaborative Activity

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Abstract

Integration of technology which includes the use of a smartphone is currently one of the trends in ESL writing classes. Particularly in collaborative activities, it is assumed that the use of smartphones contributes to the attitude of the learners towards writing and their writing performance as well. Consequently, the present study investigated the writing performance of ten gender-mixed groups who used smartphones as they engaged themselves in a collaborative essay writing activity. Likewise, through a focused group discussion, attitude of the learners towards writing was determined. Results revealed that the collaborative essay writing activity which used smartphones had a positive influence on the content, organization and vocabulary of the essay. However, no influence was seen in grammar and mechanics. Learners reported a positive attitude in writing in terms of affective, behavioral and cognitive aspects.

Keywords: attitude in writing, collaborative writing, mobile assisted language learning, smartphones, writing performance

Introduction

The use of technology in classrooms has been the subject of research of some scholars across disciplines. More specifically, scholars have focused on the effects of using mobile phones both in the learning process and to the learners as well (Krull & Duart, 2017). Some scholars have investigated the effects of using mobile phones on the motivation, beliefs, perceptions, attitudes and values of the learners (i.e. Ataş & Delialioğlu, 2018; Azar & Nasiri, 2014; Bachore, 2015; Baran, 2014; Botero et al., 2018; Busulwa & Bbuye, 2018; Handbidge et al., 2018; Heflin et al., 2017; Huang et al., 2016; Muhammed, 2014; O'Bannon et al., 2017). In addition, frameworks and constructs showing the relationship between the use of mobile phones in the classroom and some social variables including age, gender, ability, experience, learning style and culture were posited (Andujar, 2018; Andújar-Vaca & Cruz-Martínez, 2017; Cybart-Persenaire & Literat, 2018; Kukulska-Hulme et al., 2017; Kukulska-Hulme et al., 2015; Hwang et al., 2014; Milrad, et al., 2013; Power, 2013; 2018; Wong, 2012; 2015; Wong et al., 2015).

In ESL classrooms, the importance of mobile phones has been recognized to make language learning more responsive to the current technological advancements (Baran, 2014; Ekanayake & Wishart, 2014; Khaddage et al., 2016; Kim et al., 2017). In addition, the use of mobile phones in ESL classrooms has been found to be beneficial to the learning experiences of the learners (Andujar, 2016; Ataş & Delialioğlu, 2018; Bolero et al., 2018; Chen et al., 2017; Elaish et al., 2017; Lin & Yu, 2017; Kukulska-Hulme & Viberg, 2018; Lindell & Hranstinski, 2018; Pollard, 2015; Reinders, 2010).

The study of Kukulska-Hulme and Viberg (2018) identified convincing cases for the paybacks of collaboration offered by mobile devices in language learning. The first was its affordances that include “flexible use, continuity of use, timely feedback, personalisation, socialisation, self-evaluation, active participation, peer coaching, sources of inspiration outdoors, and cultural authenticity” (p. 207). The second was the prevalence of both individualized and collaborative learning experiences, “task based, situated, and communicative language learning and raising orthographic awareness” (p. 207). The third was the affective facets which include improved motivation, active involvement and satisfaction, reciprocal reinforcement, and decreased tension and anxiety among learners. They, likewise, reported little accounts of risk distraction, concerns on safety, sense of uncertainties, and technical challenges.

Generally, there has been an overwhelming number of studies on mobile learning designs (Kukulska-Hulme & Viberg, 2018) and on the advantages of mobile technology use in the classroom (Kim et al., 2017). However, Kukulska-Hulme and Viberg (2018) encourage researchers to also pay attention to the process and teaching and learning systems which are crucial in promoting designs in mobile learning. They also recommended to probe into language-learning-related communication and interaction among learners using their mobile devices in a daily basis in out-of-school contexts. In addition, some scholars suggested delving into the development of theories in mobile assisted language learning (MALL), investigate the various strategies and designs that address diverse learning conditions of collaboration (Kukulska-Hulme & Viberg, 2018).

Some scholars proposed the Seamless Language Learning (SLL) model which encourages the use of the mobile phone in language teaching and learning (Kukulska-Hulme, 2015; Wong et al., 2015). The model asserts the importance of the mobile phone both to the teachers and learners.

Review of Literature

Seamless Learning and Mobile Learning

To Wong et al. (2017), the Seamless Language Learning (SLL) creates a link between the language learning experience and the language learning situations which may be formal or non-formal, individual or group, physical or virtual. The SLL, likewise, encourages the use of authentic, meaningful or real-life activities in different contexts to make social interaction possible.

On the other hand, Pergum (2014) claims that mobile learning (m-learning) is not limited to the use of the mobile phone in language learning, rather, m-learning includes spaces. Some scholars used the term Mobile Assisted Language Learning (MALL) which recognizes the importance of the mobile phone to make language classrooms more relevant, innovative, situated, active, and autonomous. Studies focused on the relationship between the mobile phone and the four macro-skills of language learning which include speaking (Abugohar et al., 2019; Andújar-Vaca & Cruz-Martínez, 2017; Cavus & Ibrahim, 2017; Darmi & Albion, 2017; Hwang et al., 2014; Pollard, 2015), listening (Cavus & Ibrahim, 2017; Hwang et al., 2014; Rochdi & Eppard, 2017) reading (Gheytsi et al., 2015; Lilley & Hardman, 2017; Rochdi & Eppard, 2017) and writing (Andujar, 2018; Andújar-Vaca & Cruz-Martínez, 2017; Chen et al., 2017; Siddique & Nair, 2015) were, likewise, conducted.

Since writing is a skill which is not quite easy to master, scholars conducted studies focused on the different strategies that would help improve the writing skills and performance of the learners. Some scholars investigated the effect of collaborative writing (CW) strategy on the performance of ESL learners (Albeshar, 2012; Fernández Dobao, 2012; 2014; Fernández Dobao & Blum, 2013; Park, 2015; Sajedi, 2014; Shehadeh, 2011; Storch, 2017;

Storch & Wigglesworth, 2010). Findings from their studies both conform and counter each other with respect to the quality of learners written outputs. These reports challenge scholars to further investigate effects of CW on different perspectives and settings.

According to Storch (2013), collaborative writing involves co-authoring of a group of learners in a written text. Stemmed from the interactionist perspective, language learners are social beings that are inherently in contact with the environment through communicative interaction (Long, 1983; 1985). Furthermore, CW is braced from Vygotsky's (1978) sociocultural theory which emphasizes the significance of scaffolding through the Zone of Proximal Development (ZPD) where a learner is engaged in a community of more knowledgeable individuals in order to further learning.

Emerging technologies that flourished not only in business sectors but also in educational landscapes have greatly influenced the teaching and learning delivery including writing. There are numerous composing technologies readily available for personal, professional, and academic purposes. The significant increase of technology integration in the classroom has greatly influenced composition instructors to consider shifting or adopting new teaching of writing deliveries that include digital writing tools and environments (Nobles & Paganucci, 2015).

Several studies conducted were about the use of Google Docs, Wikispaces, and other google-related sites (Acar et al., 2011; Barton & McCulloch, 2018; Brodahl & Hansen, 2014; Brodahl et al., 2011; Kiourmasi et al., 2018; Liu et al., 2018; Marandi & Seyyedrezie, 2017; Nobles & Paganucci, 2015; Seyyedrezaie et al., 2016), social media platforms (i.e. Storify and Facebook) (Laire et al., 2012; Ponnudurai & Jacob, 2014), and blogs (Amir et al., 2011; Hernandez et al., 2017; İnceçay & Genç, 2014; Nobles & Paganucci, 2015; Özdemir & Aydın, 2015). While all of these studies investigated the effect of using various platforms on the writing performance of learners whether individual or collaborative, most of these were conducted in out-of-class context, involved college or university students, and used technologies that may not be available or accessible in low-resource learning environments.

