INTERNATIONAL REVIEW OF HUMANITIES AND SCIENTIFIC RESEARCH
By International Scientific Indexing
ISSN (Online) : 2519-5336
www.irhsr.org

EXAMINING THE EFFECTS OF CORRECTIVE-FEEDBACK AND TASK COMPLEXITY ON L2 LEARNER'S WRITTEN PRODUCTIONS

Abstract:

Previous studies examined the effectiveness of different types of corrective-feedback (CF) in improving the accuracy and its effect on second language (L2) learners' writing (Ahmadi et al. 2012; Farid & Samad, 2012; Kamberi, 2013; Lyster & Sato, 2010). However, little has examined the effects of feedback on L2 writing (Adel & Nik, 2014a; Zailin, Nik & Ainol, 2012) particularly when task complexity factor is concerned (Adams, Newton, Amani, & Nik, 2014).Therefore, the current study intended to examine the effects of implicit corrective feedback (ICF) and task complexity on complexity, accuracy and fluency (CAF) of L2 learner written production. Thirty-seven (N=37) undergraduate L2 learners of different engineering majors at a technical university in Malaysia participated in the study. The data was collected in two stages as a pretest and posttest. The learners were randomly assigned to +reasoning demand (+RD) and –reasoning demand (-RD) groups based on task complexity framework (Robinson, 2007). Within an hour, each learner in the two groups was required to complete essay writing on a topic (communication at workplace). Learners in the complex task (+RD) group were given causal reasoning factors as the points to be included in the content while learners in the less complex task (-RD) group were given freedom to include any points in the content of their essay writing. Implicit CF was given to each of the essay in a week interval. During the posttest, each learner was required to revise his/ her essay based on the implicit CF provided. This activity was completed in an hour. Collected data from pre and posttests were analyzed using *t-test*. Results of the study indicated that an increase in task complexity along resource-directing variable (+/-reasoning demand) and implicit CF affected accuracy of learner written productions while no effects were found on complexity and fluency of their written productions. The study highlighted that ICF and task complexity deemed important in a L2 setting and both can affect learner written productions.

Key words: ICF, Task complexity, CAF

CORRECTIVE FEEDBACK

Corrective-feedback (CF) is deemed important in both first (L1) and second (L2) language learning. CF serves as a hint to the learners that their use of the target language is incorrect (Lightbown & Spada, 1999) and is significant in writing classes (Biber et al., 2011). It is debated whether teacher should treat learners' errors as part of the L2 learning process (Ferries, 1999; Ferries & Roberts, 2001; Ferries et al., 2013; Truscott, 1996) One of the arguments is put forth by Truscott (1996, 2004, 2007 & 2010) who claimed that error correction is ineffective in language classes. Truscott (2007) insisted that error correction could have negative effects on learners' ability to produce accurate language, and he added "we should be confident whether if the correction has any actual benefits that will be very small" (p.256). Likewise, Truscott and Hsu (2008) claimed that CF was not only ineffective but harmful to L2 learners, and argued that error correction should be abandoned. In their study, learners were asked to revise their written drafts based on the feedback during the posttest session. The findings revealed that CF did not help learners improve the accuracy of their written drafts.

However, there are studies that provide evidence in support of CF (e.g. Bitchener & Knoch, 2010; Farid & Samad, 2012; Ferries, 1999; Ferries et al. 2013; Kao, 2013; Meihami, 2013; Mourssi, 2012; Williams, 2003). For instance, Ferries and Roberts (2001) observed two groups of learners to examine the influence of grammatical error correction on the learners' work. They found that the group received CF gained more accurate language over the control group. Findings of the study by Chandler (2003) correlated to the findings by Ferries and Roberts (2001). Recently, Meihami (2013) put Truscott's (1996, 2007) claims into test. Contrary to Truscott's (1996; 2007) claim that error correction may only have value for non-grammatical errors; the study by Meihami found that learners who were provided with CF significantly produced more accurate $p=0.049<0.05$ language over those who did not receive CF $p=0.52>0.05$ on their work. Similarly, Williams (2003) believed that CF encouraged learners to produce writing with minimal errors and maximum accuracy and clarity.

In addition, Van Beuningen, De Jong, and Kuiken (2011) highlighted that CF not only helped learners improved the accuracy of their writings in short term, it also provided them with a long term benefit. In contrast to Truscott (2007), they found that if correction was targeted on specific types of errors, it would have positive effects on linguistic accuracy of learners' language productions. In line with this argument, Kao (2013) affirmed that by targeting specific language features for error correction, it not only assisted learners' to improve linguistic accuracy of their written productions in the long term, it also pushed them towards effective communication. In terms of linguistic accuracy, Evans, et al. (2011) asserted similar findings to Van Beuningen, et al. (2011) and Kao (2013).

Other than the impact of CF on linguistic accuracy, a few studies investigated the impact of CF on complexity and fluency of learners' written productions (Chandler, 2003; Fazilatfar et al.

2014; Marzban & Arabahmadi, 2013; Meihami, 2013; Robb et al., 1986). For example, Robb et al. (1986) found that CF had a significant positive effect on complexity of learners' written productions, but the study only dealt with treatment groups and there was no control group. Therefore, it cannot be judged to say that CF had a significant effect on complexity of learners' language productions. In addition to Robb's (1986) study, Fazilatfar, et al. (2014) investigated the effects of written CF on syntactic and lexical complexity. In terms of syntactic complexity, Meihami (2013) found similar results to Fazilatfar, et al. (2014) that CF assisted learners to improve the syntactic complexity of their written productions. Meihami (2013) suggested for more research in the area to clarify the effectiveness of CF on complexity of learners' language productions.

On the other hand, the findings of the study by Marzban and Arabahmadi (2013) contradicted the findings of the study by Fazilatfar, et al. (2014) and Meihami (2013). For instance, they found no significant effect of CF on complexity of learners' written productions demonstrated by $p>0.05$. Likewise, in terms of fluency, the findings of the studies by Chandler (2003) and Marzban and Arabahmadi (2013) contradicted each other. For instance, Chandler (2003) found that CF significantly affected the fluency of learners' written productions and helped learners in the two, i.e. control and experimental groups to produce more fluent language shown by $t=3.65$, $p=0.004<0.05$ and $t=2.50$, $p=0.027<0.05$, respectively. Conversely, the findings of the study by Marzban and Arabahmadi (2013) showed that CF did not affect the fluency of learners' written productions indicated by $p>0.05$.

