Journal of English Teaching
e-ISSN: 2622-4224 | p-ISSN: 2087-9628
http://ejournal.uki.ac.id/index.php/jet
Volume 8. Number 2, June 2022, pp. 195-208

The role of Error Correction in Teaching and Learning of English from the Cognitive Load Perspective: A Case Study

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Received: 28 January 2022
Accepted: 26 April 2022
Published: 16 June 2022
DOI: https://doi.org/10.33541/jet.v8i2.3698

Abstract
In second language teaching and learning, making errors is inevitable as language learning requires a lot of cognitive effort and concentration on the part of learners. Understanding the types and frequencies of student errors is, therefore, an important issue for ESL and EFL teachers to determine how students can be helped to improve their skills through instruction. This case study focuses on the frequency and types of errors and aims to identify any possible relationship between learner-based errors and the perceived cognitive load of the student. Data was received through 36 essays written by an adult learner of English who received 104 hours of formal instruction. The instruction was designed pursuing Cognitive Load Theory (CLT), and corrective feedback was provided. At the end of each month, a subjective cognitive load scale was applied to identify the perceived cognitive load of the learner. Errors were regarded as indicators of the student's developmental competence and were analyzed not as a failure but as a sign in reflecting the learner's progress. The results revealed that an improvement in the writings of the learner can be observed when the perceived cognitive load of the learner is lowered in the second language learning process.

Keywords:
error analysis, perceived cognitive load, second language learning, Cognitive Load Theory

INTRODUCTION

It has not been an easy task for adult language learners to process 1anguage form of a second language to produce and comprehend them without diffic u1ty. In the literature, errors made by the students, especially in writing tasks receive a lot of attention however while checking the written productions of the students, we are most of the time unaware

of the types of mistakes since we focus on giving corrective feedback at the same time. Nevertheless, detecting errors is equally important in terms of defining learner development, as well.

The traditional view that errors are indicators of failure to learn rather than marks of individual stages in the learning process gave rise to the notion that successful language acquisition could only be gained with total mastery. So, error correction is considered as a way to develop the competence of language learners in a second or foreign language. It can be used to attain conscious knowledge of a second or foreign language, and in learning the language's rules. Thus, language cognition comes into play, and it necessitates an examination of human information processing to better understand the issue. Especially in writing activities, several research studies suggest that L2 learners rarely consider their thought processes while writing, as "their cognitive abilities are overwhelmed and overloaded by the task at hand" (Nawal, 2018). So at that point, it is of crucial importance to support learners' language recognition through different learning contents (Kan &Ito, 2020).

LITERATURE REVIEW

Error Analysis

The systematic nature of errors is first explained by the contrastive analysis hypothesis: learners will err in the target language where it differs from their native language (Kroll & Schafer, 1978). Lightbrown & Spada (2006) pointed out that errors are the result of transfer from learners' first language. This might mean that when L2 learners translate their original thoughts in their native language (L1) into the target language, this can cause cognitive overload when writing (Nawal, 2018).

Error analysis involves detailed description and analysis of the kinds of errors second language learners make (Lightbrown & Spada, 2006), aiming to identify strategies of language learning through the investigation of learners' written and oral errors (Chun, 1980), which holds crucial importance for language learners in terms of improving their learning process (Salam, et al., 2020). The first step in analyzing learner errors is to identify them. When a learner produces an unusual form it is not just an accidental slip of the tongue. On the other hand, native speakers sometimes make slips when they are tired. In this case, it is vital to distinguish between errors and mistakes. Errors indicate gaps in a learners' knowledge and they appear when learners don't know what is correct. However, mistakes indicate occasional lapses in performance and they appear when learners are unable to perform what they know.

Chun (1980) firmly stated that error analysis, the technique of examining and categorizing systematic errors in language learners' speech, owes its popularity partly to trends in L1 research and also to the inability of existing theories of L2 learners. An investigation into the types of errors reflects the fact that two major transfers may cause errors: inter-lingual and intra-lingual transfer (Kirkgoz, 2010). Inter-lingual errors occur because of the differences between the learners' L1 and L2 at the early stages of learning a second language (Kirkgoz, 2010). Linguists have spent a great deal of time contrasting languages and potential sources of the difficulty. They have focused on first language interference, which results from several interferences, such as grammatical, prepositional, and lexical interference (Kirkgoz, 2010).