Moore et al. (2016) emphasized the need to update writing pedagogies in order to address the behavior of the learners especially in using at-hand and emerging technologies. Although participants in their study performed writing individually, Hernandez, Amarles and Raymundo (2017) affirmed that the use of composing technologies such as blogs promotes virtual collaboration among learners, provides monitoring of learners' writing progress and enhances students' writing skills. In their study, they also realized that blogging motivates learners to write and serves as an authentic, innovative and flexible writing activity for the 21st century ESL learners. Likewise, they suggested the investigation of other writing spaces such as Facebook, Blackboard Learn and other potential composing tools to explore other perspectives in writing.

Several studies (i.e. Alsamadani, 2018; Blackmore-Squires, 2010; Aydın & Yıldız, 2014; Kessler et al., 2012; Marandi & Seyyedrezaie, 2017) highlighted the relevance of collaborative activities that used digital tools and technologies to enhance the writing skills of the learners and to make the writing process more meaningful and enjoyable to the learners.

Mobile Phone Assisted Collaborative Language Learning

Several studies found the affordances of mobile technologies such as smartphones in language learning. These include utilizing images, audio and video materials for multimodal language learning activities, designing writing, listening, and speaking tasks that promote collaboration, supporting individual learning preferences by presenting self-driven activities, equipping learners with digital literacy necessary in their future careers, and harnessing mobility and seamlessness of authentic language learning opportunities outside of school premises (Baran, 2014; Godwin-Jones, 2018; Khaddage, et al., 2016; Kukulsla-Hulme et al.,

2015; Kukulska-Hulme, 2015 ; Kukulska-Hulme et al., 2017; Kukulska-Hulme & Viberg, 2018; Krull, G. & Duarte, 2017; Lindell, & Hranstinski, 2018; Pollard, 2015).

Since some scholars are claiming that the use of the mobile phone enhances collaborative learning (Cress et al., 2015; Kiourmasi et al., 2018; Kukulska-Hulme & Viberg, 2018; Liu et al., 2018; Moore et al., 2016), the interest of the current generation of learners in using the mobile phone has increased. On the other hand, some studies (i.e. Heflin et al., 2017) have shown an increase in the disengagement of some learners in class activities and a deteriorating critical thinking skill.

However, the limited studies focused on the use of the mobile phone in ESL writing classes prompted the conduct of the present study. Generally, the study aimed to describe the performance of the ESL learners who used a smartphone in a collaborative writing activity. More specifically, the study answered the following:

1. What is the quality of essays produced by learners engaged in a smartphone assisted collaborative writing (SPACW) activity?
2. How are the smartphones utilized by the learners throughout the writing process?
3. What attitude towards writing do the learners exhibit?

Methodology

Sampling and Participants

The study was anchored in both quantitative and qualitative paradigms. It involved two intact classes of Grade 11 students (N=40) who were enrolled in the course Reading and Writing during the second semester of the Academic year 2018-2019. The two classes were divided into 10 groups for the collaboration. Each group had four members composed of two males and two females. The study was set to determine the performance of the learners who engaged themselves in smartphone assisted collaborative writing. In addition, a focused group discussion (FGD) was done to determine the attitude of the learners towards the activity.

Data Collection Procedure

To easily communicate with the participants, a group chat through the Facebook Messenger was created prior to the conduct of the study. Afterwards, data gathering was done in two parts: (1) smartphone assisted collaborative writing (SPACW); and (2) focused group discussion (FGD).

Smart-Phone Assisted Collaborative Writing

Essay writing was done in three phases: (1) orientation and lecture; (2) online collaboration; and (3) collaborative essay writing.

During the orientation and lecture phase which lasted for 15 minutes, the use of a mobile phone and the collaborative task was explained to the participants which included a lecture on argumentative essay writing. During the online collaboration phase, participants were asked to access their group chat where 15 pictures related to the current social issues in the Philippines were sent as prompts. Lecture notes and model essays were also provided in the group chat. Participants were also allowed to share online resources including links to their members. The last phase was the collaborative writing task where each group produced a jointly written essay. The online collaboration and collaborative essay writing lasted for 45 minutes.

Focused Group Discussion

The focused group discussion was done immediately after the essay writing to determine the attitude of the participants toward the SPACW. Each group was invited for a 30 minute to one-hour discussion which was audio recorded upon their consent.

Data Analysis

To determine the essay quality of each group, the Paragraph Writing Scale developed by Hedgcock and Lefkowitz (1992) was used. The scale is an analytic rubric with five (5) writing quality components which include content, organization, grammar, vocabulary, and mechanics. Each component is composed of the quantified description: Excellent to Very Good, Good to Average, Fair to Poor, and Very Poor (See Appendix). Aside from the researcher, two other ELT practitioners served as the evaluators of the essays. A pilot assessment was conducted using two randomly selected essays. The researcher discussed with the interraters how the essays would be rated using the instrument. After blindly rating the essays, interrater reliability was calculated using Cronbach's Alpha and was established at .89. Furthermore, excerpts from the FGD which directly describe the attitude of the learners were selected from the transcript following the language attitude framework of McKenzie (2010; 2015).

Results and Discussion

Data obtained from the smartphone collaborative writing tasks and from the focused group discussion are summarized below to address the research problems.

Essay Quality of ESL Learners Engaged in Smartphone Assisted Collaborative Writing Activity

The first research question sought to examine the essay quality of ESL learners engaged in the smartphone assisted collaborative writing activity in terms of content, organization, grammar, vocabulary and mechanics. Tables 1-6 show the descriptive statistics for the 10 essays evaluated using the paragraph rating scale.

Table 1: Essay Quality of ESL Learners Engaged in Smartphone Assisted Collaborative Writing (SPACW) in Terms of Content

Essay ^a	Group Code ^b	Mean	SD	Interpretation ^c
1	SPACW-1	25.00	1.00	Good to Average
2	SPACW-2	22.00	4.36	Good to Average
3	SPACW-3	23.00	1.73	Good to Average
4	SPACW-4	23.00	1.73	Good to Average
5	SPACW-5	21.00	1.00	Fair to Poor
6	SPACW-6	19.33	1.15	Fair to Poor
7	SPACW-7	21.00	3.00	Fair to Poor
8	SPACW-8	25.33	1.53	Good to Average
9	SPACW-9	22.00	2.00	Good to Average
10	SPACW-10	23.00	1.00	Good to Average

^a maximum score is 30 points, ^b n = 4 members each group (2 males, 2 females) ,

^c for essay quality scale see Appendix

Table 1 demonstrates the quality of essays produced by the groups in terms of content. Seven essays were rated “Good to Average,” while three were rated “Fair to Poor”. Results revealed that most of the groups benefited from the use of a smartphone in terms of providing substance to their essays. However, data suggest that the influence of the activity varies among groups.

Table 2: Essay Quality of ESL Learners Engaged in Smartphone Assisted Collaborative Writing (SPACW) in Terms of Organization

Essay ^a	Group Code ^b	Mean	SD	Interpretation ^c
1	SPACW-1	17.33	.58	Good to Average
2	SPACW-2	15.00	2.00	Good to Average
3	SPACW-3	14.00	1.00	Good to Average
4	SPACW-4	16.33	1.53	Good to Average
5	SPACW-5	14.00	.00	Good to Average
6	SPACW-6	14.00	1.00	Good to Average
7	SPACW-7	14.33	2.08	Good to Average
8	SPACW-8	17.00	2.65	Good to Average
9	SPACW-9	14.33	.58	Good to Average
10	SPACW-10	13.00	.00	Fair to Poor

^a maximum score is 20 points, ^b n = 4 members each group (2 males, 2 females),

^c for essay quality scale see Appendix

Table 2 displays the quality of essays of the teams in terms of organization. Data, likewise, show the dominance of essays with high quality. Nine out of ten essays were rated “Good to Average” in terms of organization. Results suggest that the activity is beneficial in organizing essays.

