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The impact of task complexity and task repetition on L2 lexical complexity

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Abstract

Task-based language teaching (TBLT) has become a mainstream research area in second language acquisition studies. Yet, integrating it into school curricula remains problematic. One of the underexplored research areas is task design and task implementation. While most of the research into task design focused on learners performing a single task type once, one of the promising lines of investigation is how task repetition may also be conducive to L2 acquisition. Also, task complexity, the cognitive burden placed on a learner performing a task, is another interesting avenue of inquiry. In particular, the influence of task repetition and task complexity on learners' L2 lexical complexity has not yet been thoroughly investigated. The current study is embedded in a real instructional context with an under-researched population, that is, teenagers. These learners of English as a foreign language (N = 24) performed altogether four differently designed oral communicative tasks: (1) a simple picture description task with an element of negotiation (N = 6), (2) the same simple task repeated immediately twice in decreasing time periods (N = 6), (3) a complex task requiring of learners an element of creative thinking (N = 6), and (4) the same complex task repeated immediately twice in decreasing time periods (N = 6). Task repetition improved learner fluency, but the simple task repetition, contrary to expectations, resulted in producing more frequent and more familiar words. A significant improvement in L2 lexical complexity was observed in the group which performed the complex task three times.

Keywords: task-based language teaching; task complexity; task repetition; creativity; L2 complexity

1. Introduction

Recently, task-based language teaching (TBLT) has become a mainstream research area in second language acquisition studies (Erlam & Tolosa, 2022; Long & Ahmadian, 2022; Nunan, 2004) and one of the dominant approaches to language teaching in countries such as Australia, Belgium, China, or Canada (Ellis et al., 2020). This burgeoning interest in TBLT results from our growing understanding that for successful language acquisition learners need contact with meaningful language data and engagement with productive use of language for communicative purposes (Bygate, 2018; Ellis & Shintani, 2014). Accordingly, tasks are now central to most language teaching methodologies as they allow learners to obtain and convey messages in the target language (TL), thus focusing on the meaning while creating opportunities to draw learners' attention to form.

Successful language learning in TBLT depends, among other things, on a successful task design. Previous research has shown that the structure of a task may affect interactions between learners and their teachers, induce noticing, and facilitate acquisition (see Ellis et al., 2020 and Kim, 2015 for reviews of pertinent research). While most of the research into task design has focused on learners performing a single task type once, one of the promising lines of investigation is how task repetition may also be conducive to L2 acquisition (Bygate, 2018; Kim et al., 2018; Kim & Tracy-Ventura, 2013). Another area of considerable interest is task complexity (Ahmadian & Tavakoli, 2011; Foster & Skehan, 2012; Long, 1985; Prabhu, 1987; Robinson, 2001; Skehan, 1998, 2009) and its influence on learners' performance. Task complexity refers to the cognitive demands of a task and has thus far been related to more lexical variety but a lowered fluency (Jackson & Suethanapornkul, 2013; Robinson, 2001, 2005), and to more monitoring in written tasks (Johnson, 2017).

Despite the growing use of TBLT in language classrooms worldwide, little is known about the interaction between task repetition and task complexity. Is task repetition beneficial for the learners? Are complex tasks more conducive to L2 acquisition than simpler tasks? Furthermore, the influence of task repetition and task complexity on learners' L2 lexical complexity has not been explored. These gaps are addressed in the present study by investigating the performance of intermediate learners of English as a foreign language ($N = 24$) who altogether completed four differently designed oral communicative tasks: (1) a simple task ($N = 6$), (2) a simple task repeated immediately three times with different interlocutors ($N = 6$), (3) a complex task ($N = 6$), and (4) a complex task repeated immediately three times with different interlocutors ($N = 6$). Under investigation was the impact of task complexity and task repetition on the complexity of L2 lexical items used by the learners.

2. Literature review

2.1. Task-based language teaching

Task-based language teaching is now a dominant approach to language education supported by ministries of education in several countries (e.g., Australia, Belgium, Canada, or China). It can also be considered a mainstream approach to language teaching if we look at the number of research publications investigating the relationship between task construction and the resulting language acquisition (see Ellis et al., 2020 for a review). Task-based language teaching has grown out of communicative language teaching. It focuses on meaning and emphasizes the involvement of learners in performing tasks that draw learners' attention to form while simultaneously involving them in incidental language acquisition (Long, 2015; Ellis et al., 2020).

While definitions of what constitutes a task abound (Breen, 1989; Nunan, 2004; Willis, 1996), it is now generally agreed (Ellis & Shintani, 2014) that a task should satisfy the following criteria:

- it should be primarily focused on meaning and not on linguistic forms;
- a communication or information gap is necessary for learners to feel the need to convey a message;
- learners should be able to tap into the linguistic resources they have at their disposal to complete the task, although input-based activities can provide learners with the necessary linguistic forms;
- the task outcome should be clearly defined and should not depend on the use of language per se, that is, the use of language is not an end to itself, but a means for achieving the outcome.

In this sense, a task is different from an exercise or activity. The former requires a focus on meaning and its successful completion does not require a complete linguistic accuracy, whereas the latter is designed for practicing specific language structures and, consequently, does not require any information gap and is not meaning-focused.