Types of Corrective-feedback

A number of studies have illustrated that CF can be provided to the learners in different forms, i.e., explicit correction, recasts, prompt, elicitation, clarification, repetition of error, and meta-linguistic feedback (Ding, 2012; Jeong, 2012; Lyster & Saito, 2010; Sheen & Ellis, 2011). However, CF in general is classified into implicit and explicit CF (Sato & Lyster, 2012). Explicit CF provides learners with target modals to the errors they made during their work; whereas, implicit CF does not provide the target model. Implicit CF is used in a way that it simply highlights the errors the learners made, allowing them to correct the errors themselves (Ellis, 2008; Sato & Lyster, 2012). Lightbown and Spada (1999) explain the various responses learners may receive to correct their erroneous. For example, when a language learner says, 'He write his homework every day', CF can be explicit, for instance, 'no, you should say writes, not write' or implicit 'yes he writes his homework every day', and may or may not include metalinguistic information, i.e., 'Don't forget to make the verb agree with the subject. Literature has argued that explicit and implicit CF both may assist L2 learners to improve the linguistic accuracy of their written productions (Bitchener, 2008; Bitchener & Knoch, 2010). Different types of CF have different effects on ESL/EFL learner writing (Ahmadi, Maftoon, & Mehrdad, 2012).

A number of studies reported that explicit CF is more effective in improving the linguistic accuracy of learners' written productions (Bitchener, 2008; Bitchener & Knoch, 2010; Kamberi, 2013; Lam, 2013; Nazari, 2013). For instance, Nazari (2013) found that providing explicit CF had positive effects on L2 learners' written productions. The findings of the studies by Bitchener (2008), Bitchener and Knoch (2010), and Falhasiri et al. (2011) correlated the findings by Nazari (2013). For example, Bitchener and Knoch (2010) investigated the different types of written CF and their impact on linguistic accuracy.

In contrary, a number of studies vigorously defended the effectiveness of implicit CF and provide evidence to support their claims. They believe that implicit CF could assist L2 learners to improve the linguistic accuracy of their language productions (Adel, Nik, 2014a; Ahmadi, Maftoon, and Mehrdad, 2012; Clerckx, et al. 2010; Compillo, 2003; Marzban & Arabahmadi, 2013; Miceli, 2006). The findings of the studies by Campillo (2003) and Zhao (2010) are similar to the findings by Ahmadi, Maftoon, and Mehrdad (2012). Moreover, Zhao (2010) claimed that implicit CF was more effective than explicit for two reasons as 1) it helped L2 learners improved the quality of their written text with understanding the significance or value of CF and 2) it also had positive effects on long-term writing proficiency of L2 learners' language production.

It still remains a question whether implicit or explicit CF is more effective in improving learners' language productions. As implicitness or explicitness can impact learners' perception which influences its effectiveness (Ding, 2012), two important factors should be considered in implementing CF; to know whether the learners should receive implicit or explicit CF or a combined form of the feedback (Mourssi, 2012). Yilmaz (2013) found that mixed CF (both implicit and explicit) was more effective in L2 classes. On the other hand, Ferries et al. (2013) claimed that providing different types of CF with no discussion and clarification was not effective. Ferries et al. (2013) reported that providing CF with no instructions and clarifications would not help L2 learners to write effectively. The studies reviewed above provided insights into positive effects of CF on learners' writing.

TASK COMPLEXITY

Task design and second language (L2) productions is currently a broad area of research, and typically complexity, accuracy and fluency variables measure to observe if task complexity can assist learners to improve their language productions. Since 1980s, language pedagogy introduced tasks as a vital part in L2 acquisition (Kuiken & Vedder, 2008). In a task-based syllabus, pedagogic tasks should be developed and sequenced to increasingly approximate the demands of real-world target tasks, with the goal of enabling L2 users to succeed in attaining needed lifetime performance objectives (Robinson, 2005). Task complexity is considered a central issue in task-based language learning process, i.e., "This is an important area of investigation given that one of the pedagogical goals of TBLT is to create tasks and sequence them to best help learners produce and acquire an L2/FL" (Baralt, 2010, p. 50).

Several studies argued on the effects of task complexity on L2 development, i.e., complexity, accuracy and fluency (Adel & Nik, 2014b; Robinson, 2001, 2005, 2007; Robinson & Gilabert, 2007; Skehan, 1998, 2003; Skehan & Foster, 2001). For instance, the Limited Capacity Model predicted a better performance on a less complex task as cognitively demanding task draw attentional resources away from language. The basic assumption of Limited Attentional Capacity Model by (Skehan, 1998) was that humans have a limited processing capacity, and more demanding task might cause trade-off effects in learners' language productions (Skehan, 1998; Skehan & Foster, 2001). Cognition Hypothesis by Robinson (2001, 2005 & 2007), on the other hand, claimed that learners could gain more in a complex task as they would able to share their attention between form and contents. The Cognition Hypothesis claimed that an increase in task complexity in monologic task with respect to the resource-directing variables (e.g., +/- here-and-now, +/- reasoning-demands, +/- few-elements) could lead to more complex and accurate language but the fluency would suffer from task complexity (Robinson, 2001, 2005, 2007; Robinson & Gilabert, 2007). Other than the resource-directing variable of task complexity, Skehan (1998) and Robinson (2001, 2005 & 2007) predicted similar hypothesis of resource-dispersing variable of an increase in task complexity. They agreed that an increase in task complexity along resource-dispersing variable would have negative effects on complexity, accuracy and fluency of learners' language productions. However, they still oppose each other in terms of resource-directing factor.