Table 3: Essay Quality of ESL Learners Engaged in Smartphone Assisted Collaborative Writing (SPACW) in Terms of Grammar

Essay ^a	Group Code ^b	Mean	SD	Interpretation ^c
1	SPACW-1	20.67	1.15	Good to Average
2	SPACW-2	20.00	3.00	Good to Average
3	SPACW-3	16.67	1.53	Fair to Poor
4	SPACW-4	18.00	2.00	Good to Average
5	SPACW-5	15.67	1.53	Fair to Poor
6	SPACW-6	15.33	2.89	Fair to Poor
7	SPACW-7	13.67	1.53	Fair to Poor
8	SPACW-8	21.00	1.00	Good to Average
9	SPACW-9	17.67	1.15	Fair to Poor
10	SPACW-10	14.67	3.21	Fair to Poor

^a maximum score is 25 points, ^b n = 4 members each group (2 males, 2 females),

^c for essay quality scale see Appendix

Table 3 presents the quality of essays in terms of grammar. Majority of the essays examined have “Fair to Poor” quality; only four were rated “Good to Average.” Based on the inter-raters’ evaluation, the majority of the essays have problems with grammatical accuracy,

specifically errors in agreement, tense, and prepositions. It can be inferred from the data that the activity did not significantly influence the grammar aspect of participants' written output.

Table 4: Essay Quality of ESL Learners Engaged in Smartphone Assisted Collaborative Writing (SPACW) in Terms of Vocabulary

Essay ^a	Group Code ^b	Mean	SD	Interpretation ^c
1	SPACW-1	16.67	1.53	Good to Average
2	SPACW-2	15.67	1.15	Good to Average
3	SPACW-3	14.00	1.73	Good to Average
4	SPACW-4	14.00	1.73	Good to Average
5	SPACW-5	13.33	.58	Fair to Poor
6	SPACW-6	13.33	.58	Fair to Poor
7	SPACW-7	14.33	1.53	Good to Average
8	SPACW-8	17.67	.58	Good to Average
9	SPACW-9	14.00	1.73	Good to Average
10	SPACW-10	15.00	1.73	Good to Average

^a maximum score is 20 points, ^b n = 4 members each group (2 males, 2 females),

^c for essay quality scale see Appendix

Table 4 illustrates the quality of essays of the groups in terms of vocabulary. Evidently, eight of the ten essays examined were rated "Good to Average" which suggest a positive influence of the activity in the writing performance of the participants in terms of the adequate use of vocabulary in their essays.

Table 5: Essay Quality of ESL Learners Engaged in Smartphone Assisted Collaborative Writing (SPACW) in Terms of Mechanics

Essay	Group Code	Mean	SD	Interpretation
1	SPACW-1	4.33	.58	Good to Average
2	SPACW-2	4.00	.00	Good to Average
3	SPACW-3	3.33	.58	Fair to Poor
4	SPACW-4	4.00	.00	Good to Average
5	SPACW-5	3.67	.58	Fair to Poor
6	SPACW-6	4.00	.00	Good to Average
7	SPACW-7	4.00	.00	Good to Average
8	SPACW-8	4.00	.00	Good to Average
9	SPACW-9	4.00	.00	Good to Average
10	SPACW-10	3.33	.58	Fair to Poor

^a maximum score is 5 points, ^b n = 4 members each group (2 males, 2 females),

^c for essay quality scale see Appendix

Table 5 shows the quality of essays of the writing teams with respect to mechanics. Seven essays were rated "Good to Average" quality. On the other hand, three were evaluated "Fair to Poor". Although there is a greater number of essays with high quality, a clear benefit of the writing activity could not be identified in this analysis. Data suggest that the influence of the activity in the writing performance of the learners varies among groups.

Table 6: Overall Quality of Essays in Smartphone Assisted Collaborative Writing (SPACW) Activity

Essay ^a	Group Code ^b	Overall Quality	Interpretation ^c
1	SPACW-1	84.00	Good to Average
2	SPACW-2	76.67	Good to Average
3	SPACW-3	71.00	Good to Average
4	SPACW-4	75.33	Good to Average
5	SPACW-5	67.67	Fair to Poor
6	SPACW-6	65.99	Fair to Poor
7	SPACW-7	67.33	Fair to Poor
8	SPACW-8	85.00	Good to Average
9	SPACW-9	72.00	Good to Average
10	SPACW-10	69.00	Good to Average

^a maximum score 100 points, ^b n = 4 members each group (2 males, 2 females),

^c overall essay quality scale=Excellent to Very good (86-100 pts.), Good to Average (68-85 pts.), Fair to Poor (47-67 pts.), Very Poor (32-46 pts.)

Table 6 demonstrates the overall quality of the essays produced by the groups. Seven essays were rated “Good to Average” while three were rated “Fair to Poor”. Essay 8 was identified to have the highest rating of 84.00 and essay 6 with the lowest score of 65.99. Data show that the influence of the smartphone assisted collaborative writing (SPACW) activity varied among groups. It can be inferred that each group might have individual characteristics or attributes that might have influenced their collaborative interactions and writing performance as a team.

Table 7: Overall Essay Quality of ESL Learners in Smartphone Assisted Collaborative Writing (SPACW) Activity per Component

Components	Maximum Score	M	SD	Interpretation
Content	30	22.4667	1.82709	Good to Average
Organization	20	14.9333	1.45551	Good to Average
Grammar	25	17.3333	2.58199	Fair to Poor
Vocabulary	20	14.8000	1.45042	Good to Average
Mechanics	5	3.8667	.322013	Fair to Poor

Note. N=40 (10 writing teams with 4 members each)

Table 8 shows the mean (M) scores received by the 10 groups (N=40) of writing teams from the three raters. Essays of the writing teams have earned “Good to Average” in three of the five components namely content (M=22.4667), organization (M=14.9333), and vocabulary (M=14.8000). On the other hand, the two remaining components namely mechanics (M=3.8667) and grammar (M=17.3333) fall under the “Fail to Poor” category. Results revealed that the use of a smartphone during the collaborative writing activity has positively influenced the writing quality of ESL learners in the three components: content, organization, and vocabulary. However, results likewise showed that the use of a smartphone during the collaborative writing task did not help them greatly in terms of grammar and mechanics.

ESL Learners' Utilization of Smartphones during the Writing Process

ESL learners' utilization of their smartphones during the writing process was determined by engaging the 10 writing teams in the collaborative writing activity in a focused group discussion immediately after the writing session. Responses of the participants were analyzed. Highlights of the FGD are presented below.

Initially, participants were asked how helpful their use of a mobile phone was during the collaborative writing activity. They responded that the mobile phone was "Very helpful" in multiple ways while they were accomplishing the writing task.

S -011: *Yes, sir, it is very helpful. It's easy to write an essayto collaborate our idea if we have an internet and phone. It's easy to gather information that will help our argument or essay to be more convincing to the reader.*

S-005: *I would say it is very helpful. With the use of mobile phone in class and especially if it has internet access... it is easy for us to search for relevant information needed in the class.*

Participants confidently expressed their affirmation that allowing learners to use their mobile phones during collaborative writing activities similar to what they have experienced would greatly help them in generating ideas since there are sources where they could find relevant information needed to compose their essay.

Searching Information

One of the most mentioned significant uses of a mobile phone during the collaborative writing activity was the immediate accessibility of information needed for their composition. Participants valued the internet access through their smartphones where information could be easily searched as reflected in the responses below:

S-003: *Napakahalaga ng mobile phone sa sulating ito lalo na kung ang topic na napunta o naiatas sayo ay hindi mo gusto o di ka interisado. Matutulungan kang ganahan magsulat dahil meron kang basehan sa mga pwede mong isulat. (In this activity, the mobile phone was very important especially when you don't like the topic or you are not interested or knowledgeable about it. The mobile phone will greatly help you.... You get to be more motivated because you can have sources of information which you can include in your essay.)*

S-005: *With the use of mobile phone in class and especially if it has internet access it is easy for (us) the students to search for relevant information needed in the class.*

Generating Concepts

Participants explained how they were able to generate their ideas collaboratively as they used the information they gathered in a number of online resources.

S-016: *Mas napapabilis ang pag-isip habang gumagamit ng mobile phone through internet... habang ang bawat members ay nagbibigay ng*

sari-sariling opinion...mula sa nahanap na impormasyon na susuporta sa argumentative essay namin. (It is faster to think [of ideas] while using mobile phone through internet... while every member is giving their opinions... based on the information gathered [in the internet] which will support our arguments in our essay.)

Organizing Ideas

Participants emphasized that they were able to organize their ideas while taking advantage of the opportunities of interaction and immediate feedback they received from their group members.