2.2. Task repetition

To date, many empirical studies have focused on the relationship between task design and learner complexity, accuracy, and fluency (CAF), as well as interaction, pragmatics, and phonetics, among other areas. Researchers have recently begun to differentiate between lexical and structural complexity (e.g., Foster & Skehan, 2012; Skehan & Shum, 2017). One of the most fruitful research areas is

the relationship between task repetition and the acquisition of these four categories (Bygate, 2018). A pedagogic idea behind task repetition is that each time a learner repeats a task they perform it better as their attention resources are freed from conceptualizing and (to some extent) formulating new content. This works similarly to repeating an anecdote in one's native language. Usually, the more often we repeat it to different listeners, the more details we add, the more fluent we become, and the easier it becomes to retrieve specific forms of language from memory. The idea seems to echo DeKeyser's (1997, 1998) skill-acquisition theory, according to which improvement results from repeated practice with activities of a gradually more communicative type. Similarly, task repetition should, by way of extension, improve linguistic performance in terms of fluency, accuracy, and lexical and structural complexity. Also, looking from the speech production perspective (deBot, 1992; Kormos, 2006; Levelt, 1989; Levelt et al. 1999), the experience of repeating a task may free learners' attentional resources to focus more on the formulation and articulation of their speech.

Task repetition can be operationalized in different ways depending on whether a learner repeats the same task, the procedure, the content, or the genre of the task. As a result, we can talk of (1) *exact repetition*, in which a learner performs the same task several times, (2) *procedural repetition*, in which a learner follows the same procedure to complete a task but is given different input or different data to work with, (3) *content repetition*, in which a learner works with the same content but performs different tasks, and (4) *genre repetition*, in which a learner engages in the repetition of the same content through different genres (e.g., a narrative or a political speech).

By way of illustration, when a learner performs a communicative activity such as agreeing with another learner on a TV series to watch after classes and is later asked to agree on the same topic with a different learner, we talk of exact repetition (also called *task repetition*). When learners work together to solve the problem of who the criminal is in a murder mystery and then are given a different murder mystery to solve by following the same steps as in the first task, they are involved in procedural repetition. Content repetition is a pedagogic activity where learners work with the same data, e.g., a book review but perform different tasks. For example, they might be asked to respond to the review orally, discuss their opinions of the review in pairs, and then write a similar review of a book of their own choice. The contents stay the same, but the tasks change. Finally, genre repetition may foster learning by engaging learners in repeating the same content but in different genres such as fairytales, news reports, or argumentative essays.

Ellis et al. (2020) discuss such methodological aspects of task repetition as the number of repetitions and the interval between repeated tasks. Some studies (e.g., Ahmadian & Tavakoli, 2011; Skehan et al., 2012) report only one repetition,

and this second performance is then measured as a task outcome, while in other studies (e.g., Kim & Tracy-Ventura, 2013) learners performed the same task three times. As regards the interval between subsequent repetitions, researchers discuss the effects of immediate repetition (e.g., Lynch & Maclean, 2000; Thai & Boers, 2016), one-day (Kim & Tracy-Ventura, 2013) two- to three-day (Gass et al., 1999) or even a one-week-long interval (Ahmadian & Tavakoli, 2011).

The critical question is whether task repetition in fact aids L2 acquisition. With recourse to monologic tasks of note are studies by Bygate (2001), Fukuta (2016), Gass et al. (1999), and Hakwes (2012). To begin with, an early study by Gass et al. (1999) explored how a group of L2 Spanish learners benefitted from exact repetition. Aspects of lexical and syntactic complexity transpired to be most susceptible to change. As the learners repeated the tasks, they improved their use of morpho-syntactic forms of the verb "to be," they used more sophisticated vocabulary, and their overall proficiency seemed to benefit from repeating the tasks. Yet, these positive results turned out to be not transferrable to other learning contexts. A similar conclusion was reached in Bygate's (2001) study. The exact repetition of a narrative task and an interview improved learners' general complexity and fluency (by reducing the number of pauses), yet their accuracy remained unchanged. The reported gains were not found in new contexts. Hawkes (2012) introduced a form-focused stage between exact repetitions of a task, resulting in improved accuracy, whereas Fukuta (2016) compared an exact repetition with a procedural repetition group, finding that the former improved their syntactic complexity. In contrast, the latter showed no gains between task repetitions.

Studies that involved more interactive (as opposed to monologic) tasks produced mixed results. Lynch and Maclean (2000) examined how procedural repetition influenced learner complexity, accuracy, and fluency. In their study, learners were to create a poster and ask questions about the posters of other learners. Immediate procedural repetition of the task was demonstrated to improve learners' fluency and accuracy irrespective of whether they were beginner or intermediate learners. As some specialists (e.g., Lynch & Maclean, 2000) speculate, while gaining familiarity with the procedure of the task, the learners freed up their cognitive resources to focus more on formulating the language. Patanasorn (2010), who examined all three types of task repetition (i.e., exact, procedural, and content), found accuracy improvement between procedural repetition tasks and fluency improvement in exact repetition conditions, whereas content repetition did not lead to any significant gains. He also suggested that perhaps different dimensions of oral performance might need different types of repetition.

In a series of studies, Kim (2011), Kim and Tracy-Ventura (2013), and Kim et al. (2018) demonstrated how procedural repetition improved learners' accuracy while exact repetition favors lexical complexity (however, task complexity

appeared to be a mediating factor), yet it seems to lower learners' engagement with a task. Consequently, Ellis et al. (2020) suggested that exact repetition may not be the most suitable choice for teachers based on this evidence. The fact that learners repeat the same task multiple times may be detrimental to their motivation. Also, as learners are familiar with the content and the procedure of the task it removes from them the need to negotiate meaning. Thus, they suggest that procedural repetition in which learners follow the same procedure but work with different information is more useful and more motivating for the learners.