THE EFFECTS OF TASK COMPLEXITY ON SECOND LANGUAGE PRODUCTIONS

A number of studies examined the effects of task complexity on L2 learners' language productions, i.e., Kuiken and Vedder (2007), Nuevo (2006), Rahimpour (2010), Robinson 2001, Salimi and Dadashpour (2012). For instance, Nuevo (2006) measured the effects of task complexity by looking at (+/- casual-reasoning) on learners language productions where no significant difference among high and low complexity groups was found. Adel and Nik (2014); Kuiken and Vedder (2007) on the other hand, found that task complexity significantly helped learners to produce an accurate piece of writing. In terms of accuracy, the findings of the study by Michel, Kuiken and Vedder (2007) are similar to Adel and Nik (2014); Kuiken and Vedder (2007), i.e., learners in complex task generated more accurate but less fluent speech. However, the linguistic complexity was marginally affected. Other than that, contrary to the Cognition Hypothesis, Rahimpour (2010) depicted that an increase in task complexity along resource-directing variable (+/-here-and-now) significantly affected fluency rather than complexity and accuracy of learners' language productions. Regarding the accuracy and fluency, the findings of the study by Rahimpour (2010) echoed by (Salimi & Dadashpour, 2012; Salimi, Dadashapour & Asadullahfam, 2011). Unlike Rahimpour (2010), these studies showed a significant effect of task complexity on complexity of learners' language productions.

The two areas in second language research as emphasized above have largely been studied in isolation. Therefore, the current study aims to examine these three areas in tandem, i.e. the

effects of both CF and task complexity on L2 learners' written productions (complexity, accuracy, fluency).

RESEARCH MATERIALS AND METHOD

The study, which was conducted at University Malaysia Pahang, was designed to investigate the extent to which CF and an increase in task complexity along resource-directing variable (+/- reasoning-demand) could help L2 learners to improve their written production (complexity, accuracy, fluency). Thirty seven undergraduate learners doing English for Professional Communication course from two intact classrooms participated in the study. Their age ranged between 18-22 years old and their L1 were either Malay, Chinese or Tamil. Their English proficiency was at low level as evident from their Malaysian University English Test (MUET) results. Majority of the learners achieved band 2 or 3 in the exam. One of the task complexity variables, i.e. resource-directing (+/-reasoning-demand) was manipulated in the task design. The learners were randomly assigned into two groups, i.e. complex task (+RD) and less complex task (-RD). During pretest of the current study, learners were asked to write an expository essay. They spent one hour writing essays. After pretest, learners in both +RD and –RD groups were provided with implicit CF. Then in a week interval posttest was carried out and the learners were asked to revise their essays based on the CF provided. Three research questions were formed with the aim to investigate the following:

How does wiki-based implicit CF and task complexity along resource-directing variable (+/- reasoning demand) affect the complexity of L2 learners' written productions?

How does wiki-based implicit CF and task complexity along resource-directing variable (+/- reasoning demand) affect the accuracy of L2 learners' written productions?

How does wiki-based implicit CF and task complexity along resource-directing variable (+/- reasoning demand) affect the fluency of L2 learners' written productions?

Research Design

The data collection process, which used in the study, is expected to investigate the effects of CF and an increase in task complexity along resource-directing variable (+/- reasoning demand) on L2 learners' written productions. The data was collected in two stages as pre and posttests. During pretest, the learners were randomly assigned into complex task (+RD) and less complex task (-RD) based on an increase in task complexity of resource-directing variable and asked to write an essay the topic of communication at workplace. The learners in +RD group were asked to write their essays based on casual reasoning while the learners in –RD group were not provided with reasons and were required to write their essays independently. Next, the researcher provided implicit CF to the learners' essays. After a week interval, posttest was carried out whereby the learners, individually, were given one hour to revise their essays based on the implicit CF provided to them. Figure 1 illustrates the summary of the data collection processes:

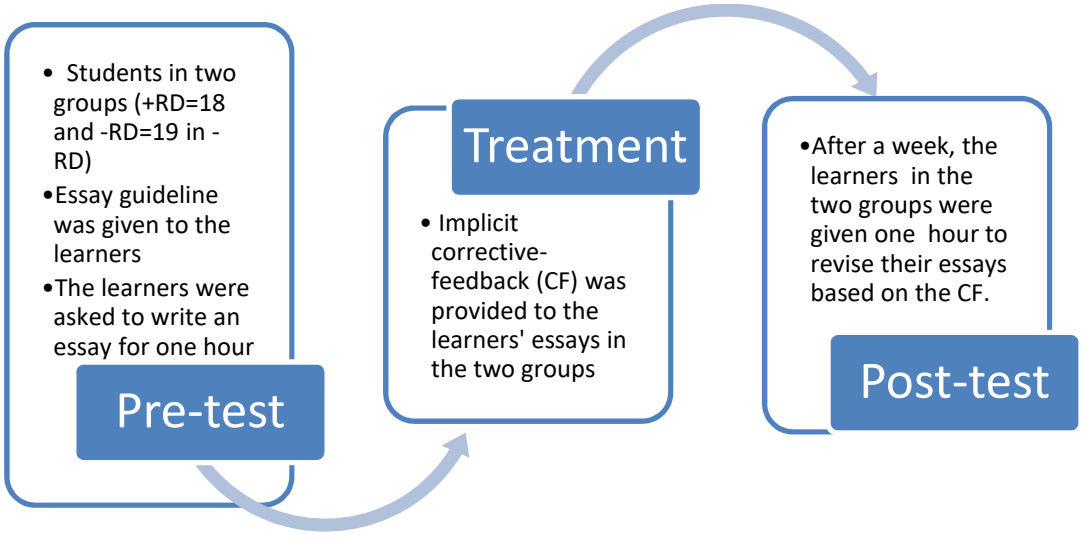

Figure 1: Procedure of data collection in the study

DATA ANALYSIS

Learners' written essays on communication at workplace from pre and posttests were analyzed to investigate: 1) if CF and an increase in task complexity along resource-directing variable (+/-reasoning demand) affect the complexity of learners' written productions, 2) if CF and an increase in task complexity along resource-directing variable (+/-reasoning demand) affect the accuracy of learners' written productions, and 3) if CF and an increase in task complexity along resource-directing variable (+/-reasoning demand) affect the fluency of learners' written productions. C/T and DC/C ratios were analyzed to measure the syntactic complexity. Accuracy was measured by total number of E/T and total numbers of E/C. In addition, total number of W/T and total number of W/C ratios were used to measure the fluency of learners' written productions. The data was analyzed using Microsoft Excel and SPSS. T-test was run to answer the research questions. The *t-test* provides the *p* value that shows significant difference between the two groups of the study. First, if the *p* value is $p>0.05$, it means there is no significant difference between the groups. However, if the *p* value is $p<0.05$, it means there is a significant difference between the two groups based on an increase in task complexity.