S-029: *We have brainstorming and reporting of information searched online... and yes mas napaganda at naayos namin yung content ng essay namin dahil mas maraming information ang nakuha namin [mula sa internet]. (We have brainstorming and reporting of information searched online... and yes we were able to organized the content of our essay because we were able to get a lot of information [from online sources).*

S-011: *Nakakatulong ang cellphone sa atin habang gumagawa ng mga tasks. Sa pamamagitan nun, mas napapaganda natin ung essay natin.... It helps to gather information and expand our idea about the topic. (Cellphone has helped us a lot while we were doing the tasks. Because of that, we were able to produce a well-written essay. It helps to gather information and expand our idea about the topic.)*

Learning/Building Vocabulary

During the activity, students recognized the advantage of using mobile phones in finding the appropriate words to use in their compositions. Some participants expressed that they did not know the meaning of some words they read online. With the use of some popular search engines, word translation sites and e-dictionaries, they were able to find and understand some unfamiliar words and expressions.

S-029: *...para kapag hindi mo alam pwede kang gumamit ng cellphone para makapagsearch sa google... dahil kaya nang isearch...ung ilan na wala sa ibang diksyunaryo... by searching the meaning and anything in my mobile phone. (...so that when you do not know you can use your mobile phone to search in google...because we can already search... other [words] which are not found in some dictionaries... by searching the meaning and anything in my mobile phone)*

S-008: *Tulad nga po ng sabi ko na pabor kami dahil hindi kami masyadong marunong sa English...kasi po bilang mag-aaral hindi naman sa lahat ng antas pagdating sa pagsusulat ay mahusay lalo na mga words at grammar.... (Like what I said that we are in favor [of using mobile phone] because we are not that good in English... because as students we know that we are not*

that really good in all aspects of writing especially in words and grammar).

ESL Learners' Attitude towards Smartphone Assisted Collaborative Writing (SPACW) Activity

The third part of the study focused on the attitude of the learners toward the use of the smartphone while writing their essays collaboratively. During the focused group discussions (FGDs), most of the students expressed positive comments and responses about their smartphone assisted collaborative writing experience. Following the language attitude framework of McKenzie (2010; 2015), three major themes were emphasized, affective response, behavioral response, and cognitive response (ABC). The highlights of their attitudes in writing are presented below:

Affective Response

Some participants included in the FGDs expressed their enthusiasm, enjoyment, and motivation in writing when they were allowed to use their personal mobile phones during their writing activity. Expression of delight while doing the activity was repeatedly mentioned as reflected in the responses of the learners:

S-003: *Yes, mas motivated akong magsulat kung gagamit ng mobile phone dahil kahit papaano panatag ang kalooban kong sumulat dahil may sapat akong details na pinagkukunan.* (Yes, I am more motivated in writing when I use mobile phone because it builds my confidence in my writing since I have access to information from different sources.)

S-004: *Mas ginaganahan ako dahil dito nalalaman ko ung maaring mailagay sa essay atnakatutulong ito sa aming ideya.* (I have the eagerness to write because [of mobile phone] I learn some information which we can include in our essay and help improve our ideas).

Behavioral Response

Participants expressed that the collaborative writing activity assisted by smartphones increased their confidence and made them more participative because they found new ideas online. Likewise, other students reported active sharing of relevant topics and providing immediate feedback after attentively listening to group members. Participants recognized the value of group work because each member of the group was given specific roles which helped in searching available resources necessary to produce a quality essay. In addition, learners implicitly expressed active negotiation of meaning in their compositions while aiming to produce a comprehensive essay.

S-012: *We divided the roles for each member. For example, student 1 will search about law for the particular topic, student 2 will search about the current situation of the country about the topic... then ang bawat isa ay nagbibigay ng kani-kaniyang opinion tungkol sa nabasa... in that way each member participated.* (We divided the roles for each member. For example, student 1 will search about law for the particular topic, student 2 will search about the current situation of the country about the topic... then everyone gives his own opinion about what they have read...in that way each member participated).

Cognitive Response

Participants narrated that writing became easier because of the use of smartphones during the collaborative writing activity. They recognized the availability and accessibility of information at their fingertips which for them makes the handheld devices valuable for a writing activity.

S-021: For us it is very important... with the help of the mobile phone we know we can find other information that will support our topic ...kasi madali nalang gumawa ng essay kapag may mga magagamit kang supporting details na makikita sa internet. (For us it is very important... with the help of the mobile phone we know we can find other information that will support our topic...it is easier to write an essay if you have useful supporting details from the internet).

S-003: Napakahalaga ng mobile phone sa sulating ito lalo na kung ang topic na napunta o naiatas sayo ay hindi mo gusto o di ka interisado. Matutulungan kang ganahan magsulat dahil meron kang basehan sa mga pwede mong isulat. (In this activity, the mobile phone was very important especially when you don't like the topic or you are not interested or knowledgeable about it. The mobile phone will greatly help you.... You get to be more motivated because you can have sources of information which you can include in your essay).

Some participants narrated that everyone contributed in the task at hand. Others expressed their confidence that they could provide significant opinion to compose a good essay. With the use of smartphones, learners were given the opportunity to read online resources and share their ideas. Furthermore, participants value reading as an inherent aspect of the writing process as reflected in the excerpt below:

S-001: In my case po, may kasiguraduhan akong meron akang maibibigay, may kasiguraduhan akong magagawa ko ng maayos at makakatulong sa pagbibigay ng impormasyon sa tulong ng mobile phone. If there is something I don't understand, I can easily search for it. (In my case, I am very sure that I can give something, I am sure that I can do well and can help in giving information with the help of mobile phone. If there is something I don't understand, I can easily search for it).

Discussion

The present study is a response to the increasing demands in current literature regarding practical investigations on emerging practices (Andujar, 2016; Kukulsme-Hulme & Viberg, 2018) essential to understanding learners' responses to these eyed state-of-the-art technologies in language classrooms and to better recognize different perspectives in mobile phone integration. It is essential, therefore, to treat the findings with caution since it may be situated in the context with cultural and social underpinnings significantly different from other educational settings.

For the first research question, results revealed that in terms of content, seven groups had "Good to Average" quality while three had "Fair to Poor" (See Table 1); for organization, nine essays had "Good to Average" quality and one with "Fair to Poor" (See Table 2); for grammar, six essays had "Fair to Poor" quality and four had "Good to Average"

(See Table 3); with respect to vocabulary, eight essays had “Good to Average” quality and two had “Fair to Poor” (See Table 4); and for mechanics, seven essays had “Good to Average” quality and three had “Fair to Poor” (See Table 5). For the overall essay quality, seven essays had “Good to Average” and three had “Fair to Poor” (See Table 6). Findings suggest that the influence of the smartphone assisted collaborative writing (SPACW) activity varies among writing teams and on the language components measured.

One possible explanation might be the individual differences or personality traits of each learner per group. A closer inspection of the results revealed that only four teams namely SPACW-1, SPACW-2, SPACW-4, and SPACW-8 were able to produce “Good to Average” quality in all essay components. The rest of the groups were rated “Fair to Poor” in one or more components. It could be possible that each member in the four groups mentioned are accustomed to working with others while the rest of the teams might not be comfortable working with peers. Some might not be used to having multiple perspectives in writing as they cause conflicts among members during the writing process. Likewise, learners might also have individual mechanisms or strategies in language learning (Wong & Nunan, 2011), in this case writing, which may not conform to some members. As Wilson (2019) reports in his study that in CW, diversity is both an affordance and constraint.

Another possible reason might be the degree of collaborative interaction among members of each group. In this study, learners were randomly and arbitrarily assigned to a group of four members composed of two males and two females. It could be possible that most of the groups were not familiar with each other. This might have resulted in a lower degree of collaborative interaction as opposed to what was expected of them if they had been familiar with each other prior to the execution of the writing activity. Ironically, those four groups mentioned might already have been well-acquainted with each other, which could possibly have resulted in a well-coordinated performance throughout the activity. This account is supported by some scholars such as Ferriman (2013), Storch (2017), and Wilson (2019).

