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#### Using Collaborative Writing and Technology to Improve Students English Writing Skills

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#### Abstract

The purpose of this study is to investigate experiences and perception of lecturers and students in to usage of collaborative writing and technology to the improvement of students writing skills. Teaching writing to students who use English as Foreigner Language, in English for Specific Purposes and ntext, is complicated and time consuming. Students need to master good writing qualities such as content, organization, vocabulary, grammar and mechanics to produce good writing. Students also must have good writing skills such as outlining, drafting, revising, editing dan publishing to produce excellent writing product. The process of good writing is also a long way to run. It is started from prewriting, main writing and post writing. It is such a time consuming process to go. The students' low language competency and motivation also contribute to the complexity of producing good writing product. Lecturers need to find out the best teaching strategy to teach writing. Individual writing instructional approach is regarded not the best way for improving students writing skills. New approach for teaching writing must be applied to increase students writing skills and answer the demand of 21 century skills. This study involved 60 computer science students in the first semester and swo English lecturers as participants. They were given English writing course for one semester. At the end of the semester they were evaluated to know the impactor using collaborative writing and various applications to the improvement of writing skills. The data collection techniques used observation, interview, and questionnaire. The result of the study shows that the usage of collaborative writing and technology contribute significant imprograment not only to students writing skills but also to students' writing qualities and students' 21 century skills such as communication, collaboration, critical thinking, creativity and digital literacy.

Keywords: Collaborative Writing, Various Applications, 21st century skills, English Writing Skills.

#### Introduction

their study. In getting a job, they also need to acquire writing skills since they need to write

Teaching writing in higher education is very crucial to the development of student's writing skills. University students need to be able to write essays, paper, report, thesis and dissertation in application letter and job report. To be a good writer, 20 dents must have good knowledge and skills about how to write effectively and fluent 20. The ability to write effectively and fluently in English is very essential today because 20 riting is known as an important skill for various reasons in education and profession. Writing plays a significant role in personal and professional life. Writing skills is not just a language skill. It has important role in the academic achievement of learners because writing skill is predictor for academic success.

Teaching and learning writing in English are 66 nsidered a very difficult task for lecturers and students who use English as foreigner language in the field of English for specific purposes. Writing is a very demanding task because requires the students to have mastery reveral skills such as topical knowledge, organization, vocabulary, grammar, and mechanics. The process of teaching and learning writing is also time consuming because it requires as livities from reading, outlining, drafting, revising, editing and publishing. Many students show low motivation when it sames to developing higher competencies in writing (Bahous et al., 2011). Mon of the students leave the writing task empty or copy the writing task from their friends because they do not know how to expand their ideas in writing. The complex task of writing makes it challenging (Al-Gharabally, 2015; Annous, Nicolas, & Townsend, 2017; Shukri, 2014; Ghabool, 2012). Writing activities in English as foreign language are regarded more recursive, multi-process, and dynamic. The difference between first language writing and writing in English as foreign language is that, in the first language context, the primary purpose of writing is develop writing skills (learningto-write), whereas in the foreign language context, students must also strive to obtain language knowledge (writing-to-learn-language) during the writing process (Manchón, 2016). Having more complicated regnitive processes, students have more struggles; hence, it is very necessary to facilitate the instruction and development of writing sills. Lecturers need to find the best way of teaching writing in the English as foreigner language. The right strategy in teaching writing skills has a tremendous impact on students' interest in writing which will have an impact on their performance in writing.

The traditional assumption that writing is an individual activity often refer to it is an individual task. Itudents seldom engage in extensive dialogue with their peers when writing. On the other hand, much writing in the workplace takes place in collaboration with others. Based on this condition, writing instruction in higher education should be plusted to students' current and future needs. Many studies have investigated the effectiveness of collaborative writing to teach writing and it reveals the fact that collaborative writing is one the effective way not only to teach writing but also to improve students' writing skills (Mehrdad et al., 2016). By using collaborative writing, students can experience the better learning process in a studence entered learning. Students also have the same chance to participate actively in writing activity and construct their linguage knowledge through interacting with other learners (Rostampur, 2015). Some studies revealed that learning experiences are enhanced in classrooms that use collaborative writing (Dobao, 2013). Collaborative writing makes even passive members of a group become active learner (Baldwin, 2019).