Table 1: Measure of written productions: complexity, accuracy, fluency

Language Productions CAF (complexity, accuracy and fluency)							
Complexity				**Accuracy**		**Fluency**	
Syntactic	Complexity	Lexical	Complexity				
C/T	DC/C	GI	%SW	E/T	E/C	W/T	W/C

T=T-unit, C= total number of clauses, DC= total number of dependent clause, GI= Giraud's index of lexical diversity by means of types/ tokens, SW= % of sophisticated words, E= total number of errors, W= total number of words

RESULTS

The independent t-test was administered to analyze the data and observe the effects of CF and an increase in task complexity on L2 learners' written productions. Results revealed that task complexity variable (+/-reasoning demand) helped learners in +RD group to produce more accurate language over –RD group when they were provided with ICF. Otherwise, task complexity variable (+/-reasoning demand) did not affect the complexity and fluency of learner written productions while they received ICF.

Complexity

Results from posttest indicated that wiki-based implicit corrective feedback (ICF) and task complexity variable (+/-reasoning demand) did not affect the complexity of learner written productions. Statistics on two different ratios total numbers of clauses per T-units (C/T) and total number of dependent clauses per clauses (DC/C) ratios were calculated by means of independent-samples t-test. Results found no significant effect task complexity on syntactic complexity of learner written productions when they were provided with ICF via wiki as evident in $t(35)= -0.30, p>0.05$ and $t(35)= -1.23, p>0.05$ respectively. Similarly, no significant effects were found on lexical complexity of L2 learner written productions as GI $t(35)= 0.03, p>0.05$ and SW $t(35)= 1.79, p>0.05$ accordingly.

Table 2: Effects of wiki-based implicit CF and task complexity on complexity of learner written production: posttest

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	*Sig.*	*tt*	*Ddf*	*Sig. (2-tailed)*	Mean Difference	Std. Error Difference	Lower	Upper
C/T	Equal variances assumed	02	.88	-.30	35	.75	-.01	.05	-.12	08
	Equal variances not assumed			-.30	34.98	.75	-.01	.05	.-12	08
DC/C	Equal variances assumed	00	.93	-1.23	35	.22	-.03	.02	-.08	.02
	Equal variances not assumed			-1.23	34.78	.22	-.03	.02	-.08	.02
GI	Equal variances assumed	2.57	.11	.03	35	.97	.00	.30	-.61	.62
	Equal variances not assumed			.03	31.47	.97	.00	.30	-.60	.62
SW	Equal variances assumed	32	.57	1.79	35	.08	1.08	.60	-.14	2.30

	Equal variances not assumed	1.78	34.26	.08	1.08	.60	-.14	2.30

Note: C= total number of clauses, T= total number of T-units, DC= total number of dependent clauses, GI= Guiraud index of lexical diversity by means of types/Vtokens, SW= % of sophisticated words

Figures 2 and 3 represent graph on syntactic and lexical complexity of learner written productions.