Likewise, in relation to individual differences, the proficiency level of each member might have an effect on the writing performance of the group. It could also be possible that most of the groups might have worked more slowly compared to other teams. It is worthwhile to note that CW creates an atmosphere for a great number of language-related episodes or LREs (Fernández Dobao, 2012; 2014; Fernández Dobao & Blum, 2013; Park, 2015; Storch, 2011; 2013; Storch & Wigglesworth, 2010). Some of the groups might have had more collaborative interactions which consumed most of their time during the writing activity due to several conditions. Some groups might have had competition of thoughts where members are wrestling with their ideas resulting in lesser time allotted in the composition of their respective essays (i.e. Wilson, 2019). This could be possible most especially for SPACW-5, SPACW-6, and SPACW-7 who had the lowest ratings. In contrast, it could also be possible that other groups followed the suggestions of the dominant member of the group or accommodated others inputs setting aside their own view to lessen time of negotiations. Some scholars such as Aufa (2019), Tan et al. (2010), and Wilson (2019) acknowledge these justifications.

Majority of the teams benefited from the writing activity mostly in terms of organization and vocabulary and least in grammar. Closer inspection of the data (See Table 7) shows that, in general, the activity has positively influenced the writing performance of the teams specifically in terms of content, organization, and vocabulary. However, it cannot be generally assumed that the mobile phones were the only factor for learners’ remarkable performance in the three components. Aside from the utilization of the device, it has to be noted that the collaborative aspect of the writing activity might have also contributed significantly in the quality of their essays (Al-Besher, 2012; Hernandez, et al., 2017; Levrai

& Bolster, 2018; Strobl, 2014). Inherently, as part of the collaboration, immediate feedback from the members of the writing team might have also helped the learners in overcoming writing challenges faced while performing the task (Hernandez et al., 2017; Kukulsme-Hulme & Viberg, 2018). On the other hand, results revealed that the SPACW activity did not positively influence their writing performance in terms of grammar and mechanics (See Table 7). This finding echoes previous studies conducted by (i.e. Albeshar, 2012; Sajedi, 2014; Shehadeh, 2011) where students worked collaboratively and they remained to underperform in those areas.

The infiltration of mobile devices in a low-resource environment (Irina, 2012; Chiverton, 2017) and learners' recognition of the significant contribution of the handheld devices in their composition poses the need for purposive integration of the mobile tools in the writing classes. Since learners are exposed to gadgets since birth (Montealegre, 2019; Moore et al., 2016), teachers of writing should prepare and train learners to be responsible users of these devices and to take advantage of their academic affordances, especially in writing. This also presents the need to equip learners with the technological knowledge and skills that include the use of mobile features and applications for both offline and online tools useful in writing activities, and promote information literacy and critical thinking which includes selecting, collecting, filtering, consuming, and injecting information from online sources for their compositions. Cotos (2020) reiterates that learning how to use different modalities and technologies for composition is an essential part of mastering writing. Findings also suggest the need to explore possible ways of addressing the needs of learners in terms of the grammar and mechanics in writing. It entails investigation of teaching models and strategies responsive to 21st century writing tools (Moore et. al, 2016, Wilson, 2019).

Responses of the participants as to how they were able to utilize their mobile phones during the writing activity revealed that mobile phones were able to assist students in terms of searching relevant information for their topic, organizing and generating ideas from the accessed information, and enriching learners' vocabulary both offline and online (Andujar, 2016) by using the applications and search engines respectively. The present study strengthens the claim of the incontestable affordances of mobile phones in language learning (Kukulsme-Hulme & Viberg, 2018) specifically in the area of writing which has been unnoticed in several studies. Because the learners are exposed to a technology-driven and information-loaded environment (Montealegre, 2019; Moore et al, 2016), they should be equipped with the skills essential in dealing with the kind of fluid learning environment they are immersed into. Cotos (2020) explains that a significant portion of writing is being equipped with the skills needed in using writing tools. As demanded by time, teachers must support learners as they compose using various modalities and technologies.

Lastly, the learner's attitudes towards the smartphone assisted collaborative writing activity revealed their positive responses affectively, behaviorally, and cognitively. It only shows that when learners are placed into learning situations close to what permeate their lives, execution of learning activities become more meaningful and learners' academic energy will delight composition instructors. This study presents that the very challenging role of teachers is paramount in redefining the usability of mobile phones making them more academically beneficial and instrumental in language learning (Botero et al., 2018).

Conclusions

The present study has gone towards enhancing ELT practitioners' understanding of the affordances of mobile technologies such as smartphones in collaborative writing in the L2 classrooms. This new understanding should help to improve predictions of the impact of mobile phones on the writing performance of the language learners. Scholars established claims on the language learning opportunities in collaborative writing activities (Fernández

Dobao, 2012; 2014; Fernández Dobao & Blum, 2013; Sajedi, 2014; Shehadeh, 2011; Storch, 2011; 2013) among learners. Learners are actively engaged in self-driven writing as they are immersed in using state-of-the-art gadgets. There is no doubt that integrating these multi-functional devices would positively impact the learners' performance and attitude in writing to a great extent.

Findings revealed that the collaborative writing activity assisted by smartphones positively influenced the learners' writing performance in terms of the quality of their essays. However, it shows that mobile phones are advantageous mostly in terms of content, organization, and vocabulary and does not significantly assist learners' writing in terms of grammar and mechanics. Findings resonate previous reports (Albeshier, 2012; Sajedi, 2014; Shehadeh, 2011, Strobl, 2014) that collaborative writing tasks contribute to the content and organization of the produced essays of the participants. Furthermore, this study provides supporting evidences for the benefits of online resources in the overall quality of learners written output (Hsieh, 2016; 2019).

Overall, findings of the study resonate reports on the positive impact of mobile phones in collaborative language learning (Kulkulma-Hulme & Viberg, 2018) and attitude towards collaborative writing (Fernández Dobao & Blum, 2013) with access to digital devices and online resources (Hsieh, 2016; 2019).

Limitations and Recommendations

Significant evidences of mobile assisted language learning were documented in this study. However, it also suffers from a number of limitations. First, the smartphone assisted collaborative writing was done only in a single-session. Further research is needed to better understand the influence of the tasks on the writing performance of the learners in those measured components. This means that multiple sessions are required to further examine how it works in the different stages of the writing process. Essentially, it will yield substantial data to enhance understanding of the impact of learners' use of smartphones on pre-writing, during writing, and post-writing activities. Second, no instrument was used to capture patterns of interaction among members in each group. This would have been a valuable contribution for the existing body of knowledge on smartphone assisted collaborative writing tasks. It is, therefore, suggested that future researchers consider recording verbal interactions among learners during SPACW to determine the learners' behaviors and priorities when writing. Third, no instrument was used to counter-check collaborative writing behaviors and smartphone usage behaviors of the learners. This would be a fruitful area for future research. Considerably, further studies are needed in order to evaluate effectively the influence of smartphones in the writing performance of L2 learners in collaborative writing activities.