Researches also revealed that the role of digital technologies is for facilitating interaction, collaboration and learning (Gee, 2015; Major, Warwick, Rasmussen, Ludvigsen, & Cook, 2018),

with a growing body of studies exploring interactional patterns in computer-mediated group discussions (Asterhan, 2015; Collins & White, 2015; Stahl, 2015). DePew and Kevin E. (2015) recommended that digital technologies are applied in writing classroom because previous researches have indicated that factors such as language proficiency, task type, computer-mediated environment, and grouping may influence patterns of interaction and collaborative writing learning opportunities (Li & Kim, 2016; Mozaffari, 2017).

#### Literature Review

#### 1. Collaborative Writing

Storch 3016) defines collaborative writing as the production of a text by two or more writers which engages student to part 3 rs in all stages of writing from decision-making to construction and editing of a single text. Lowry et al. (2004) have defined collaborative writing as an interactive and social process that involves a team focused on a common objective that negotiates, coordinates, and communicates during the greation of a common document. There are two significant aspects in collaborative writing: 1) the act of writing a common document 2) the social processes which are fundamental to successful writing task completion.

Collaborative writing has such as 1) students had substantial meaningful interaction with and assistance from other students at various stages of working at their writing assignments; 2) they shared ideas, negotiated and co-constructed them, and made corrections in each other's planning and writing at the peer review and other stages of a writing process; and 3) the participants felt responsible for their peers' final written products (Vorobel and Kim, 2017). There is overwhelming agreement that collaborative writing offers a variety of cognitive and social benefits to students. In terms of the former, it enables students to assume responsibility for their own learning, learn how to learn, and 3 velop critical thinking skills when analyzing texts, arguments and composing their own papers, collaborative writing help university students acquire skills they need as future writers in business, government, and industry where much writing is done in collaboration with others. Students can learn how to work with people, how to compromise effectively, and how to value differences (Speck,2002). Sue to the increased interaction and negotiation in the process, students improve their vocabulary, understanding of text coherence, and gain new ideas and perspectives by using collaborative writing (Talib, 2017).

#### 2. Technology for teaching writing

Many studies indicate that technology can have positive impacts on education (Chauhan, 2017; Zheng et al., 2016). Therefore, technology integration should be part of instruction (Hutchison, Beschorner, & Schmidt-Crawford, 2012). Technology facilitates student-centered learning (Cheung & Slavin, 2012; Wang et al., 2014; Zheng et al., 2016), a collaborative spirit (Cheung & Slavin, 2012), and optimized feedback (Harks, Rakoczy, Hattie, Besser, & Klieme, 2014; Zheng, Lawrence, Warschauer, & Lin, 2015). Collaborative online writing fits well with this conception, it enables students to engage in active learning and simultaneously receive

feedback from peers and teachers (Ware & O'Dowd, 2008), feedback that can encourage them to complete the writing task (Rogers & Graham, 2008). Good writing is generally believed to be an important asset for most careers (Lenhar et al., 2008).

Technology is also used sovercome learners' difficulties in order to provide students' growth in the writing skills. The use of technology has also long been introduced to complement traditional writing classes (Liu, 2013). The implementation of technological resources such as computer, video beam, tape recorders, and networks increases students' interest enthusiasm and language understanding and command. The use of the English computer lab provides language learning with additional strengths because students are skilled at computer operation and know how to navigate useful online web pages (Henao, 2017).

#### 3. Writing Skills

Writing skills are not a natural gift but something that we can learn (Langan, 2008). Just like driving a car, cooking or singing, the more often we practice, the better result we can get. Writing skills have some stages to run, started from planning, revising and editing (Hacker and Sommers, 2012). It is a recursive process. Writer may need to go back to the earlier stage to evaluate and rewrite and finally produce a good writing text.

#### Methods

This study used qualitative approach 50 he objectives of this study were to investigate experiences and perception of lecturers and students in the us 72 of collaborative writing and technology to the improvement of students writing skills. The research questions for this study were 1) what are 171 turers' and students' experiences in the usage of collaborative writing and technology to the improvement of students writing skills? 2) what are students' perception on their writing qualities after using collaborative writing and technology? 3) what are lecturers' perception on the students' 21st century skills after using collaborative writing and technology?

#### 1. Partisipant

This research used 60 computer science students and two English lecturers as participants of the research. The participants were involved in teaching and learning using collaborative writing and technology to improve students' English writing skills. All participants use English as foreigner language in the field of computer science.