However, not all errors that appear can be attributed to differences between the L1 and L2. In this case, some of the researchers found out that errors are often attributable to sources of difficulty within the target language. This approach is a non-constructive

error analysis that considers errors in L2 from a "psychological" point of view (Sari, 2019). Developmental and intra-lingual errors are analyzed within this category. Intra-lingual errors include overgeneralization which is the over-application of a rule of the L2 in inappropriate circumstances (Chun, 1980), omission, spelling, and redundancy errors (Kirkgoz, 2010).

Effectiveness of Error Correction/Corrective Feedback

Cohen (1975) firmly stated in his paper that conscientious teacher correction of students' errors is not sufficient whereas it may be a necessary part of the learning experience. He also points out that teacher correction alone may not change error patterns very noticeably. On the other hand, Krashen and Seliger (as cited in Cohen, 1975) assert that error correction is especially useful to adult second language learners because it helps them learn how to apply rules and discover the semantic range of lexical items. This kind of correction may also develop the students' ability to recognize errors. Moreover, according to Griffiths (2008), the students who are aware of and act on correction can benefit from error correction and it also helps them to develop competence in a target language. Griffiths (2008) also suggests that good learners can learn from their mistakes, whereas the poorer learner ignored correction.

Sternglass (as cited in Cohen, 1975) suggests that although error doesn't affect the intelligibility or appear very often, it still could be corrected because of the stigmatizing effects on the listener or reader. Moreover, Griffiths (2008) points out that the teacher should employ error correction according to the focus of the lesson activity in which it occurs. If the focus is on developing fluency or confidence in communicating, the error should only be corrected if is stigmatizing communication. If the focus is on grammatical accuracy, error correction should not be ignored (Griffiths, 2008).

Many language educators agreed on correcting three types of errors can be quite natural as well as helpful to second language learners (Zublin, 2011): errors that retreat communication significantly; errors that have widely negative effects on the listener or reader; and errors that appear frequently in students' speech and writing, and also in oral production. However, the benefits of corrective feedback are still discussed as a controversial topic in the ESL field. It is stated by contemporary scholars that “early studies ignored the factors associated with the learners’, i.e. language learning context, proficiency level, age, and educational / learning context that directly influences learners’ ability to receive and process written corrective feedback” (Tanveer & Malghani 2018). Bearing this in mind, another issue can be added to the list: the cognitive overload of the L2 learners.

Role of Cognitive Load in Language Learning

According to Cognitive Load Theory, second language learning consists of an accumulation of large amounts of domain-specific knowledge in long-term memory and therefore learners must learn the particular linguistic forms (Sweller, 2017). When learners receive biologically secondary information, such as a second language, they should consider their cognitive architecture as a part of their “human information processing” (Yılmaz Virlan & Demirbulak, 2020). Considering the writing processes of the students, however, it seems that they focus their attention and thinking on the translation of words, as a result of which poor writing occurs (Nawal, 2018). The act of mentally shifting between languages may by itself lead to an excessively high cognitive load. As Schoonen et al. (2003, p. 8) stated ‘difficulties in fluent retrieval of words or

grammatical structures in L2 burdens the working memory and thus hinder the writing process as such, not just concerning writing fluency, but also with consequences for the quality of the text'.

It is emphasized by Sweller (2017) that teachers should be aware of the fact that "this type of information should be handled by the new learners, in a limited-capacity, limited-duration working memory before their transfer to an unlimited-capacity, unlimited-duration long-term memory". The theory assumes that " "effective learning is promoted when a student's cognitive capacity in a particular area/domain is not surpassed" since "academic learning requires explicit instruction that facilitates the acquisition biologically secondary information" (Sweller, 2017). Therefore, according to CLT, the theorists think that if we can reduce the cognitive load in our working memory, then our learning capacity will increase. So, as also stated by Nawal (2018), CLT is appropriate for guiding through corrective feedback in the writing process of L2 learners. It might allow for a decrease in the cognitive load of the learners and guide the language instructors to "avoid provoking the split-attention effect" in the writing process of L2 learners. In brief, the present study focuses on the possibility that adult learners of English can reduce their cognitive load by corrective feedback, after a detailed analysis of their errors and instructional design that enables this.

Research Questions

This case study attempts to investigate the frequency and types of errors made by an adult in writing activities when corrective feedback is provided for each essay. Throughout the study, it is also aimed to understand if there is any improvement in the student's writing in terms of errors over the time he received formal instruction. Hence, the study addresses the following research questions:

1. What types of errors are made by Turkish adult learners of English?
2. What is the frequency of the errors?
3. What is the perceived cognitive load of the student during instruction?