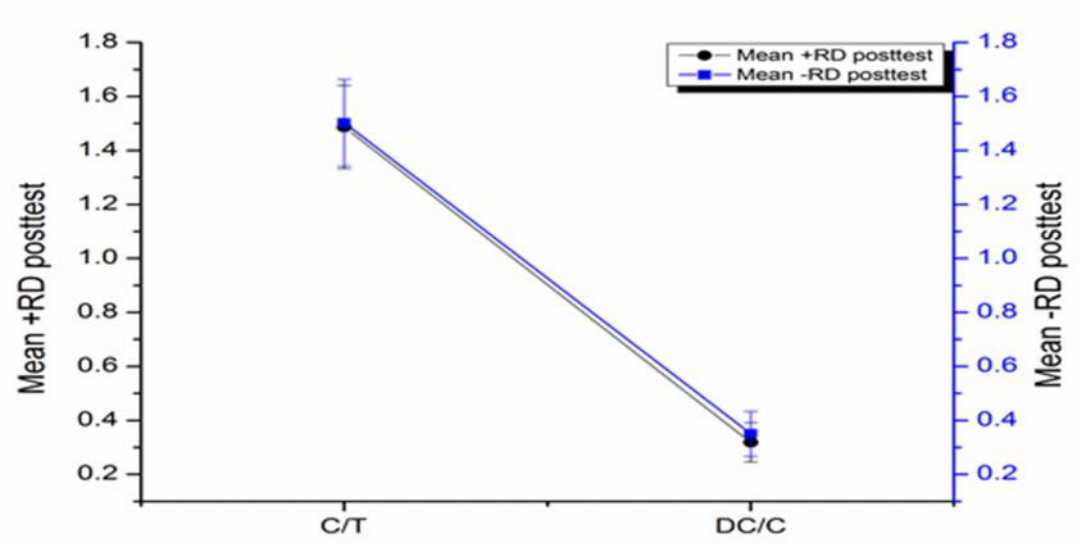

Figure 2: Mean posttest on syntactic complexity for +RD and –RD groups

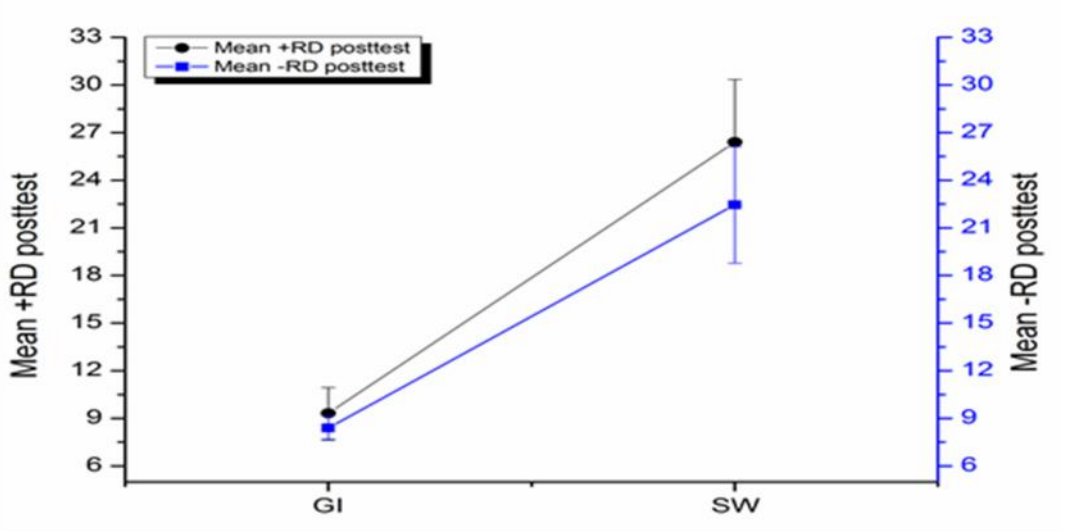

Figure 3: Mean posttest on lexical complexity for +RD and –RD groups

Accuracy

Table 3 illustrates the descriptive statistics on total number of errors per total number of T-units (E/T) and total number of errors per total number of clauses (E/C) of accuracy by means of independent *t-test*. Results from posttest showed that task complexity variable (+/-reasoning demand) significantly affected the accuracy of learner written productions when learners received wiki-based implicit corrective feedback (ICF). Learners in +RD group produced more accurate language over –RD group when E/T ratio $t(35)= -2.38, p<0.05$ was analyzed. Results found that learners in +RD group significantly produced more accurate language over –RD group. However, task complexity did not affect the accuracy of learner written productions when E/C ratio was analyzed. Results indicated that there was no significant difference between the +RD and –RD groups when E/C ratio was analyzed as evident in $t(35)= -1.81, p>0.05$.

Table 3: Effects of wiki-based implicit CF and task complexity on accuracy of learners' written production: posttest

		Levene's Test for Equality of Variances		t-test for Equality of Means					
								95% Confidence Interval of the Difference	
		F	*Sig.*	*tt*	*Ddf*	*Sig. (2-tailed)*	Mean Difference	Std. Error Difference	Lower	Upper
E/T	Equal variances assumed	18.60	.00	-2.38	35	.02	-.12	.05	-.22	-.01
	Equal variances not assumed			-2.44	21.07	.02	-.12	.05	-.22	-.01
E/C	Equal variances assumed	3.51	.06	-1.81	35	.07	-.05	.02	-.11	.00
	Equal variances not assumed			-1.83	28.66	.07	-.05	.02	-.11	.00

Note: E= total number of errors, T= total number of T-units, C= total number of clauses

Figure 4 represents graph on mean score between +RD and –RD groups from posttest of the study.

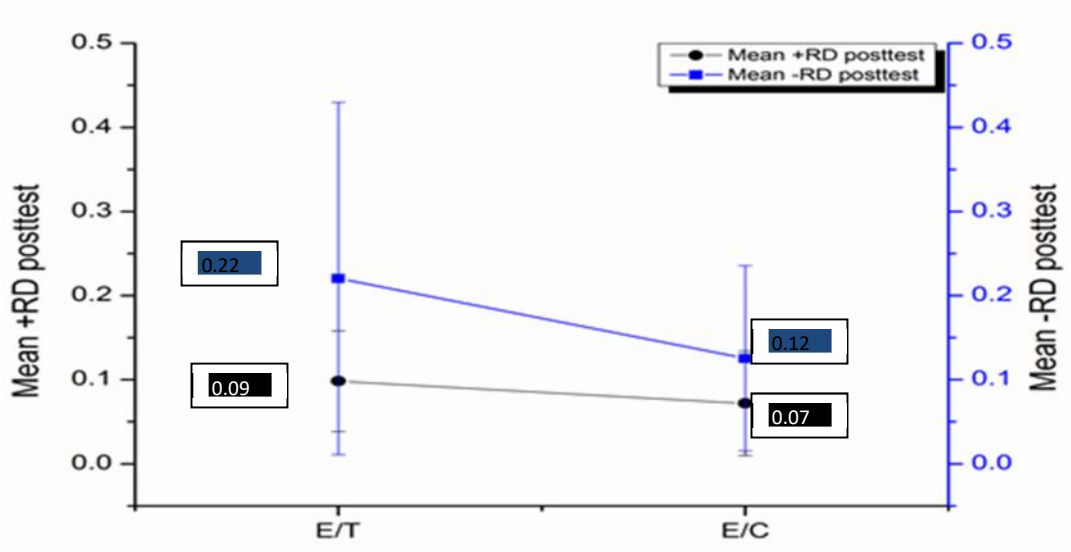

Figure 4: Mean posttest on accuracy for +RD and –RD groups

Figure 4 indicates significant difference of mean score between the two groups when E/T ratio was measured. The mean score of learners participated in a complex task (+RD) were significantly less *M =0.09 (SD =0.05)* than –RD group *M =0.22 (SD =0.20).* However, no significant difference between the two groups was found when E/C ratio was analyzed.

Fluency

Table 4 depicts statistics established by means of independent-samples t-test. Total number of words per T-unit (W/T) and total number of words per clauses (W/C) ratios were calculated to measure the fluency of learner written productions. Results from posttest illustrated that task complexity variable (+/-reasoning demand)did not affect the fluency of L2 learner written productions when they revised the essays based on ICF as evident in W/T *t(35)= -1.64, p>0.05* and W/C ratios *t(35)= -1.82, p>0.05* were measured.

Table 4: Effects of wiki-based implicit CF and task complexity on fluency of learner written production: posttest

		Levene's Test for Equality of Variances		t-test for Equality of Means						
									95% Confidence Interval of the Difference	
		F	*Sig.*	*tt*	*Ddf*	*Sig. (2-tailed)*	Mean Difference	Std. Error Difference	Lower	Upper
W/T	Equal variances assumed	.08	.77	-1.64	35	.10	-1.52	.92	-3.41	.35

	Equal variances not assumed			-1.63	29.82	.11	-1.52	.93	-3.44	.38
W/C	Equal variances assumed	.23	.63	-1.82	35	.07	-.98	.53	-2.07	.11
	Equal variances not assumed			-1.81	32.27	.07	-.98	.54	-2.08	.12

Note: W= total number of words, T= total number of T-units, C= total number of

Figure 5 represents means of learners participated in the +RD and –RD groups.