2.3. The effect of task complexity

Another line of inquiry investigating the relationship between task design and L2 acquisition is concerned with *task complexity*. This concept is understood as related to the cognitive demands of the task and should not be confused with a similar concept of task difficulty. While task complexity is an inherent quality of a task, *task difficulty* is related to the learners and their perception of it. Task complexity is an idea that derives from the earlier works of Long (1985) and Prabhu (1987) and denotes processing demands placed on a learner by the structure of a task (Robinson, 2001, 2005, 2015). Tasks may be designed to be more complex by pushing the speakers towards more engagement with the language code (through resource-directing variables such as displacing the task in time and space, increasing reasoning demands, changing perspective or changing the number of elements in a task) or by affecting learner resources (through resource-dispersing variables such as planning time, task structure, number of steps to be taken, independence of these steps, or prior knowledge). Robinson's (2001) cognition hypothesis suggests that complexity, accuracy, and fluency draw from different attention pools and do not compete with one another. More complex tasks are hypothesized to push learners to produce more complex and accurate, though less fluent language than simpler tasks. The hypothesis also suggests that complex tasks favor interaction, noticing of linguistic forms, and more uptake of information from the input. The contrasting trade-off hypothesis (Skehan, 2014) declares that one's attention is a single-pool resource. As a result, since tasks are meaning-focused, Skehan (2016) hypothesizes that learners' attention in complex tasks is mainly directed towards meaning and fluency.

The effects of task complexity on subsequent L2 acquisition have been investigated in a plethora of studies, although no systematic results have been obtained. One of the most often investigated variables (cf. Taguchi, 2007) seems to be planning time. Given sufficient time to prepare before an oral task, learners can use additional aids such as dictionaries, taking notes, planning their speech, or just thinking about what they want to say. The state of research on

planning shows that it generally promotes greater fluency and complexity, but its impact on accuracy is variable. For example, in one of the early studies Wigglesworth (1997) showed that planning time helped advanced learners increase their complexity and improve fluency but did not significantly affect their accuracy. In most studies, learners are given around 10 minutes to prepare (e.g., Fu & Li, 2017; Ortega, 1999) and it has been found (Mehnert, 1998) that longer planning time correlates positively with greater fluency. At the same time, it has been shown that accuracy increased when the planning time was shorter, that is, learners preparing for one minute have been more accurate than those who planned from 5 to 10 minutes. Longer preparation time appears to allow learners to focus on the content, which distracts them from considering the form of the language. Some researchers (e.g., Li et al., 2015; Li & Fu, 2016; Philip et al., 2006; Wigglesworth & Elder, 2010) indicated that the optimal time for planning is between 1 and 3 minutes, which seems to be reasonably practical considering the limited classroom time.

As far as the interaction between task complexity and task modality is concerned, it should be noted that both written and oral production share many common psycholinguistic mechanisms (Levelt, 1989). Thus, task complexity results primarily from the cognitive load when a given modality is used spontaneously. Grabowski (2007) points out that the presence of an audience and real-time production in oral production requires a simultaneous focus on form and focus on meaning. This may result in lower performance in fluency and accuracy. On the other hand, written tasks are usually self-paced by learners and allow for shifting the attention between accuracy and complexity of a statement. Kuiken and Vedder (2011) discuss how learners' written production is usually characterized by greater syntactic and lexical complexity than their oral performance. Kormos (2014) draws similar conclusions, proving that students' written statements are usually more accurate, lexically diverse, and more syntactically complex.

In one of the studies, Kim and Payant (2014) examined the effects of task repetition and task complexity on the occurrence of language-related episodes. The researchers found that task complexity is not a factor contributing to the occurrence of interaction-driven learning opportunities but also that procedural repetition of complex tasks promoted a more significant amount of noticing of linguistic features during collaborative tasks. Following this line of research, Kim et al. (2018) experimented with investigating the effect of task complexity and repetition on L2 lexicon use (i.e., word familiarity, word age of acquisition, and word frequency). Having investigated four intact junior high school L2 learners, Kim et al. (2018) concluded that task complexity is a mediating factor for the relationship between task repetition and vocabulary use. As learners repeated the tasks (be it exact or procedural repetition), they produced less frequent and less familiar words with higher age-of-acquisition scores. This seems to suggest that task

repetition favors the production of words that are not easily retrievable. Regarding task complexity, Kim et al. (2018) demonstrated that complex tasks elicited fewer familiar words and less frequent words than simple tasks. This was particularly evident in procedural repetition tasks. Of note, simple task repetition allowed learners to use more infrequent words than complex task repetition. The researchers speculate that complex tasks may overburden learners' cognitive processing.

Another factor influencing task complexity is related to events that are distant in time or space. According to Robinson (2001), it is much more difficult for learners to talk about past events than contemporary ones or to describe places or events that happen elsewhere than the student is. Robinson (2001) asked a group of 44 learners to complete a simple direction-giving task at a place known to learners and a more complex task where learners had to give directions using a map of an unknown place. Neither task significantly influenced complexity, but the more complex task was characterized by greater accuracy and smaller fluency. Taguchi (2007) reached similar conclusions in a study of 59 Japanese learners performing role-playing tasks. In this case, complexity was operationalized as the performance of speech acts between people with different social statuses. The more complex tasks were characterized by reduced fluency and smaller complexity.

Robinson's (2001, 2015) cognition hypothesis claims that tasks used in language classrooms should be sequenced from the least to the most cognitively demanding. In an experiment investigating the model of pedagogic task sequencing, Malicka (2020) set out to explore whether asking learners to perform increasingly more complex tasks affected the measures of complexity, accuracy, and fluency. The results indicated that the sequence of simple to complex tasks led to a higher speech rate, greater dysfluency, enhanced accuracy, and greater structural complexity.