METHODS

Overall Design of the Study

This study presents a case of an adult ESL learner at a language school in Istanbul and utilizes a descriptive survey design within the qualitative research paradigm. The participant of the study produced essays in his writing classes for four months during his preparation for the IELTS Examination. To increase the reliability of the study, five essays of the same student were independently checked by two instructors who received training on error analysis before they started evaluating the essays. A high level of consistency was achieved between the evaluators with an agreement of 95%. Thirty-six essays of the learner were evaluated by the instructors over four months. The data gathered from these essays were then computed descriptively for interpretation. In the meanwhile, the course instructors provided corrective feedback immediately after the essay was written by the student. They followed a checklist prepared by the researcher of the study as a part of the instructional design of the writing classes. At the end of each month (a period, henceforth), the student was given the subjective cognitive load scale and asked to rate his mental effort after completing 9 essays. The student was given the scale four times (4 periods) throughout the study.

Participants

The participant in this case study was chosen employing a convenience sampling out of an accessible population of students. The participant was a male student, aged 35, and reported that the last time he received formal instruction in English 12 years ago as a university student. According to the placement test prepared and conducted by the language school, he was placed at the intermediate level. The student received 6 hours of English instruction each weekend (104 hours in total), with additional rehearsal hours during the week. There was only one more student enrolled in the class, as the aim of the language school was to provide students with direct instruction as much as possible in small classes. The student ended up having the IELTS test at the end of the four months passing the writing section of the exam with a score of 6.5.

Instruments

The source of data for the study was thirty-six essays produced by a Turkish adult learner of English. To increase the validity of the study, topics of the essays were chosen from sources that were available to learners in the forms of writing books and Internet sources. In addition, the raters checked five essays of the same students before checking the rest of the essays produced by the learner and categorized the errors according to the categories used in Kırkgoz's study to replicate them. Then, the writing topics were revised to eliminate the possibility of misunderstanding. In addition, vague or difficult terminologies in the topics were changed into simpler ones to ensure comprehension. All of these helped to increase the probability that any difficulty that the student might experience or any error that he makes in producing his essay would be due to his knowledge about the language, not to the student's failure to understand the given writing topic. The subjective cognitive load scale developed by Paas (1992) was also utilized at the end of each period after 9 essays were written by the student.

Data Collection

Data was collected over four months (4 periods), immediate corrections were done, and feedback was given to the student individually as a part of the instructional design prepared within the framework of CLT. The data collected were analyzed descriptively to understand the frequency of errors as well as differences among them. Then subjective cognitive load scale was applied at the end of each period.

FINDINGS AND DISCUSSION

When the overall result of the study is considered, the student made 560 errors in total (Table 1). 335 of the errors are inter-lingual errors constituting 60% of overall results, and 225 of them are intra-lingual errors constituting 40% of all errors. Both inter-lingual and intra-lingual errors were further classified in detail. Errors related to inter-lingual errors were divided into three categories; namely, Grammatical Awareness, Prepositional Interference, and Lexical Interference, each of which further subdivided depending on the errors made by the student. On the other hand, errors related to intra-lingual errors were divided into four types: Overgeneralization Use of Articles, Spelling, and Redundancy.

In addition to the types of errors, Table 1 also shows how many errors were made by the student at the end of each period in detail.

Table 1. *Breakdown of the Types of Errors*

	Frequency of Errors				
Types of Errors	1st period	2nd period	3rd period	4th period	Total
pluralization	14	17	15	17	63
verb-tense	27	24	20	21	92
preposition omission	23	29	30	27	109
preposition addition	11	10	6	4	31
preposition misused	8	4	8	4	24
article omission	24	33	25	27	109
article addition	2	5	5	3	15
article misused	2	0	3	4	9
spelling	16	13	13	16	58
redundancy	2	3	5	3	13
lexical	5	3	4	4	16
overgeneralization	9	6	5	1	21
Total	143	147	139	131	560

Inter-lingual Errors

According to the results, the number of errors committed in the category of inter-lingual errors is 335, which constitutes the majority of overall errors. Inter-lingual errors constitute the most common errors such as preposition omission and verb-tense errors produced by the student learning English as a second language in a language school to pass an internationally recognized test, IELTS.