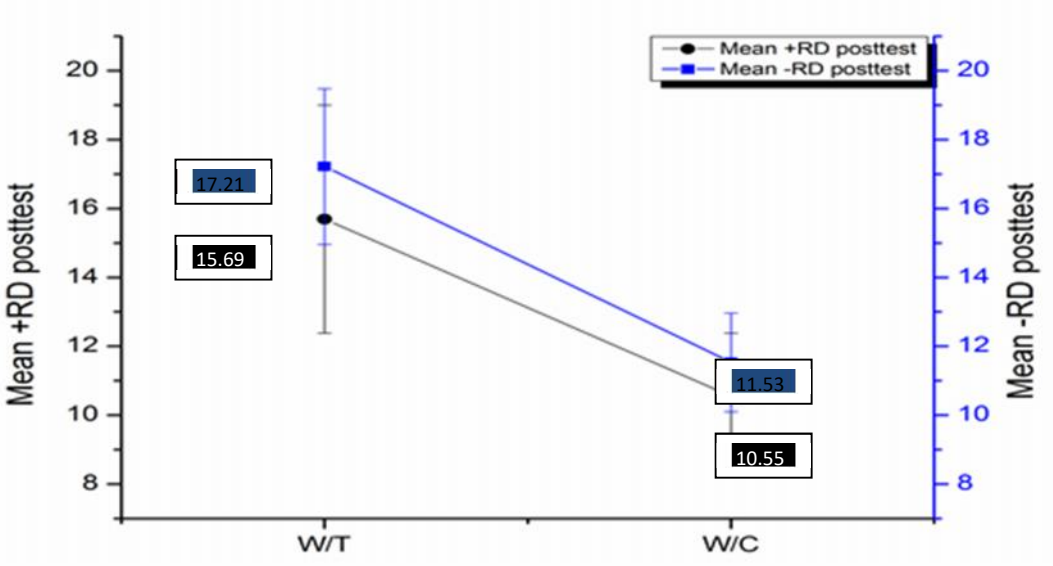

Figure 5: Mean posttest on fluency for +RD and –RD groups

Figure 5 demonstrates the mean score of learners in +RD group for W/T and W/C ratios were *M =15.69 (SD =3.31)* in pretest and *M =10.55(SD =1.82)* in posttest. However, learners in –RD group produced higher mean as *M =17.21 (SD =2.26)* in pretest and *M =11.53 (SD =1.43)* in posttest results, there was no significant difference of fluency of learner written productions between the two groups.

DISCUSSION

As mentioned previously a number of studies investigated the effects of corrective feedback (CF) on linguistic accuracy of learner language productions. However, little has examined when task complexity factor is concerned (Adams, Newton, Amani, & Nik, 2014). Therefore, research questions were aimed to investigate the influence of task complexity on L2 learner written production in relation to CF learners may receive in tandem. Results showed no significant effect of task complexity on complexity and fluency of L2 learner written productions when implicit CF was provided. However, it showed that learners in +RD group produced more accurate

language, and on separate measures significant results were found with respect to the total number of errors per total number of T-units (E/T).

Total number of clauses per total number of T-units (C/T) and total number of dependent clauses per total number of clauses (DC/C) ratios were calculated to measure syntactic complexity of learner written productions. Results showed that task complexity variable (+/-reasoning demand) did not affect syntactic complexity of learner written productions when implicit CF via wiki was provided. On the other hand, both groups displayed an upward trend while DC/C ratio was measured. In addition to syntactic complexity, Guiraud Index and percentage of sophisticated words ratios were measured. Likewise, results of the study did not show any significant effect of task complexity variable (+/-reasoning demand) on lexical complexity of learner written productions after they received the implicit CF via wiki. However, findings of the study showed that task complexity did not affect the complexity of learner written productions when implicit CF via wiki was provided. It does not mean that either task complexity or implicit CF via wiki is not helpful to learners while writing. Likewise, learners' low level of language proficiency might cause them not to increase the syntactic complexity and lexical complexity of their written productions as different studies highlighted the effects of language proficiency on language productions. For instance, Storch and Wigglesworth (2007) depicted that lower or intermediate proficiency learners are more likely to focus on grammatical forms than producing complex structures. Similarly, Farrokhi and Mahmoudi (2012), and Kuiken and Vedder (2007) depicted that lower proficiency learners tend to focus more on producing accurate than complex language.

The only significant effect of task complexity variable (+/-reasoning demand) was found on accuracy of learner written productions when they received implicit CF via their wiki pages. It showed that learners in complex task (+RD) significantly produced more accurate piece of writing over less complex task (-RD). This is reflected in a decrease in number of errors. The effects were significantly reflected on one measure, i.e., total number of errors per total number of T-units (E/T).The findings suggest that task complexity significantly affected accuracy (at least error counting) of learner written productions when implicit CF via wiki was provided. In terms of accuracy, the finding provides full support to the claims by Cognition Hypothesis, i.e., complex task push learners to greater accuracy. Based on the findings, it can be concluded that an increase in task complexity in monologic task along resource-directing variable (+/-reasoning demand) affected accuracy of learner written productions when they received implicit CF. In addition to the effects of task complexity, findings of the current study suggest that providing CF might also help learners increasing accuracy of their written productions (Zailin, Nik & Ainol, 2012). However, findings of the current study contradict the findings of the study by Revesz and Han (2006). They found that learners in less complex task and familiar contents group attended more recasts over complex task with new contents which contradict the Cognition Hypothesis. The problem with Revesz and Han's (2006) study might be due to the contents provided to the

learners, i.e., learners in a less complex task used familiar contents; however, complex task was performed with new contents.

Likewise to complexity, no significant effect of wiki-based implicit CF and task complexity variable (+/-reasoning demand) was found on fluency of learner written productions. It means there was no significant difference of fluency between the two groups (+RD & -RD) when learners received implicit CF via wiki. The study depicts a tradeoff between implicit CF and task complexity as CF and task complexity could differently affect fluency of learner written productions. For instances, CF helped learners increase fluency of their written productions (Chandler, 2003; Adel & Nik, 2014a). Cognition Hypothesis, on the other hand, predicted that learners in less complex task (-RD) significantly produced more fluent language over complex task (+RD). As stated earlier, learners in the two groups (+RD & -RD) revised their essays based on the implicit CF provided. The study illustrates that an increase in task complexity along resource-directing variable (+/-reasoning demand) did not affect fluency of learner written productions when implicit CF was provided to learners in +RD and –RD groups. The current study suggests that an increase in task complexity along resource-directing variable (+/-reasoning demand) may not affect fluency of learner written production when implicit CF is provided. In terms of fluency, finding of the current study contradicts the prediction by Cognition Hypothesis, i.e., task complexity along resource-directing variables (+/-here and now, +/-reasoning demand, +/-few elements) cause to reduce fluency of learner language productions. These findings do not reduce the significance of Cognition Hypothesis in a task-based research. It means some other factors might affect fluency of learner written productions. For instance, results showed that implicit CF helped learners in the two groups to increase fluency of their written productions.