Despite numerous studies on task complexity, research results are quite inconsistent, possibly due to different research methodologies. On the one hand, difficulties result from problems with defining and measuring task complexity, and on the other hand, from the measures used in different studies. In other words, task complexity is usually based on comparison with a different task rather than on a specific "complexity scale." In contrast, the different complexity, accuracy, and fluency measures used in different studies do not allow precise comparison. The synthesis and meta-analysis of task complexity research conducted by Jackson and Suethanapornkul (2013) showed small positive effects for accuracy and small negative effects for fluency. The claim that language performance increases with the cognitive burden of a task was not supported. However, Wang and Skehan (2014) warn against drawing premature conclusions. In their opinion, such correlations should be analyzed at the individual learner's level, not the group. This is because group scores tend to show increases in CAF measures' level due to significant increases among individual learners.

It should therefore be noted that task complexity studies remain inconclusive and that most of them were laboratory-based. Although such studies are obviously helpful, more classroom-based (rather than classroom-oriented) research is needed. In this respect, the study reported in the present paper fills this void. It is embedded in a real instructional context with an under-researched population such as teenagers.

2.4. Lexical complexity

TBLT research has thus far used primarily two measures of lexical complexity: lexical diversity and lexical sophistication. *Lexical diversity* is usually based on type-token ratios. In plain terms, tokens are the words used by a learner in performing a task and types are different forms of the same token (word). For example, in a sentence: "The cat and the cat's owner are waiting" there are 9 tokens (words) but 7 types (different words) as "the" and "cat" are used twice. A typical type-token ratio of a spoken text is 0.7 (Foster & Skehan, 2012) with the longer the text the lower the type-token ratio. Lexical diversity can also be expressed in tokens per type. For example, the rate of 5 tokens per type suggests that on average each word used by a speaker appears in 5 different forms (e.g., "cat," "cat's," "catty," "cat-like," "cats"). Another measure of lexical diversity is *lexical density*. This is expressed as the number of content words in the total number of words. The higher the lexical density, the more difficult a given text is to understand. Lexical sophistication, on the other hand, is related to word frequency or lexical richness. Lexical sophistication is therefore understood as the use of more infrequent or difficult words by a learner performing a task.

Interestingly, Skehan and Shum (2017) report that both native and non-native speakers tend to differ in lexical diversity but not in lexical sophistication. Language users with high lexical diversity are the ones who try not to reuse the same words in their oral or written production. L2 users typically exhibit lower lexical diversity than native speakers. At the same time, lexical sophistication, or the choice of infrequent vocabulary, does not depend on whether speakers use their L1 or L2. Regarding TBLT, lexical sophistication is hypothesized to be linked to task design (Skehan & Shum, 2017).

To reiterate, task design and task implementation are two underexplored areas in TBLT research. While most of the research into task design has focused on learners performing a single task type once, one of the promising lines of investigation is how task repetition may also be conducive to L2 acquisition. Also, task complexity understood as the cognitive burden placed on a learner performing a task is another interesting avenue of inquiry. In particular, the influence of task repetition and task complexity on learners' L2 lexical complexity has not yet been thoroughly investigated.

3. The present study

The study aimed to bring together and observe the interaction between (1) the effect of task repetition and (2) the effect of task complexity on the complexity of lexis used by the learners. The research questions addressed in the present study are thus as follows: (1) What is the relationship between task repetition and task complexity? and (2) How do the two impact learners' L2 lexical complexity? The teacher-researcher asked four groups of learners to perform oral communicative tasks in English as their foreign language. Each group of learners is comprised of three pairs (N = 6). The proficiency level of all the participating learners was comparable. The learners took a placement test before they were assigned to their groups a year before the study took place. The results suggested their level was at B2 (CEFR scale) or Advanced Mid (ACTFL rating). The first group of learners (Group A) performed a simple task once, while the second group (Group B) performed the same task three times. Similarly, the third group (Group C) performed a more complex task once, and the fourth group (Group D) performed the same complex task three times. In the case of groups B and D, their third performance was taken into account in the study.

3.1. Participants

The participants in the study were 24 Polish secondary school learners of English as a foreign language in a town in the north of Poland. They were all at the age of 16 at the time of the study. All participants had already had at least five years of compulsory English instruction in their primary school. Their secondary school offered five hours of English per week and the study took place in the first month of their second grade. This means that their teacher (teacher-researcher) had taught them for over a year having conducted around 150 classes of 45 minutes each. Their course followed no particular method or approach being eclectic in its design and was based on the English File course book (3rd ed, Oxford University Press). Their level of proficiency at the time of the study can be described as B2 (using the CEFR scale) or Advanced Mid (using the ACTFL rating).

3.2. Tasks

Two tasks were used in the study to elicit spontaneous dialogues as the learners worked in pairs: the simple and the complex task. They were designed to relate to learners' interests. The topics for the tasks were chosen based, on the one hand, on the global situation of the coronavirus pandemic and, on the other hand, on the personal experience of lockdown to which each of the learners

could relate. To operationalize task complexity, it is assumed in the present study that a simple task places fewer cognitive demands on the learners than a complex task. Following Robinson's (2001) criteria, the complex task used in the study has more reasoning demands, requires prior knowledge, and a degree of creative thinking than the simple task.