Table 2:
Distribution of Inter-lingual Errors

Inter-lingual errors	frequency of errors
grammatical awareness	
verb-tense	92
pluralization	63
prepositional interference	
omission	109
addition	31
misusing	24
lexical interference	16
Total	335

As for the inter-lingual errors, the subcategory of prepositional interference had the greatest number of errors with a total of 164, which is very different from the results of Kirkgoz's study in 2010. Grammatical interference followed the results of prepositional interference with 155 errors in total. Finally, lexical interference was identified as the less occurring error type according to the table with 16 errors. Subcategories of errors will be discussed in the following sections in detail and examples related to these types of errors will be provided.

Grammatical Awareness

These types of errors were subdivided into pluralisation and verb-tense and individual errors were identified accordingly. In the case of verb-tense errors, 92 errors were committed by the student, which is followed by pluralisation errors with a total number of 63. In terms of *verb-tense* errors, the following errors were found in the student's essays:

* I hold a party this weekend.
* This is increasing rubbish.
* People has many problems about their children.
* While industrialization is increasing, production increase, too.
* She have a nice job in that company.

In the examples above, there seems to be a problem with the application of the present simple tense, which is not very commonly used in the student's native language, Turkish. To avoid committing errors in English, the students spent some effort; which probably increased his cognitive load and caused a negative transfer from his mother tongue. The structures used to express these situations were confusing for the students so present simple tense was employed instead of present continuous tense, or vice versa. The student tends to use Turkish present continuous tense when possible. In addition, there were problems with third-person singular while applying the rules for the present simple tense.

In terms of errors related to *pluralisation*, the student seems to be more successful compared to his verb-tense errors. He has committed 63 errors in his essays, some of which were as follows:

* One of the most important issue (s) is health.
* I will return them in two day (s).
* There are many different type (s) of music.
* There aren't enough working area (s).
* They only send e-mail (s) or message (s) instead of meeting each other.

Considering the examples above, we can realize that the student is trying to apply a grammatical rule in his mother tongue. When the underlined words are considered in terms of Turkish grammatical rules, it is not surprising that no pluralisation rule has been applied, which is contrary to English grammar rules. Because when there is a quantifier in front of a noun, is not pluralized, and so does the student, transferring the rule from his L1 to his L2 writing.

Prepositional Interference

Considering the prepositional errors produced by the student, it can be said that there are three different ways, the errors in the essays were committed: by omitting and misusing the preposition and by adding a wrong preposition.

Preposition omission has been granted the highest rank among all types of errors in the essays of the learner. 109 prepositions were omitted in the essays. It is important to note that the student sometimes applied Turkish instead of English grammatical rules and did not employ any prepositions. Some of the examples are as follows:

* I was going to earn money (for) the first time in my life.
* I lived with my brother (for) two months.
* Inventions have been invented (in) last fifty years.
* News is not to write or take photo (of) everything.
* Children who use computers (at) early ages are more curious.

As for *prepositions added* unnecessarily, we can say that native language influenced the preferences of the student in a way that he directly translated the sentences and thought that he needed prepositions in those situations. In other words, we inevitably see pieces of evidence for the application of Turkish rules in the production of English sentences. Especially in sentences 1 and 2, we can see how the native language is influential in structuring the sentence. Since there is the necessity to use "of" in Turkish, this rule is applied in the target language usage, as well. Some other examples are as follows:

* Most of people prefer driving cars.
* Each of children is given a mission.
* Some people's performance to increase in classical music.
* I hope you to answer my complaining.
* People started to choose to them.

Considering the *misused prepositions*, it can be said that 24 prepositions were misused in the essays of the learner. The reason why the student attempted to use the wrong prepositions could again be related to the L1 transfer. Looking at the examples of such, it can be noticed that the wrong prepositions are almost the direct translations from Turkish equivalents. However, because of the nature of the English word, that particular word does not carry the same meaning, and the student ends up having misused prepositions. The sentences below have examples of misused prepositions:

* We wanted to go to (on) a picnic.
* People can not do it in (under) heavy conditions.
* I would like to thank to (no preposition) you for your answer.
* Please don't hesitate to call me if you are disturbed of (by) the noise.
* At (for) this reason children should learn a foreign language.

Lexical Interference

Considering the thirty-six English essays of the student, 16 lexical errors in total can be identified. This type of error is seen when the idioms, proverbs, or phrasal verbs are translated word-for-word. According to Kirkgoz's study conducted in 2010, lexical interference of the first language becomes more obvious when a language item in the student's native language interferes with a corresponding language item in the target

language. For this reason, the following samples from the corpus are classified as lexical interference:

* He offered us separated (different) tables.
* We decided to waste (spent) our time there.
* Where do they amuse (have fun)?
* You can go there with a road computer (navigator).
* I was in a row (queue) to pay the bill.
* If you want to admit (accept) the new offer, don't hesitate to contact me.