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References

- Abugohar, M., Yunus., K., & Rashid, R. (2019). Smartphone applications as teaching technique for enhancing tertiary learners' speaking skills: Perceptions and practices. *International Journal of Emerging Technologies in Learning (iJET)*, 14(9). <https://learntechlib.org/p/209731/>
- Acar, A., Geluso, J., & Shiki, T. (2011). How can search engines improve your writing? *CALL-EJ*, 12(1), 1-10. http://caliej.org/journal/12-1/Acar_2011.pdf
- Albeshar, K. B. (2012). *Developing the writing skills of ESL students through the collaborative learning strategy* [Doctoral dissertation, Newcastle University]. Semantic Scholar.
- Alsamadani, H. A. (2018). The effectiveness of using online blogging for students' individual and group writing. *International Education Studies*, 11(1), 44-51. <https://doi.org/10.5539/ies.v11n1p44>
- Amir, Z., Ismael, K., & Hussin, S. (2011). Blogs in language learning: Maximizing students' collaborative writing. *Procedia Social and Behavioral Sciences*, 18, 537-543. <https://doi.org/10.1016/j.sbspro.2011.05.079>
- Andujar, A. (2016). Benefits of mobile instant messaging to develop ESL writing. *System*, 62, 63-76. <http://dx.doi.org/10.1016/j.system.2016.07.004>
- Andújar-Vaca, A., & Cruz-Martínez, M. S. (2017). Mobile instant messaging: Whatsapp and its potential to develop oral skills. *Communicar*, 50(25), 44-52. <https://files.eric.ed.gov/fulltext/EJ1168743.pdf>
- Ataş, A. M., & Delialioğlu, Ö. (2018). A question-answer system for mobile devices in lecture-based instruction: A qualitative analysis of student engagement and learning. *Interactive Learning Environments*, 26(1), 75-90. <https://doi.org/10.1080/10494820.2017.1283331>
- Aufa, F. (2019). *An investigation of blended collaborative L2 learning: A focused ethnographic case study in Indonesia* [Doctoral dissertation, The University of Melbourne]. Minerva-Access.
- Aydın, Z., & Yıldız, S. (2014). Using wikis to promote collaborative EFL writing. *Language Learning & Technology*, 18(1), 160-180. <http://llt.msu.edu/issues/february2014/aydinyildiz.pdf>
- Azar, A. S., & Nasiri, H. (2014). Learners' attitudes toward the effectiveness of Mobile Assisted Language Learning (MALL) in listening comprehension. *Procedia-Social and Behavioral Sciences*, 98, 1836-1843. <https://doi.org/10.1016/j.sbspro.2014.03.613>
- Bachore, M. M. (2015). Language learning through mobile technologies: An opportunity for language learners and teachers. *Journal of Education and Practice*, 6(31), 50-53. <https://files.eric.ed.gov/fulltext/EJ1083417.pdf>
- Baran, E. (2014). A review of research on mobile learning in teacher education. *Educational Technology and Society*, 17(4), 17-32. <http://www.jstor.org/stable/jeductechsoci.17.4.17>
- Barton, D., & McCulloch, S. (2018). Negotiating tensions around new forms of academic writing. *Discourse, Context & Media*, 24, 8-15. <https://doi.org/10.1016/j.dcm.2018.01.006>
- Blackmore-Squires, S. (2010). *An investigation into the use of a blog as a tool to improve writing in the second language classroom* [Doctoral dissertation, The University of Manchester]. <https://asian-efl-journal.com/Thesis/Thesis-Squires.pdf>
- Botero, G. G., Questier, F., & Zhu, C. (2018). Self-directed language learning in a mobile-assisted, out-of-class context: do students walk the talk? *Computer Assisted Language Learning*, 1-27. <https://doi.org/10.1080/09588221.2018.148507>

- Brodahl, C., & Hansen, N. K. (2014). Education students' use of collaborative writing tools in collectively reflective essay papers. *Journal of Information Technology Education Research, 13*, 91-120. <http://www.jite.org/documents/Vol13/JITEv13ResearchP091-120Brodahl0463.pdf>
- Brodahl, C., Hadjerrouit S., & Hansen, N. K. (2011). Collaborative writing with web 2.0 technologies: Education students' perceptions. *Journal of Information Technology Education: Innovations in Practice, 10*, 73-103. <https://eric.ed.gov/?id=EJ930404>
- Busulwa, H. S., & Bbuye, J. (2018). Attitudes and coping practices of using mobile phones for teaching and learning in a Uganda secondary school. *Open Learning: The Journal of Open, Distance and e-Learning, 33*(1), 34-45. <https://doi.org/10.1080/02680513.2017.1414588>
- Cavus, N., & Ibrahim, D. (2017). Learning English using children's stories in mobile devices. *British Journal of Educational Technology, 48*(2), 625-641. <https://www.learntechlib.org/p/180301/>
- Chen, Y., Carger, C. L., & Smith, T. J. (2017). Mobile-assisted narrative writing practice for young English language learners from funds of knowledge approach. *Language Learning and Technology, 21*(1), 28-41. <https://www.lltjournal.org/item/2976>
- Chiverton, S. (2017). Cell phones for low-resource environments. *English Teaching Forum, 55*(2), 2-13. <https://eric.ed.gov/?id=EJ1147335>
- Cotos, E. (2016). Week 2: Technology for teaching reading and writing [MOOC lecture]. In C. Chapelle, & E. Cotos, *Using educational technology in the English language classroom (K-12/HE)*. https://learn.canvas.net/courses/2834/pages/module-2-overview?module_item_id=246382
- Cress, U., Stahl, G., & Ludvigsen, S. (2015). The core features of CSCL: Social situation, collaborative knowledge processes, and their design. *International Journal on Computer-Supported Collaborative Learning, 10*, 109-116. <https://link.springer.com/article/10.1007/s11412-015-9214-2>
- Cybart-Persenaire, A., & Literat, I. (2018). Writing stories, rewriting identities: Using journalism education and mobile technologies to empower marginalized high school students. *Learning, Media and Technology, 43*(2), 181-196. <https://doi.org/10.1080/17439884.2018.1458736>
- Darmi, R., & Albion, P. (2017). Enhancing oral communication skills using mobile phones among undergraduate English language learners in Malaysia. In A. Murphy, H. Farley, L. Dyson, & H. Jones, (Eds.), *Mobile learning in higher education in the Asia-Pacific Region. Education in the Asia-Pacific region: issues, concern, and prospects* (pp. 1-13). New York: Springer.
- Ekanayake, T. M. S. S. K. Y., & Wishart, J. M. (2014). Developing teachers' pedagogical practice in teaching science lessons with mobile phones. *Technology, Pedagogy, Education, 23*(2), 131-150. <https://doi.org/10.1080/1475939X.2013.810366>
- Elaish, M. M., Shuib, L., Ghani, N.A., & Yadegaridehkordi, E. (2017). Mobile English Language Learning (MELL): A literature review. *Educational Review, 1*-20. <https://doi.org/10.1080/00131911.2017.1382445>
- Fernández Dobao, A. (2012). Collaborative writing tasks in the L2 classroom: Comparing group, pair, and individual work. *Journal of Second Language Writing, 21*(1), 40-58. <https://doi.org/10.1016/j.jslw.2011.12.002>
- Fernández Dobao, A. (2014). Vocabulary learning in collaborative tasks: A comparison of pair and small group work. *Language Teaching Research, 18*(4), 497-520. <https://doi.org/10.1177/1362168813519730>