The simple task was a classic picture description task in which the learners were asked to discuss which activities presented in the photos were good ideas to follow during the lockdown. The learners were presented with a set of ten pictures depicting different activities (e.g., playing Scrabble, watching television, reading books, exercising at home, etc.). Their task was to discuss the content of the pictures in pairs and decide on the five activities they thought were examples of good practices for the tough time of lockdown. They were given 15 minutes to perform the task. In the case of task repetition, each repetition of the task was shorter by 3 minutes from the previous one. This decision was based on a purely pragmatic reason that the learners had already been used to this format of task organization. Shortening the time for each consecutive repetition was a decision made by the teacher-researcher much earlier based on Nation's (1989) idea for the "4/3/2 technique" in which learners perform the same task in a decreasing time frame.

The complex task was an argumentation task in which the learners had to be creative in order to come up with new and original ideas. They were asked to work in pairs to have a conversation and decide on five ideas to stay in high spirits during the lockdown. These ideas had to exclude the most common, obvious ideas such as reading books, watching films, playing computer games, or calling friends. Task complexity had therefore more reasoning demands and required the learners to think creatively, particularly since the learners were not allowed to use some of the most commonsensical ideas. While in the simple task the learners only exchanged ideas about what can be seen in the pictures and had to negotiate the choice of five pictures, the complex task group had to overcome the restrictions imposed on them, invent their ideas, and then negotiate which five to choose. Consequently, their cognitive load was increased. They were also given 15 minutes to perform the task and the repetition group was also given three minutes fewer to perform each next task.

3.3. Procedure

The teacher-researcher administered the tasks in the first month of the learners' second year of studying in their school. The tasks were performed during regular class time. Each task took one 45-minute lesson to perform. In the repetition groups (group B and D), this meant the whole session was devoted to performing the task,

whereas in the other two groups (group A and C) after the task was performed, the teacher devoted the remaining time (about 30 minutes) to a more extended discussion of the task outcomes and corrective feedback given to the learners.

Four intact groups were taken into consideration in the study. Each group consisted of 6 learners (3 pairs). The simple task group (group A) performed the picture description task within 15 minutes. The simple repetition group (group B) performed the simple task three times. The complex task group (group C) performed the argumentative task once. Finally, the complex repetition group (group D) performed the complex task three times. The repetition groups (B and D) worked with different partners to perform the two repetitions. Performing the same task with different partners was to ensure motivation to perform the task, as the repetitions meant repeating a similar output three times. The repetition groups were first given 15 minutes to perform the task, 12 minutes to repeat it, and then 9 minutes to repeat the task one more time. This was done to keep the pace of the lesson and slightly increase the learners' cognitive load following Nation's (1989) suggestions. Altogether, 24 learners took part in the study.

The learners were given the instructions for the tasks, and they had to perform them spontaneously, that is, no planning time was allowed. This was because the language used for negotiating, which had been previously introduced to the learners, and which was necessary for successful task completion, was briefly revised at the beginning of each class. Before the tasks were performed, the teacher asked concept checking questions to make sure all the learners understood what was expected of them. The participants' responses to the tasks were recorded using a digital voice recorder. The recorded performances were transcribed to a word processor with the omission of false starts and without marking the pauses. The texts were first analyzed for lexical diversity and sophistication using Vocabprofile, a free online vocabulary analysis tool, which has been proven to be a good predictor of academic performance (Morris & Cobb, 2004) and allowed for a quick and cost-free analysis.

3.4. Measures

Seven measures were used in the present study in order to compare the effects of task repetition and task complexity on L2 complexity:

1) a total number of words;
2) type-token ratio – understood as a measure of vocabulary variation, that is, an average number of types per one token;
3) lexical density – understood as the number of content words divided by the total number of words;

4) K1 – understood as the first 1000 of most frequent English words based on Corpus of Contemporary American English (COCA) frequency lists;
5) K2 – understood as the second 1000 of most frequent English words based on Corpus of Contemporary American English (COCA) frequency lists;
6) AWL – understood as the words in the Academic Word List;
7) Off-list words – understood as words outside of the frequency lists. These often include proper nouns, unusual words, specialist vocabulary, acronyms, abbreviations, and misspellings.

The word frequency lists are available at Tom Cobb's Vocabprofiler website: https://www.lextutor.ca/vp/eng/. Lexical complexity is understood in the present study as comprising of lexical diversity (type-token ratio and lexical density) and lexical sophistication (word frequency).

The analysis was performed using the Statistica 12 package and an Excel spreadsheet. In the first step, the normality of the distributions of the examined variables/ differences of quantitative variables was checked using the Shapiro-Wilk normality test. In the case of maintaining the normality of the distributions of the two groups, the independent samples *t*-test was used (in the absence of equal variance). If the assumption of normal distribution was not met, the non-parametric Mann-Whitney *U* test was used. The level of significance was set at .05. This means adopting the following set of hypotheses:

H0: no statistically significant differences between the studied groups/measurements ($p = > .05$)
H1: there are statistically significant differences between the studied groups/measurements ($p = < .05$)

4. Results

4.1. Simple task groups

In the first step, group A (learners performing a simple task) was compared with group B (learners performing a simple task three times). At the significance level of .05, a statistically significant difference was observed between group A and group B in:

- the total number of words ($p = .00$);
- and the number of K1 words ($p = .00$).

The mean number of words in group A is 193.3 (*SD* +/- 4.4) and was significantly lower than the mean value of this variable in group B, which was equal

to 253.0 (*SD* +/- 7.2). The mean number of K1 words in group A was 162.5 (*SD* +/- 5.5) and was significantly lower than the mean value of this variable in group B, which is equal to 222.2 (*SD* + / -2.7). No statistically significant difference was observed between group A and group B with respect to:

- type-token ratio (p = .399);
- the number of K2 words (p = .155);
- Academic Word List (p = .679);
- and the number of off-list words (p = .146).