It is not surprising to come across such mistakes because the native language has an important role while learning a second language. All the above-mentioned inter-lingual errors help us to see how the student's production is affected when L1 comes into play. Now it is time to have a look at the intra-lingual errors to have further information about the errors committed by EFL learners.

Intra-lingual Errors

When the data were analyzed, it was found that intra-lingual errors constitute 40% of the overall errors. There are 225 intra-lingual errors in total most of which result mainly from problems related to the use of articles with 133 errors in total. Article omission is followed by spelling mistakes with a total number of 58 errors. The other categories that were further analyzed and exemplified in the study under intra-lingual errors are overgeneralization with 21 errors, and redundancy with 13 errors as shown in Table 3.

Table 3:

Frequency of Intra-lingual errors

Intra-lingual errors	Frequency of errors
use of articles	
omission	109
addition	15
misusing	9
spelling	58
overgeneralization	21
redundancy	13
Total	225

Use of Articles

In terms of intra-lingual errors, most of the erroneous utterances of the student while using articles correctly result from the fact that Turkish does not have definite or indefinite articles. The maximum degree of difficulty is encountered in the learning of grammar elements that do not exist in the native language (as cited in Kirkgoz, 2010). For these reasons, it was not surprising to come across errors related to the use of articles in the English language.

When the corpus is analyzed, 109 articles were omitted in the written productions of the student. *The omission of articles* is the biggest difficulty considering the use of

articles. Because in Turkish grammar, articles are not employed in the structures of sentences such as the ones below, the student committed article omission error as follows:

- Let's start with (the) limited sources.
- He and his friends were going to (a) dance club.
- As a result, children must learn (a) foreign language
- So children learn it faster than (the) rest of the family.
- It is (the) right decision to control population.

In addition to article omission, another problematic area related to the use of the article is *article addition*. Whether the noun that should be preceded by an article is uncountable, or plural, the student in this case study attempted to use an article – 15 times in total- just because an article-like part of speech is used in his native language. The samples below constitute the examples to the addition of articles, which give us a clearer picture of the reason behind adding unnecessary articles to the sentences:

- He reaches a success easily.
- I didn't have a time to inform you.
- There is a one solution to this problem.
- My company sends me to a course that gives an information on control systems.
- Every country has a different customs.

Misused articles are also observed in the writings of the learner; however, since there are only 9 errors, this type of error is ranked at the bottom of the list of all types of errors. It may be concluded that the student is aware of the fact that there are articles used in English sentences, yet, he cannot exactly figure out how they are used. Since he is not used to employing such a rule in his native language, he makes mistakes while choosing the correct prepositions. The following examples illustrate the cases in which articles were misused:

- While a (the) number of working women of a country increases, development increases, too.
- I am planning to have a party. I am holding a (the) party to show my new house to my friends.
- We can have a (an) opportunity to talk to each other.
- The machine didn't work so you sent me a mechanic to check a (the) machine.
- There was an (a) damaging earthquake in the area.

Spelling

With 58 errors, spelling is ranked as the second subcategory that receives the highest number of errors under the category of intra-lingual errors. When the data are analyzed, most of the errors relating to spelling errors stem from the fact that one particular letter needs to be doubled in English. The student fails to employ this rule since in Turkish within one syllable letters cannot be doubled, or just doubles the letter unnecessarily. In addition, the student fails to identify the places of letters and uses them in places of each other. Although we know that even native speakers may commit such errors while writing, spelling errors might be affected by L1 transfer in the application of the rules. The following words in the corpus analyzed are some of the examples of spelling errors found in the essays of the student.

- voilence (violence)
- thier (their)
- oportunity (opportunity)
- writen (written)
- awerness (awareness)
- appoligise (apologize)
- usefull (useful)
- hopefull (hopeful)
- harmfull (harmful)
- acording (according)

Overgeneralization

As shown in Table 3, there are 21 errors in terms of overgeneralization when the data is analyzed. These errors occur especially when learners combine the rules of their native language with the second language they are learning. For example, in a study conducted by Norrish (1983), the past tense marker -ed in English changes in the case of irregular verbs and the rules change (as cited in Kirkgoz, 2010). However, although the learners are expected to use an appropriate tense marker of such verbs, students tend to overgeneralize them and apply the -ed form of past tense to the verbs as in sentence 1 below.