#### 2. Instruments

To investigate the impart of using collaborative writing and technology to improve students' English writing skills, we used five data collection instruments:

- questionnaire for students (n=60) and lecturers (n=2)
- Individual student interview (n=12)
- · Lecturers' and students' fieldnote

#### 3. Procedure

Sixty students were divided into two classes so each class had 30 students. One lecturer was provided for each class. Each class were divided into several groups. Each group must have members with different language propiciency. Each group is a combination of students who have low, average and high English propiciency. Then the two classes were given teaching and learning intervention using collaborative writing and technology to improve students' English writing skill for one semester. At the end of the semester, they were evaluated to know the experiences and perceptions toward teaching and learning using collaborative writing and technology to improve students' English writing skills. The evaluation used questionnaire, interview script, and fieldnote to gain information needed.

#### Results and Discussion

#### 1. Result

To investigate lecturers' and students' experiences in using collaborative writing and technology to improve students' English writing skills, a summary of fieldnote from lecturers and students are analized and summarized. The result is shown below:

Table 1. Summary of Lecturers' and Students' Experiences in improving students' English Writing Skills Using Collaborative Writing and Various Applications

Writing Skills	Lecturers	Students	Impact
Outlining	Lecturers asked students to work in group and collaborate, arrange an outline and divide parts of the outline to each member of the group.	Students collaboratively decide which part to take for each member of the group.  Tool: Whatsapp Web	From the beginning, students had exercised to comprehend outline of writing.
Drafting	Lecturers gave students a topic and asked students to develop good content for their topic.	Students collaboratively developed the topic by writing the content. Each member of the group contributed different content under the same topic to the group writing.	Each member of the group exercised in drafting skill.

		Tool: Whatsapp Web, Online Dictionary and Google Doc	
Revising	Lecturers asked students to revise wrong content, add essential content, and arrange the content into introduction, body and conclusion.	Students collaboratively revised wrong content, add important content and arrange the content into good organization.  Tool: Whatsapp Web, Online Dictionary and Google Doc	Each member of the group exercised in revising skill.
Editing	Lecturers asked students to edit mistakes in grammar, mechanics and doing paraphrasing.	Students collaboratively edited mistakes in grammar, mechanics and doing paraphrasing.  Tool:Paraphrasing Tool	Each member of the group exercised in editing skill.
Publishing	Lecturers asked students to publish their final group text.	Each group publish their final group text to the class by sharing their file to Whatsapp Web.  Tool: Whatsapp Web and Google Doc	Each group exercised in publishing skill.

#### Table 1 explains that:

- a. Lecturers facilitated the improvement of students' English writing skills by using collaborative writing teaching strategy and asking students to operate various applications to support their writing task.
- b. Students exercised their writing skills in outlining, drafting, revising, editing and publishing by using collaborative writing and various applications.

Based on the result above, I can summarize that students practiced their English writing skills related to outlining, drafting, revising, editing and publishing through the usage of collaborative writing and technology for one semester. Practicing for one semester using

collaborative writing and various applications would lead to the improvement of students' writing skills.

After learning for one semester using collaborative writing and various applications, then 60 students were given questionnaire related to their previous experience using individual writing without technology and their exprience after using collaborative writing and various applications related to five writing qualities such as content, organization, vocabulary, grammar and mechanics. The questionnaire used rating scale from very poor, poor, fair, good and excellent. The result is shown below:

Table 2. Summary of Students' Perception on Their English Writing Quality before and after Using Collaborative Writing and Various Applications

Experience	Content	Organization	Vocabulary	Grammar	Mechanics
Individual writing without technology	Poor	Poor	Poor	Poor	Poor
Collaborative writing with technology	Excellent	Excellent	Excellent	Excellent	Good

#### Table 2 indicates that:

- a. There is improvement in content from poor to excellent. Students had difficulty to brainstorm and collect ideas in individual writing but in collaborative writing every students should give different content under the same topic for the group writing, therefore the final text was longer and more complete. By the help of internet, students could also find many sources of information which made the final writing more comprehensive.
- b. There is improvement in organization from poor to excellent. Students had difficulty to classify and arrange the introduction 59 dy and conclusion of final writing because of the limitation of time in individual writing but in collaborative writing the organization of writing is distributed to all members of the group so each member could focus on their own part. It made the burden of the task lighter and more efficient in time.
- c. There is improvement in vocabulary from poor to excellent. Students had difficulty in paraphrasing manually due to their ability in grammar and vocabulary. They tend to copy paste the original text from the source without changing the text into their own words and it led to plagiarism. There were little new vocabularies could be added to the final text. The situation is different in collaborative writing. The students were helped by using paraphrasing tool to paraphrase their final writing. The result was amazing. Students did not do plagiarism and there were many new words being added to their final text. This also led to students' vocabulary development.
- d. There is improvement in grammar accuracy from poor to excellent. In individual writing, students had difficulty in finding mistakes in their grammar while they were writing. They tend to

ignore it. In collaborative writing, the students were helped by using ammar checker tool to identify their mistakes in grammar. The grammar checker tool helped students to avoid mistakes in their grammar and it led to excellent grammar accuracy.