The mean number of type-token ratio in group A was 0.4 (*SD* +/- 0.0) and was equal to the mean value of this variable in group B. The average number of K2 words in group A was 18.8 (*SD* +/- 1.2) and was insignificantly higher than the mean value of this variable in group B, which is equal to 13.2 (*SD* +/- 8.3). The average number of Academic Words in group A (simple task) was 4.3 (*SD* +/- 2.9) and was insignificantly lower than the mean value of this variable in group B, which is equal to 5.0 (*SD* + / -2.4). The mean number off-list words in group A was 6.0 (*SD* +/- 4.0) and was insignificantly lower than the mean value of this variable in group B, which is equal to 9.5 (*SD* + / -3.6).

Table 1 Descriptive statistics for groups A and B

Descriptive statistics	Group	Mean	Median	Min.	Max.	*SD*
Number of words	A	193.3	193.5	188.0	199.0	4.4
Type-token ratio	A	0.4	0.5	0.4	0.5	0.0
Lexical density	A	0.5	0.5	0.5	0.5	0.0
K1 words	A	162.5	162.5	155.0	170.0	5.5
K2 words	A	18.8	19.0	17.0	20.0	1.2
Academic Word List	A	4.3	4.0	0.0	8.0	2.9
Off-list words	A	6.0	4.5	2.0	12.0	4.0
Number of words	B	253.0	252.0	243.0	263.0	7.2
Type-token ration	B	0.4	0.4	0.4	0.5	0.0
Lexical density	B	0.4	0.4	0.4	0.5	0.0
K1 words	B	222.2	222.5	218.0	227.0	3.3
K2 words	B	13.2	15.0	2.0	22.0	8.3
Academic Word List	B	5.0	5.0	2.0	9.0	2.4
Off-list words	B	9.5	9.5	5.0	14.0	3.6

A statistically significant difference in lexical density (p = .015) was observed between group A and group B. Lexical density for half of the subjects in group A was not higher than 0.5 (median) and in the other half not lower than 0.5 and is significantly higher than in group B, in which the median was 0.4.

Table 2 T-test for groups A and B

independent samples *t*-test	Mean group A	Mean group B	T	Df	Q	*SD* group A	*SD* group B	*F*	*p*
Number of words	193.3	253.0	-17.4	10	0.000	4.4	7.2	2.6	.312
Type-token ratio	0.4	0.4	0.9	10	0.399	0.0	0.0	2.9	.264
K1 words	162.5	222.2	-22.9	10	0.000	5.5	3.3	2.7	.295
K2 words	18.8	13.2	1.7	5.2	0.155	1.2	8.3	49.9	.001
Academic Word List	4.3	5.0	-0.4	10	0.679	2.9	2.4	1.4	.696
Off-list words	6.0	9.5	-1.6	10	0.146	4.0	3.6	1.3	.811

Table 3 Mann-Whitney U test for groups A and B

Mann-Whitney *U Test*	rank sum group A	rank sum group B	*U*	*p*
Lexical density	53.5	24.5	3.5	0.015

4.2. Complex task groups

The second step was to compare group C (learners performing the complex task once) with group D (learners performing the complex task three times). At the significance level of .05, there was no statistically significant difference in lexical density ($p = .568$) and the number of words from the AWL group ($p = .679$) between group C and group D.

The average lexical density number in group C was 0.4 (*SD* +/- 0.0) and was equal to the mean value of this variable in group D equal to 0.4 (*SD* +/- 0.0). The average number of words from the AWL group in group C was 2.5 (*SD* +/- 1.8) and was insignificantly lower than the mean value of this variable in group D which is equal to 4.7 (*SD* + / -1.8).

Table 4 Descriptive statistics for groups C and D

Descriptive statistics	Group	n	Mean	Median	Minimum	Maximum	*SD*
Number of words	C	6	205.7	211.5	167.0	223.0	19.8
Type-token ratio	C	6	0.5	0.4	0.4	0.6	0.1
Lexical density	C	6	0.4	0.4	0.4	0.5	0.0
K1 words	C	6	176.5	181.0	143.0	191.0	17.0
K2 words	C	6	16.2	16.5	15.0	17.0	1.0
Academic Word List	C	6	2.5	2.0	0.0	5.0	1.8
Off-list words	C	6	10.5	12.0	5.0	13.0	3.0
Number of words	D	6	330.0	318.5	295.0	389.0	36.7
Type-token ration	D	6	0.5	0.5	0.4	0.5	0.1
Lexical density	D	6	0.4	0.4	0.4	0.5	0.0
K1 words	D	6	279.7	271.0	245.0	331.0	33.6
K2 words	D	6	27.2	26.0	24.0	35.0	4.0
Academic Word List	D	6	4.7	4.0	3.0	8.0	1.8
Off-list words	D	6	18.5	19.0	16.0	21.0	2.1

Table 5 T-test for groups C and D

independent samples *t*-test	Mean group C	Mean group D	T	Df	p	*SD* group C	*SD* group D	*F*	*p*
Lexical density	0.4	0.4	-0.6	10	0.568	0.0	0.0	1.8	.520
Academic Word List	2.5	4.7	-2.1	10	0.058	1.8	1.8	1.0	0991

A statistically significant difference between group C and group D was observed with respect to:

- the number of words (p = .002);
- the number of K1 words (p = .002);
- the number of K2 words (p = .002);
- and the number of off-list words (p = .002).