CONCLUSION

Third research question sought to investigate the effects of task complexity variable (+/-reasoning demand) on learner written productions while implicit corrective feedback via wiki was provided. Complexity, accuracy and fluency of learner written productions were measured as follows:

Syntactic complexity was measured by total number of clauses per T-unit and total number of dependent clauses per clause.

Lexical complexity was measured percentage of sophisticated words beyond the first 1000 words and Guiraud index.

Accuracy was measured by total number of errors per total number of T-units and total number of error per total number of clauses

Fluency was measured by total number of words per total number of T-units and total number of words per total number of clauses.

The current study showed that an increase in task complexity in monologic task along resource-directing variable (+/-reasoning demand) significantly affected accuracy of learner written productions while implicit corrective feedback (ICF) via wiki provided. It found that learners in complex task (+RD) produced more accurate language over learners in less complex task (–RD) while the data was analyzed from posttest. Nevertheless, it can be concluded that task complexity variable (+/-reasoning-demand) can have positive effects on accuracy (at least error counting) while ICF via wiki is provided.

However, no significant effect of an increase in task complexity in monologic task along resource-directing variable (+/-reasoning demand) was found on complexity and fluency of learner written productions when they received wiki-based IFC. This study suggests that learner's low level of language proficiency might cause them not to increase complexity. However in terms of fluency, this study found a Trade-off between corrective feedback and task complexity as they differently dealt the fluency of learner language productions. For instance, corrective feedback helps learners to increase fluency of their language productions. Task complexity, on the other hand, negatively affects fluency of learner language productions.

LIMITATION AND RECOMMENDATIONS

The study conducted at University Malaysia Pahang. It only focused on to investigate the effects of wiki-based implicit CF and an increase in task complexity along resource-directing variable (+/-reasoning-demand) on L2 learners' written productions. Therefore, the validity of the findings in this study is limited to the above mentioned topic. It is worth mentioning that the current study used a pre and post-tests design. Further research may use advance level or native speakers of English language as language proficiency can affect language development (Farokhi & Mahmoudi, 2012; Kuiken & Vedder, 2007). The study found that learners with the low level of language proficiency were concerned in focusing on accuracy and fluency rather than trying to produce sophisticated structures and/ or lexical items.

ACKNOWLEDGMENTS

The research process of this study was sponsored by Ministry of Higher Education of Afghanistan (MoHE) in collaboration with University Malaysia Pahang (UMP).

References

Adel, S. and Nik, A. (2014a). Investigating the effects of wiki-based implicit corrective-feedback on L2 learners' written productions. *International journal of English and education*. 3(4), 160-178.

Adel, S. and Nik, A. (2014b). The effects of an increase in task complexity on learners' written productions via wiki. *International journal of English and education*. 3(4), 192-208.

Adams, A., Newton, Amani & Nik, A. 2014. *Planning and Production in Computer-mediated Communication (CMC) Writing*. John Benjamin Publishing Co. USA. 137-161.

Ahmadi, D., Maftoon, P. & Mehrdad, A. 2012. Investigating the effects of two types of feedback on EFL students' writing. *Social and behavioral sciences.* 46, 2590–2595.

Baralt, M.,L. (2010). Task Complexity, the Cognition Hypothesis, and interaction in CMC and FTF environments. Ph.D, *Graduate School of Arts and Sciences of Georgetown University, Washington DC, USA.*

Biber, D., Nekrasova, T. & Horn, B. 2011. The effectiveness for L1-English and L2 writing development: A meta-analysis. *Educational testing services (ETS).* 1-110.

Bitchener, J. 2008.Evidence of support of written corrective feedback. *Journal of second language writing*. 17, 102-118.

Bitchener, J. & Knoch, U. 2010. Raising the linguistic accuracy level of advanced L2 writers with written corrective feedback. *Journal of second language writing.* 19, 207-217.

Campillo, P. 2003. An analysis of implicit and explicit feedback on grammatical accuracy. *Journal of English and American studies.* 27, 209-228.

Chandler, J. 2003. The efficacy of various kinds of error feedback for improvement in the accuracy and fluency of L2 students' writing. *Journal of second language writing.* 12, 267-296.

Clerckx, B., Kim, G., Choi, J. & Hong, Y. 2010.Explicit vs. implicit feedback for SU and MU-mimo. *IEEE global telecommunications conference*. 1–5.

Ding, T. 2012. The comparative effectiveness of recasts and prompts in second language classrooms. *Journal of Cambridge studies*. 7, 83-97.

Ellis, R. 2008. The study of second language acquisition (2nd ed.).Oxford: Oxford University Press.

Evans, N., James Hartshorn, K. & Strong-Krause, D. 2011. The efficacy of dynamic written corrective feedback for university-matriculated ESL learners. *System.* 39(2), 229-239.

Farid, S. & Samad, A. 2012. Effects of different kind of direct feedback on students' writing. *Social and behavioral sciences*. 66,232–239.

Farrokhi, F & Mahmoudi, A. (2012). Rethinking convenience sampling: Defining quality criteria. *Theory and practice in language studies, 2,*784-792.

Falhasiri, M. , Tavakoli, M., Hasiri, F. & Mohammadzadeh, A. 2011. The effectiveness of explicit and implicit corrective feedback on inter-lingual and intra-lingual errors: A case of error analysis of students' compositions. *English language teaching*.4 (3), 251-264.

Fazilatfar, A., Fallah, N., Hamavandi, M. & Rostamian, M. 2014. The effects of unfocused written corrective feedback on syntactic and lexical complexity of L2 writing. *Social and behavioral sciences*. 98, 482-488.

Ferris, D. 1999. The case for grammar correction in L2 writing classes: A response to Truscott (1996).*Journal of second language writing*. 8(1*)*,1-11.