e. There is improvement in mechanics from poor to good. In individual writing without technology, students often did not aware of their mistakes in spelling. In collaborative writing, the students were helped by using spelling checker tool to identify their mistakes in spelling. The spelling checker tool helped students to avoid mistakes in their spelling although students still found it difficult to identify mistakes in capitalization and punctuation marks.

Based on the explanation above, it is clear that there is improvement in students' writing qualities. This improvement in content, organization, vocabulary, grammar and mechanics lead to positive impact and perception toward using collaborative writing and technology.

After teaching for one semester using collaborative writing and various a ications, then two English lecturers were given questionnaire related to five writing qualities such as content, organistion, vocabulary, grammar and mechanics. The questionnaire used rating scale from very poor, poor, fair, good and excellent. The result is shown below:

No	Component	Lecturer 1	Lecturer 2
1.	Content	Excellent	Excellent
2.	Organization	Excellent	Excellent
3.	Vocabulary	Excellent	Excellent
4.	Grammar	Excellent	Excellent
5.	Mechanic	Good	Good

Table 3. Summary of Lecturers' Perception on Students' English Writing Qualities

#### Table 3 shows that:

- a. Both lecturers agree that using collaborative writing and various applications make students' writing qualities for content, organization, vocabulary and grammar accuracy excellent. Collaborative writing helps to minimalize the complexity and time consuming of teaching writing to students who use English as foreign language in ESP context.
- b. Both lecturers agree that using collaborative writing and various applications make students' writing quality in mechanics good. Collaborative writing and various applications helps students to minimalize mistakes in spelling though some mistakes in punctuation marks and capitalization still happen.

The result of table 3 strengthens the result of table 2. The author has come to a conclusion that both students and lecturers have positive perception on using collaborative writing and technology to the improvement of students' English writing skills.

To investigate more about benefits of various applications to students' improvement in writing qualities and skills, then one student from each group was being interviewed. There were 12 students as representatives who were interviewed. The result is shown below:

Table 4. Summary of Students' Experiences on Using Various Applications

No	Application	Impact
1.	Whatsapp Web	Facilitating in managing class and group learning
2.	Online Dictionary	Helping finding unfamiliar words and synonym
3.	Paraphrasing Tool	Helping paraphrasing the written product to avoid plagiarism
4.	Grammar and Spelling Checker	Helping avoiding mistakes in grammar and spelling
5.	Google Doc	Facilitating file sharing

Based on the result above, it is clear that technology usage is very helpful in facilitating students' difficulties in writing task such as group learning management, consult difficult words and sinonym, paraphrasing, minimizing mistakes in grammar and spelling.

During teaching for one semester using collaborative writing and various applications, the two English lecturers were asked to write a fieldnote related to their observation on students' 21st century skills. The result is shown below:

Table 5. Summary of Lecturers' Observation on Students' 21st Century Skills

No	21st Century Skills	Description
1.	Communicaton	Students gained improvement in comunication skill by doing group discussion and peer learning in collaborative writing.
2.	Collaboration	Students gained improvement in collaboration skill by doing collaborative task in a team writing, started from outlining up to publishing.
3.	Critical Thinking	Students gained improvement in critical thinking skill by doing outlining, drafting, organizing, revising and editing of their group writing.
4.	Creativity	Students gained improvement in creativity skill by doing the paraphrasing of their group writing to avoid plagiarism.
5.	Digital Literacy	Students gained improvement in digital literacy by operating various applications to support their writing task.

#### Table 5 indicates that:

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Using collaborative writing and various applications help the students to improve their 21st century skills such as communication, collaboration, critical thinking, creativity and digital literacy.