The total number of words for half of the respondents in group C was not higher than 211.5 (median) and for the other half not lower than 211.5 and is significantly lower than in group D, in which the median was 318.5. The number of K1 words for half of the respondents in group C was not higher than 181.0 (median) and for the other half not lower than 181.0 and was significantly lower than in group D, the median of which was 271.0. The number of K2 words for half of the respondents in group C was not higher than 16.5 (median) and in the other half not lower than 16.5 and is significantly lower than in group D, the median of which was 26.0. The number of off-list words for half of the respondents in group C was not higher than 12.0 (median) and in the other half not lower than 12.0 and is significantly lower than in group D, in which the median was 19.0.

At the significance level of .05, there was no statistically significant difference in type-token ratio (p = .818) between group C (complex task) and group D (complex task performed three times). The type-token ratio for half of the respondents in group C was not higher than 0.4 (median) and for the other half not lower than 0.4 and was insignificantly lower than in group D, the median of which was 0.5.

Table 6 Mann-Whitney U test for groups C and D

Mann-Whitney *U* test	ran sum group C	rank sum group D	*U*	*p*
Number of words	21.0	57.0	0.0	.002
Type-token ration	37.5	40.5	16.5	.818
K1 words	21.0	57.0	0.0	.002
K2 words	21.0	57.0	0.0	.002
Off-list words	21.0	57.0	0.0	.002

4.3. Simple and complex task groups compared

In the last step of the study, the simple tasks groups (A and B) were compared with the complex tasks groups (C and D). At a significance level of .05, no statistically significant difference in word ratio was between the A and B groups (simple tasks) and the C and D groups (complex tasks) observed in the case of:

- type-token ratio (p = .274) and
- the number of words from the AWL group (p = .267).

The mean number of type-token ratios in groups A and B was 0.4 (*SD* +/- 0.0) and was insignificantly lower than the average value of this variable in groups C and D, that is, 0.5 (*SD* +/- 0.1). The average number of words from the AWL group in groups A and B was 4.7 (*SD* +/- 2.6) and was insignificantly higher than the average value of this variable in groups C and D, i.e., 3.6 (*SD* +/- 2.0). At the significance level of .05, a statistically significant difference was observed in the off-list words (p = .001) between the A and B groups and the C and D groups. The average number of off-list words in groups A and B was 7.8 (*SD* +/- 4.1) and was significantly lower than the average value of this variable in groups C and D, where it was equal to 14.5 (*SD* +/- 4.9).

Table 7 Descriptive statistics for groups AB and CD

Descriptive statistics	Group	n	Mean	Median	Minimum	Maximum	*SD*
Number of words	A & B	12	223.2	221.0	188.0	263.0	31.7
Type-token ratio	A & B	12	0.4	0.4	0.4	0.5	0.0
Lexical density	A & B	12	0.5	0.5	0.4	0.5	0.0
K1 words	A & B	12	192.3	194.0	155.0	227.0	31.5
K2 words	A & B	12	16.0	18.5	2.0	22.0	6.4
Academic Word List	A & B	12	4.7	5.0	0.0	9.0	2.6
Off-list words	A & B	12	7.8	7.5	2.0	14.0	4.1
Number of words	C & D	12	267.8	259.0	167.0	389.0	70.8
Type-token ration	C & D	12	0.5	0.5	0.4	0.6	0.1
Lexical density	C & D	12	0.4	0.4	0.4	0.5	0.0
K1 words	C & D	12	228.1	218.0	143.0	331.0	59.6
K2 words	C & D	12	21.7	20.5	15.0	35.0	6.4
Academic Word List	C & D	12	3.6	4.0	0.0	8.0	2.0
Off-list words	C & D	12	14.5	14.5	5.0	21.0	4.9

A statistically significant difference was observed in lexical density (p = 0.004) between groups A and D and groups C and D. Lexical density for half of the respondents in the A and B group was not higher than 0.5 (median) and for the other half not lower than 0.5 and is significantly higher than in the C and D group, in which the median was 0.4.

Table 8 T-test for groups AB and CD

independent samples *t*-test	Mean group A & B	Mean group C & D	T	Df	p	*SD* group A & B	*SD* group C & D	*F*	*p*
Type-token ratio	0.4	0.5	-1.1	12.8	0.274	0.0	0.1	11.9	0.000
Academic Word List	4.7	3.6	1.1	22	0.267	2.6	2.0	1.7	0.412
Off-list words	7.8	14.5	-3.7	22	0.001	4.1	4.9	1.4	0.582

No statistically significant difference was observed between groups A and B and groups C and D with respect to:

- the number of words (p = .089),
- the number of words in the K1 group (p = .089), and
- the number of words in the K2 group (p = .266).

The total number of words for half of the subjects in the A and B group was not higher than 221.0 (median) and for the other half not lower than 221.0 and is insignificantly lower than in the C and D group, where the median was 259.0. The number of K1 words for half of the respondents in groups A and B was not higher than 194.0 (median) and for the other half was not lower than 194.0 and is insignificantly lower than in groups C and D, where the median was 218.0. The number of K2 words for half of the respondents in groups A and B was not higher than 18.5 (median) and for the other half was not lower than 18.5 and is insignificantly lower than in groups C and D where the median was 20.5.