- Fernández Dobao, A., & Blum, A. (2013). Collaborative writing in pairs and small groups: Learners' attitudes and perceptions. *System*, *41*, 365-378.
<http://dx.doi.org/10.1016/j.system.2013.02.002>
- Ferriman, N. (2013). The impact of blended e-learning on undergraduate academic essay writing in English (L2). *Computers & Education*, *60*, 243-253.
<http://dx.doi.org/10.1016/j.compedu.2012.07.008>
- Gheytasi, M., Azizifar, A., & Gowhary, H. (2015). The effect of smartphone on the reading comprehension proficiency of Iranian EFL learners. *Procedia-Social and Behavioral Sciences*, *199*, 225-230. <https://doi.org/10.1016/j.sbspro.2015.07.510>
- Handbidge, A. S., Nicole, T. T., & Sanderson, N. (2018). Student learner characteristics and adoption of m-learning: Are we effectively supporting students? In S. Yu, M. Ally, & A. Tsinakos (Eds.), *Mobile and ubiquitous learning* (pp. 177-189). New York: Springer.
- Hedgcock, J., & Leftkowitz, N. (1992). Collaborative oral/aural revision in foreign language writing instruction. *Journal of Second Language Writing*, *1*(3), 255-276.
[https://doi.org/10.1016/1060-3743\(92\)90006-B](https://doi.org/10.1016/1060-3743(92)90006-B)
- Heflin, H., Shewmaker, J., & Nguyen, J. (2017). Impact of mobile technology on student attitudes, engagement, and learning. *Computers & Education*, *107*, 91-99.
<http://dx.doi.org/10.1016/j.compedu.2017.01.006>
- Hernandez, H. P., Amarles, A. M. & Raymundo, M.C.Y. (2017). Blog-assisted feedback: Its affordances in improving college ESL students' academic writing skills. *Asian ESP Journal*, *13*(2), 100-143.
- Hsieh, Y. C. (2016). A case study of the dynamics of scaffolding among ESL learners and online resources in collaborative learning. *Computer Assisted Language Learning*, *30*, 1-18. <http://dx.doi.org/10.1080/09588221.2016.1273245>
- Hsieh, Y. C. (2019). Learner interactions in face-to-face collaborative writing with the support of online resources. *ReCALL*, *32*(1), 85-105.
<http://dx.doi.org/10.1017/S0958344019000120>
- Huang, C. S. J., Yang, S. J. H., Chiang, T. H. C., & Su, A. Y. S. (2016). Effects of situated mobile learning approach on learning motivation and performance of EFL students. *Educational Technology & Society*, *19*(1), 263-276.
<http://jstor.org/stable/jeductechsoci.19.1.263>
- Hwang, W.Y., Huang, Y. M., Shadiev, R., Wu, S.Y., & Chen, S. L. (2014). Effects of using mobile devices on English listening, diversity and speaking for EFL elementary students. *Australian Journal of Educational Technology*, *30*(5),
<https://www.learntechlib.org/p/188162/>
- İnceçay, G., & Genç, E. (2014). University level EFL students' self-blogging to enhance writing efficacy. *Procedia-Social and Behavioral Sciences*, *116*, 2640-2644.
<https://doi.org/10.1016/j.sbspro.2014.01.627>
- Irina, A. (2012). A cell phone in the classroom: A foe or a friend? *The EUROCALL Review*, *20*, 5-12. <https://files.eric.ed.gov/fulltext/ED544437.pdf>
- Kessler, G., Bikowski, D., & Boggs, J. (2012). Collaborative writing among second language learners in academic web-based projects. *Language Learning & Technology*, *16*(1), 91-109. <http://llt.msu.edu/issues/february2012/kesslerbikowskiboggs.pdf>
- Khaddage, F., Müller, W., & Flintoff, K. (2016). Advancing learning in formal and informal settings via mobile app technology: Where to from here, and how? *Educational Technology and Society*, *19*(3), 16-26.
<https://www.jstor.org/stable/10.2307/jeductechsoci.19.3.16>

- Kim, D., Ruecker, D., & Kim, D. J. (2017). Mobile assisted language learning experiences. *International Journal of Mobile and Blended Learning*, 9(1), 49-66.
<https://doi.org/10.4018/IJMBL.2017010104>
- Kiourmars, H., Shalmani, H. B., & Meymeh, M., H. (2018). Wikis and wiki-based activities: On peer collaboration in wikispaces and its implications for development of the L2 writing ability. *CALL-EJ*, 19(2), 139-165. <http://callej.org/journal/19-2/Kiourmars-Shalmani-Meymeh2018.pdf>
- Krull, G., & Duarte, J. (2017). Research trends in mobile learning in higher education: A systematic review of articles (2011-2015). *International Review of Research in Open and Distributed Learning*, 18(7). <https://doi.org/10.399/ijim.v8i4.3991>
- Kukulska-Hulme, A. (2015). Language as a bridge connecting formal and informal language learning through mobile devices. In L.H Wong, M. Milrad, & M. Specht (Eds.), *Seamless learning in the age of mobile connectivity* (pp. 281-294). New York: Springer.
- Kukulska-Hulme, A., & Viberg, O. (2018). Mobile collaborative language learning: state of the art. *British Journal of Educational Technology*, 49(2), 207-218.
<https://doi.org/10.1111/bjet.12580>
- Kukulska-Hulme, A., Lee, H., & Norris, L. (2017). Mobile learning revolution: Implications for language pedagogy. In C. A. Chapelle & S. Sauro (Eds.), *The Handbook of technology and second language teaching and learning* (pp. 217-233). John Wiley & Sons.
- Kukulska-Hulme, A., Norris, L., & Donohue, J. (2015). *Mobile pedagogy for English language teaching: A guide for teachers*. The British Council.
- Laire, D., Castelyn, J., & Mottart, A. (2012). Social media's learning outcomes within writing instruction the EFL classroom: Exploring, Implementing, and analyzing Storify. *Procedia-Social and Behavioral Sciences*, 69, 442-448.
<https://doi.org/10.1016/j.sbspro.201211.432>
- Levrai, P., & Bolster, A. (2018). A framework to support essay writing in English for Academic Purposes: A case study from an English-medium instruction context. *Journal of Assessment and Evaluation in Higher Education*, 44(2), 186-2012.
<https://doi.org/10.1080/02602938.2018.1487024>
- Lilley, W., & Hardman, J. (2017). "You focus, I'm talking": A CHAT analysis of mobile dictionary use in an advance EFL class. *Africa Education Review*, 14(1), 120-138.
<https://doi.org/10.1080/18146627.2016.1224592>
- Lin, C.C., & Yu, Y.C. (2017). Effects of presentation modes on mobile-assisted vocabulary learning and cognitive load. *Interactive Learning Environments*, 25(4), 528-542.
<https://doi.org/1080/10494820.2016.1155160>
- Lindell, T. L., & Hranstinski, S. (2018). Exploring functions and tenable structures for mobile use as support for school tasks. In S. Yu, M. Ally, & A. Tsinakos (Eds.), *Mobile and ubiquitous learning: Perspectives on rethinking and reforming education* (pp. 323-340). New York: Springer.
- Liu, M., Liu, L., & Liu, L. (2018). Group awareness increases student engagement in online collaborative writing. *The Internet and High Education*, 38, 1-8.
<https://doi.org/10.1016/j.iheduc.2018.04.001>
- Long, M. H. (1983). Linguistics and conversational adjustments to non-native speaker. *Studies in Second Lang Acquisition*, 5(2), 177-193.
<http://dx.doi.org/10.1017/S0272263100004848>
- Long, M. H. (1985). Input and second language acquisition theory. In S. M. Gass & C. G. Madden (Eds.), *Input in second language acquisition* (pp. 377-393). Rowley MA: Newbury House.

- Marandi, S. S., & Seyyedrezaie, M. S. (2017). The multi-course comparison of the effectiveness of two EFL writing environments: Google drive versus face-to-face on Iranian EFL learners' writing performance and writing apprehension. *CALL-EJ*, 18(1), 9-21.
- McKenzie, R. (2015). UK university students' folk perceptions of spoken variation in English: The role of explicit and implicit attitudes. *International Journal of the Sociology of Language*, 39(9), 31-53. <https://doi.org/10.1515/ijsl-2015-0020>
- McKenzie, R. M. (2010). *The social psychology of English as a global language*. New York: Springer.
- Milrad, M., Wong, L.-H., Sharples, M., Hwang, G.-J., Looi, C.-K., Ogata, H. (2013). Seamless learning: An international perspective on next generation technology enhanced learning. In Z. L. Berge & L. Y. Muilenburg (Eds.) *Handbook of mobile learning* (pp 95-108). London: Routledge.
- Montealegre, M.A. C. (2019, July 28). Education 4.0: Rebooting Phl teacher education. The Philippine Star-Global. <https://www.google.com/amp/s/www.philstar.com/other-sections/education-and-home>
- Moore, J. L, Rosinski, P., Peeples, T., Pigg, S., Rife, M. C., Brunk-Chavez, B., Lackey, D., Rumsey, S. K., Tasaka, R., Curran, P., & Grabill, J. T. (2016). Revisualizing composition: How first-year writers use composing technologies. *Computers and Composition*, 39, 1-13. <http://dx.doi.org/10.1016/j.compcom.2015.11.001>
- Muhammed, A. A. (2014). The impact of mobiles on language learning on the part of English Foreign language (EFL) university students. *Procedia-Social and Behavioral Sciences*, 136, 104-108. <https://doi.org/10.1016/j.sbspro.2014.05.297>
- Nobles, S., & Paganucci, L. (2015). Do digital writing tools deliver? Student perceptions of writing quality using digital tools and online writing environments. *Computers and Composition*, 38, 16-31. <http://dx.doi.org/10.1016/j.compcom.2015.09.001>
- O'Bannon, B. W., Waters, S., Lubke, J., Cady, J., & Rearden, K. (2017). Teachers and students poised to use mobile phone in the classroom. *Computers in the Schools*, 34(3), 125-141. <https://doi.org/10.1080/07380569.2017.1347454>
- Özdemir, E. & Aydin, S. (2015). The effects of blogging on EFL writing achievement. *Procedia-Social and Behavioral Sciences*, 199, 372-380. <https://doi.org/10.1016/j.sbspro.2015.07.521>
- Park, E. (2015). More LREs, better written products: L2 learning through collaborative dialogue. *Studies in English Education*, 20(2), 109-135. https://www.academia.edu/18539798/More_LREs_Better_Written_Products_L2_Learning_Through_Collaborative_Dialogue
- Pegrum, M. (2014). *Mobile learning: language, literacies, and cultures*. Palgrave MacMillan.
- Pollard, A. (2015). Increasing awareness and talk-time through free messaging apps. *English Teaching Forum*, 25-32. <https://www.americanenglish.state.gov/english-teaching-forum>
- Ponnudurai, P., & Jacob, T. T. (2014). Facebook: A shift from social to academia. *Procedia-Social and Behavioral Sciences*, 123, 122-129. <https://doi.org/10.1016/j.sbspro.2014.01.1405>
- Power, R. (2013). Collaborative situated active mobile learning strategies: A new perspective on effective mobile learning. *Learning in Higher education: Gulf perspectives*, 10(2), 1-17. <http://lthe.zu.ac.ae>
- Power, R. (2018). Supporting mobile instructional design with CSAM. In S. Yu, M. Ally, & A. Tsinakos (Eds.), *Mobile and ubiquitous learning: Perspectives on rethinking and reforming education* (pp. 177-189). New York: Springer.