Similarly, newly learned structures may lead to errors when they are contrasted in the grammar of the target language because they do not carry any apparent contrast to the learner. As a result, students try to apply the rules (as in sentences 2 and 3 below) and overgeneralize them. The other faulty applications of rules can be seen below:

- Flight will always be catched by radars.
- I would want you to know that I am not happy with your service.
- They feel more fit when they exercise.
- We discussed which are influences people a lot.
- Parents don't allowed their children.

Consequently, according to Norrish (1983) overgeneralization could be associated with "redundancy reduction" (cited in Kırkgoz, 2010). For this reason, some errors could be defined in both categories: overgeneralization and redundancy. At this point, it is a good idea to look into redundancy errors in detail.

Redundancy

As for errors related to redundancy, there are 13 redundancy errors in the student's essays. Such errors occur when the attention of the student is distracted by external factors. The student in this case study had such erroneous utterances as can be seen in the sentences below. The underlined words can be counted as "redundant" and unnecessary in such structures:

- I have already apologize for the noise for two times before.
- They are attending a meeting at this weekend.
- There is no changing without risks.
- It was the first time I have had a bad meal in your restaurant.

A conclusion considering all the above-mentioned error types can be made by looking at all the results of the study. When the data is analyzed the total number of student errors was 560, which is considered very high regarding 36 essays. However, keeping in mind that the student is an adult learner, and his proficiency level is intermediate, it is not surprising to come across that many errors. Some factors such as age and gender have not been taken into account in this case study, however the age

factor, for example, could play an important on the results. We need further analysis to identify the motive behind committing these errors, yet, considering the effects of, say, fossilization or backwash on adult learners, the student in our case study could be under the influence of such effects or have developed his learning strategies. All in all, even the native speakers may have such errors in their writings; however, we think that the important thing should be developing strategies to deal with them to avoid them.

Perceived Cognitive Load

The final dimension of the study was the perceived cognitive load of the learner while he was performing his writing tasks. It was aimed to investigate the effect of mental effort spent during the tasks. The study also set out to provide immediate corrective feedback to the learner to decrease any possible cognitive overload that could be at work within the context of CLT. When the results received from the subjective cognitive load scale were compared at the end of each period, there is a slight decrease reported by the learner on behalf of mental effort spent. On the 9-point Likert scale, the student assigns himself the points as shpwn in Table 4.

Although slight, it is clear that there is a decrease in the perceived cognitive load of the student. Nevertheless, considering the number of errors made by the student, not a very drastic change can be observed. By looking at the results, it can still be inferred that there is some evidence between the corrective feedback and cognitive load. When the essays of the learner were corrected upon the analysis of errors immediately after it was completed- as a part of the instructional design, the performance of the student can improve by the reduction of cognitive load.

Table 4:
Results for Subjective Cognitive Load Scale and Total Number of Errors per Period

Period	Preferred Mental Effort Option		f of Errors
Period 1	8	(very high mental effort)	143
Period 2	8	(very high mental effort)	147
Period 3	7	(high mental effort)	139
Period 4	6	(rather high mental effort)	131

CONCLUSION

There are good reasons for focusing on errors. Firstly, it reveals the fact why the learners make errors. Second, teachers can find an opportunity to know what errors learners make and how to provide feedback about those errors. Because of this, instructors need to develop techniques to attract students' attention for correction and follow an instructional design that aims at reducing the cognitive load of the students, thereby enabling them to avoid making errors. However, they should take into consideration the focus of the lesson as well as the cognitive abilities of the learners. If the focus is on developing fluency in the language, the teacher can ignore the errors. On the other hand, if the focus is on grammar, grammar accuracy should not be ignored.

Errors are regarded within this study as indicators of the students' developmental competence and are analyzed not as the failure of the students but as a sign in reflecting the learner's progress. Understanding the types and frequencies of the student's errors

will help in determining how the student can be supported to improve his skill of grammatical structures. Through the errors extracted from his thirty-six essays we can determine what the student is capable of doing at each level with the points he has studied and how much positive or negative influence his native language competence has over his production and cognitive load.

Based on major findings of the study, it may be implied that teachers can more effectively show their students how they came to make particular errors. Also, they can be provided with a variety of courses or instructional designs addressing to providing students with effective feedback to ease the cognitive load of the learners.

In conclusion, this study could contribute to future directions in research and practice in the field as the results of the study may provide insight into teacher development in ELT by helping teachers increase their awareness about the relationship between errors made by learners and cognitive load rather than just checking and giving feedback. In that sense, it also deserves further research on the issue within the framework of instructional design studies.

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