#### 2. Discussion

Positive attitude towards collaborative writing can contribute to more collaborative interaction patterns and improve the quality and quantity of students writing. Lecturers can promote the concept of collaborative writing to help students build positive attitude towards this activity. Lecturers can encourage students to appreciate the value of peer assistance to have a better evaluation of the activity and more learning opportunities and allow students to learn how to povide more peer assistance and collaborate more effectively with others (Chan and Yu, 2019). According to Arifah (2014), the use of internet increases learners' motivation. Learners can learn meaningfully when technology is used in the process of learning through using computer and internet. When learners learn with technology, it assists them in developing their higher order thinking skills.

Technology is an effective tool for learners. Learners must use technology as a significant part of their learning process. Teachers should model the use of technology to support the curriculum so that learners care increase the true use of technology in learning their language skills (Costley, 2014). Learning is improved by integrating technology into the classroom. Learners believe that the use of technology makes learning enjoyable and helps them learn more. Learners also say that 64 chnology makes learning interesting, enjoyable, and interactive. The other role of the use of technology is increasing learners' motivation, social interactions, learning and engagement (Baytak, Tarman, and Ayas, 2011).

#### Conclusion

This study reveals that lecturers and students have positive experiences and perceptions toward the us of collaborative writing and technology to the improvement of students' English writing skills such as outlining, at fting, revising, editing and even publishing. The contribution is also for developing students' 21st century skills such as communication, collaboration, critical thinking, creativitize and digital literacy. The other valuable impact is for improvement in students' integration qualities in terms of the content, organization, grammar ,vocabulary and mechanics. Collaborative writing strategy is also able to improve students' motivation, vocabulary, and prehension of the topic and to change some of the students' ineffective writing habits (Shehadeh, 2011; Dobao & Blum, 2013; and Khodabakhshzadeh & Sazadi, 2017). Writing in small groups helps students to learn from each other's writing, stimulates conceptual learning, and encourages critical reflection and a sense of audience awareness (Klein, 2014; Nykopp, Marttunen,

& Laurinen, 2014; Van Steendam, 2016). Students were particularly happy that collaborative writing contributed to general skills that included the use of technology and critical thinking skills (Deveci, 2018).

The application of technology makes teaching interesting and more productive (Patel, 2013). The use of technology has changed the approach from teacher-centered to learner-centered ones. Lecturers should be facilitators and guide their students' learning and this change is very useful for students to increase their learning (Riasati, Allahyar, & Tan, 2012; Pourhossein Gilakjani, 2017). Gillespie (2006) said that the use of technology increases students' cooperation in learning tasks. It assists them in gathering information and interacting with resources. In the future, this studiy can broaden the scope by testing different collaborative writing setting such as telecollaborative writing in larger partisipants of students and lecturers.

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#### 29 Conflict of Interest

The authors declare that they have no conflict of interest.

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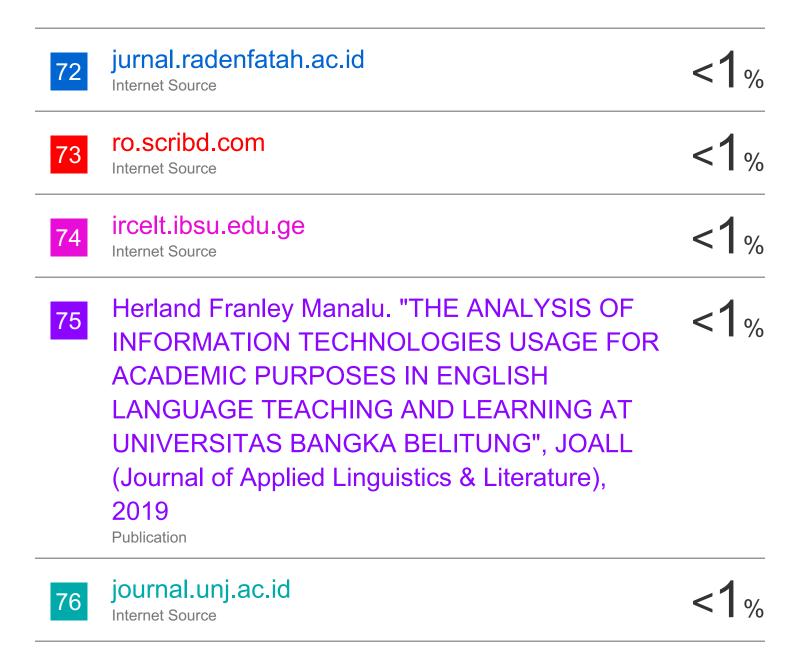
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