- Reinders, H. (2010). Twenty ideas for using mobile phones in the language classroom. *English Language Forum*, 3, 20-23. <https://files.eric.ed.gov/fulltext/EJ914893.pdf>
- Rochdi, A., & Eppard, J. (2017). Reading while listening on mobile phone devices: An innovative approach to enhance reading. In I. A. Sánchez & P. Isaías (Eds.), *The 13th International Conference on Mobile Learning 2017* (pp. 161-163). International Association for Development of the Information Society (IADIS). <https://files.eric.ed.gov/fulltext/ED579190.pdf>
- Sajedi, S. P. (2014). Collaborative summary writing and EFL students' L2 development. *Procedia-Social and Behavioral Sciences*, 98, 1650-1657. <https://doi.org/10.1016/j.sbspro.2014.03.589>
- Seyyedrezaie, Z. S., Ghansoli, B., Shahriari, H., & Fatemi, A. H. (2016). Examining the effects of Google docs-based instruction and peer feedback types (implicit vs. explicit) on EFL learners' writing performance. *CALL-EJ*, 17(1), 35-51.
- Shehadeh, A. (2011). Effects and students' perceptions of collaborative writing in L2. *Journal of Second Language Writing*, 20, 286-30. <https://doi.org/10.1016/j.jslw.2011.05.010>
- Siddique, M., & Nair (2015). The effectiveness of using mobile phone in enhancing writing skills: Teachers' and students' reflections. *Australian Journal of Basic and Applied Sciences*, 9(37), 390-396. http://www.ajbasweb.com/old/Ajbas_Special-IPN-Dec%20_2015.html
- Storch, N. (2011). Collaborative writing in L2 contexts: Process, outcomes, and future directions. *Annual Review of Applied Linguistics*, 31, 275-288. <https://doi.org/10.1017/S0267190511000079>
- Storch, N. (2013). *Collaborative writing in L2 classrooms*. Multilingual Matters.
- Storch, N., & Wigglesworth, G. (2010). Learners' processing, uptake and retention of corrective feedback on writing. *Studies in Second Language Acquisition*, 32, 303-334. <https://doi.org/10.1017/S0272263109990532>
- Storch, N. (2017). Implementing and assessing collaborative writing activities in EAP classes. In J. Bitchener, N. Storch, & R. Wette (Eds.), *Teaching writing for academic purposes to multilingual Students* (pp. 130-143). London: Routledge.
- Strobl, C. (2014). Affordances of Web 2.0 technologies for collaborative advanced writing in a foreign language. *CALICO Journal*, 31(1), 1-18. <https://doi.org/10.11139/cj.31.1.1-18>
- Tan, L. L., Wigglesworth, G., & Storch, N. (2010). Pair interactions and mode of communication: Comparing face-to-face and computer mediated communication. *Australian Review of Applied Linguistics*, 33(3), 27.1-27.24. <https://doi.org/10.2104/aral1027>
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. Cambridge, MA : Harvard University Press.
- Wilson, D. (2019). *Exploring a teacher's facilitation of a collaborative story writing unit using Google Docs in a culturally and linguistically diverse high school English class* [Doctoral dissertation, University of Victoria]. UVicSpace.
- Wong, L.-H. (2012). A learner-centric view of mobile seamless learning. *British Journal of Educational Technology*, 43(1), E19-E23. <https://doi.org/10.1111/j.1467-8535.2011.01245.x>
- Wong, L.-H. (2015). A brief history of mobile seamless learning. In L.-H. Wong, M. Milrad, & M. Specht (Eds.), *Seamless learning in the age of mobile connectivity* (pp. 3-41). Springer
- Wong, L.H., Chai, C.S., & Aw, G.P. (2015). What seems do we remove in learning a language: Towards a seamless language learning framework. In L.H. Wong, M.

- Milrad, & M. Specht (Eds.), *Seamless learning in the age of mobile connectivity* (pp. 295-318). New York: Springer.
- Wong, L.L.C., & Nunan, D. (2011). The learning styles and strategies of effective language learners. *System*, 39, 144-163. <https://doi.org/10.1016/j.system.2011.05.004>

Appendix

PARAGRAPH RATING SCALE

Adopted from Hedgcock and Lefkowitz (1992)

Used by Sajedi (2014) and Shehadeh (2011)

Components	Score Criteria
Content	
27-30	Excellent to very good: knowledgeable; substantive, thorough development of thesis; relevant to topic assigned
22-26	Good to average: some knowledge of subject; adequate range; limited thematic development; mostly relevant to topic, but lacks detail
17-21	Fair to poor: limited knowledge of subject; minimal substance; poor thematic development
13-16	Very poor: shows little or no knowledge of subject; inadequate quantity; not relevant, or not enough to rate
Organization	
18-20	Excellent to very good: fluent expression; clear statement of ideas; solid support; clear organization; logical and cohesive sequencing
14-17	Good to average: adequate fluency; main ideas clear but loosely organized; supporting material limited; sequencing logical but incomplete
10-13	Fair to poor: low fluency; ideas not well connected; logical sequencing and development lacking
7-9	Very poor: ideas not communicated; organization lacking, or not enough to rate
Grammar	
22-25	Excellent to very good: accurate use of relatively complex structures; few errors in agreement, number, tense, word order, articles, pronouns, prepositions
18-21	Good to average: simple constructions used effectively; some problems in use of complex constructions; errors in agreement, number, tense, word order, articles, pronouns, prepositions
11-17	Fair to poor: significant defects in use of complex constructions; frequent errors in agreement, number, tense, negation, word order, articles, pronouns, prepositions; fragments and deletions; lack of accuracy interferes with meaning
5-10	Very poor: no mastery of simple sentence construction; text dominated by errors; does not communicate, or not enough to rate
Vocabulary	
18-20	Excellent to very good: complex range; accurate word/idiom choice; mastery of word forms; appropriate register
14-17	Good to average: adequate range; errors of word/idiom choice; effective transmission of meaning
10-13	Fair to poor: limited range; frequent word/idiom errors; inappropriate choice, usage; meaning not effectively communicated
7-9	Very poor: translation-based errors; little knowledge of target language vocabulary, or not enough to rate

Mechanics	
5	Excellent to very good: masters conventions of spelling, punctuation, capitalization, paragraph indentation, etc
4	Good to average: occasional errors in spelling, punctuation, capitalization, paragraph indentation, etc., which do not interfere with meaning
3	Fair to poor: frequent spelling, punctuation, capitalization, paragraphing errors; meaning disrupted by formal problems
2	Very poor: no mastery of conventions due to frequency of mechanical errors, or not enough to rate