Ferris, D., Liu, H., Sinha, A. & Senna, M. 2013. Written corrective feedback for individual L2 writers. *Journal of second language writing*. 22, 307-329.

Ferris, D. & Robberts, B. 2001. Error feedback in L2 writing classes: How explicit does it need to be? *Journal of second language writing*. 10, 161-184.

Jung, S. 2013. The effect of task repetition and corrective feedback in second language writing: A pilot study. *MSU working papers in SLS*. 4, 24-38.

Kamberi, L. 2013. The significance of teacher feedback in EFL writing for tertiary level foreign language learners. *Social and behavioral science*. 70, 1686-1690.

Kao, C. W. 2013. Effects of focused feedback on the acquisition of two English articles. *Teaching English as a second language or foreign language*. 17(1), 1-15

Kuiken, F. & Vedder, I. (2007). Task complexity and measures of linguistic performance in second language writing. *Walter de Gruyter*,10.1515/2007.012

Kuiken, F. & Vedder, I. (2008). Cognitive task complexity and written output in Italian and French as foreign language. *Journal of second language writing. 17*, 48-60.

Lam, R. 2013. Two portfolio system: EFL students' perceptions of writing ability, text improvement, and feedback. *Assessing writing*. 18, 132-153.

Lightbown, P. M.& Spada, N. 1999. *How languages are learned*. Oxford, UK: Oxford University Press.

Lyster, R. & Saito, K. 2010. Oral feedback in classroom. *Studies in second language acquisition*. 32, 265-302.

Marzban, A. & Arabahmadi, S. 2013. The effects of written corrective-feedback on Iranian EFL students' writing. *Social and behavioral sciences*. 83, 1000-1005.

Meihami, H. 2013. Truscott's claims in giving corrective feedback: Does it matter in EFL writing context? *International letters of social and humanistic sciences*. 8, 8-23.

Michel, M. C. 2011. Effects of task complexity and interaction on L2 performance. In: Robinson's, ed., *Second language task complexity*. Amsterdam: John Benjamin. 141-174

Mourssi, A. 2012. The impact of reflection and meta-linguistic feedback in SLA: A qualitative research in the context of post graduates. *The international journal of language learning and applied linguistics world*. 1(1) 128-146

Nazari, N. 2013. The effect of implicit and explicit grammar instruction on learners' achievements in receptive and productive modes. *Social and behavioral sciences*. 70,156–162.

Nuevo, A. M. (2006). Task complexity and interaction. Unpublished Ph.D. dissertation, *Georgetown, Georgetown University, U.S.A.*

Rahimpour, M. (2010). Current trends on syllabus design in FL instruction. *Social and behavioral sciences, 2*(16), 60-64.

Revesz, A. & Han, Z. 2006. Task content familiarity, task type, and efficacy of recasts. *Language awareness*. 3,160–179.

Robb, R., Ross, S. & Shortreed, I. 1986. Salience of feedback on error and its effect on EFL writing quality. *TESOL quarterly*. 20, 83 – 93.

Robinson, P. (2001). Task complexity, task difficulty, and task production: Exploring interactions in a componential framework. *Applied linguistics, 22*, 27-57.

Robinson, P. (2005). Cognitive complexity and task sequencing: Studies in a componential framework for second language task design. *International review of applied linguistics in language teaching*, 43, 1-32.

Robinson, P. 2007. Criteria for classifying and sequencing pedagogic tasks. In: M. García Mayo, ed., *Investigating tasks in formal language learning*. 7-27. Clevedon: Multilingual matters, Ltd.

Robinson, P., & Gilabert, R. (2007). Task complexity, the Cognition Hypothesis and second language learning and performance. *International review of applied linguistics in language teaching, 45*, 161-76.

Salimi, A. and Dadashpour, S. (2012). Task complexity and language production dilemma (Robinson's Cognition Hypothesis vs Skehan's Trade-off Model). *Social and behavioral science, 46*, 643-652.

Salimi, A., Dadashpour, S., and Asadollahfam, H. (2011). The effect of task complexity on EFL learners' performance. *Social and behavioral science, 29*, 1390-1399.

Sato, M. & Lyster, R. 2012.Peer interaction and corrective feedback for accuracy and fluency development. *Studies in second language acquisition*. 34(04),591–626.

Sheen, Y. & Ellis, R. 2011. Corrective feedback in language teaching. In: E. Hinkel, ed., *Handbook of research in second language teaching and learning*. Vol. 2. New York: Routledge, 593–610

Skehan, P. (1998). A cognitive approach to language learning. *Oxford: Oxford University Press*.

Skehan, P. (2003). Task-based instruction. Cambridge University Press. *Language and teaching, 36*, 1–14.

Skehan, P. & Foster, P. (2001). Cognition and tasks. *In P. Robinson (Ed.).*

Storch, N. & Wigglesworth, G. 2007. Writing task: Comparing individual and collaborative writing. In: M. Gracia Mayo, ed., *Investigating task in formal language learning*. (157-177). London, UK: Multilingual matters.

Truscott, J. 1996. The case against grammar correction in second language writing classes. *Language learning*. 46(2), 327-369.

Truscott, J. 2004. Evidence and conjecture on the effects of correction: A response to Chandler. *Journal of second language writing*. 13, 337-343.

Truscott, J. 2007. The effect of error correction on learners' ability to write accurately. *Journal of second language writing*. 16, 255-272.

Truscott, J. 2010. Further thoughts on Anthony Bruton's critique of the correction debate. *System*. 38, 626-633.

Van-Beuningen, C., De-Jong, N. & Kuiken, F. 2011. Evedience on the effectiveness of comprehensive error correction in second language writing. *Language learning*. 62, 1-41.

Williams, J.G. 2003. Providing feedback on ESL students' written assignment. *The internet TESL journal*, No. 10.

Yilmaz, Y. 2013. The relative effectiveness of mixed, explicit, and implicit feedback in the acquisition of English articles. *System*. 41, 691-705.

Zailin, Y. S., Nik, A., & Ainol, H. (2012). Investigating students' perception of using wikis in Academic writing. *The south East Asian journal of English language studies*, 18(3), 91-102.

Zhao, H. 2010. Investigating learners' use and understanding of peer and teacher feedback on writing: A comparative study in a Chinese English writing classroom. *Assessing writing*. 15(1),3–17.