Table 9 Mann-Whitney U test for groups AB and CD

Mann-Whitney *U* test	rank sum group A & B	rank sum group C & D	*U*	*p*
Number of words	120.0	180.0	42.0	0.089
Lexical density	199.0	101.0	23.0	0.004
K1 words	120.0	180.0	42.0	0.089
K2 words	130.5	169.5	52.5	0.266

5. Discussion

Overall, the results show significant effects of simple task repetition on the total number of words and the use of K1 words in particular. In other words, simple task repetition led to a significant increase in the number of words used by the learners. The fact that no-repetition groups A and C produced on average 193.3 and 211.5 words respectively, while repetition groups B and D produced on average 253 and 318 words demonstrates that task repetition results in a higher number of words used by the learners. At the same time, the higher number of words in the simple repetition task was not the result of the use of less frequent

words. In fact, learners who repeated the simple task produced more frequent and familiar words. This finding goes against the findings of many other studies (e.g., Bygate, 2001; Fukuta, 2016; Gass et al., 1999; Hakwes, 2012; Kim, 2011; Kim & Tracy-Ventura, 2013; Kim et al., 2018). Previous research has shown that task repetition favors not only the production of more words but also the production of words that are less frequent and less familiar. Also, a meta-analysis by Jackson and Suethanapornkul (2013) found negligible but positive effect size for their 28 measures of lexical complexity. Yet, the effect size was notably different for specific measures of lexis and included both positive and negative measures.

It is undoubtedly an intriguing finding that such disparities should have been uncovered between this study and other studies. Language teachers justifiably concentrate on teaching the most frequent words with beginning learners, yet there is a natural need for progress, for moving on to using less frequent words. In the present study, task repetition admittedly favored the use of words from the K2 category (the second thousand of most frequent words), yet this use proved statistically insignificant. Perhaps this finding could be explained by the fact that the learners in the present study were already able to communicate quite fluently in a foreign language. As a result, they did not feel the need to use more sophisticated vocabulary. The aim of the simple task was to communicate naturally and to reach conclusion. At their proficiency level, the learners were able to express their thoughts quite easily, and they did not feel the need to use sophisticated words, just as no such need is usually felt by people communicating in real-life situations. Perhaps, if the learners had been told that the aim of the task was not only to communicate but to focus on lexical complexity then the results might have been different. In other words, had the construction of the simple task been different, more complex vocabulary could have been retrieved from the participants.

With regard to complex task repetition, the findings demonstrate that the learners produced significantly more K1, K2, and off-list words. Consequently, their lexical complexity can be said to have increased as a result of performing the same task three times. The outcomes of this analysis lend support to the findings of previous research (e.g., Kim et al., 2018; Kim & Payant, 2014; Malicka, 2020). The element of creative thinking which increased the cognitive demands of the task combined with the opportunity to rehearse it in consecutive repetitions, allowed the learners to retrieve less frequent and less familiar words. It may be suggested that more complex tasks naturally require learners to use more complex vocabulary. In fact, the manipulation of reasoning demands (being resource-directing variables) confirmed the predictions of the Cognition Hypothesis (Robinson 2001) that increasing task complexity resulted in greater lexical complexity.

Another interesting finding to note is that task repetition favored lowering lexical density both in the simple and the complex task. High lexical density means

that texts are more challenging to understand. In the present study, learners produced fewer content words per total number of words with each repetition. As a result, learner utterances in repeated tasks were more transparent and easier to understand. This finding is in line with other studies (e.g., Kim, 2011; Kim & Tracy-Ventura, 2013; Kim et al., 2018) which have also shown that task repetition favors a more lucid presentation of learners' thoughts. This fact could be accounted for by the facilitating effect of gaining more experience with expressing the same thought and drawing on the experience of having to clarify potential misunderstandings in previous task performance.

As regards the influence of task complexity on L2 lexical complexity, no significant differences have been observed between the simple and the complex task groups where no task repetition was involved. The only exception was the production of the off-list vocabulary by the learners and a lowered lexical density. This means that the more complex the task, the more proper nouns, specialist vocabulary or abbreviations are produced by the learners. At the same time, the clarity of the text is higher than in the simple task. This might be attributed to the fact that complex tasks have a structure that puts on the learners a demand to organize their thoughts in a certain way. This observation is in line with Robinson's (2001) cognition hypothesis.

It may be hypothesized that when learners are engaged in task repetition their attention resources are freed from focusing on conceptualizing their speech (see deBot 1992; Kormos, 2006; Levelt, 1989; Levelt et al., 1999). Since this preverbal stage of speech production is less burdened, perhaps learners can devote more attention to formulating and articulating what they want to say in the second language. This would imply that they can enter their lexicons, L2 declarative knowledge, and syllabaries (Kormos, 2006) in a more effective manner thus encoding speech that is more complex, more accurate, and more fluent than when the task is performed for the first time. Consequently, task repetition facilitates oral L2 performance.

Several limitations of the study should be considered before conclusions can be reached. In the first place, it should be recognized that the study took place within the context of teaching English as a foreign language. Future research should focus on the teaching of other languages. Secondly, the sample size of 24 participants might not be sufficient to give confidence that the indices are robust. However, this limitation was dictated by practical reasons as the study took place in an authentic classroom context. Related to the above is that this was a between-subject design, with different participants carrying out the simple and complex task. This means that some of the differences between the tasks could have been due to individuals' characteristics - not the tasks themselves.

6. Conclusion

The present study addressed the impact of task complexity and task repetition on second language lexical complexity in oral communicative tasks. In TBLT, tasks are central to language teaching since they allow learners to obtain and convey messages in the target language while focusing on meaning and drawing learners' attention to form. Little is known, however, about the relationship between task repetition and task complexity, particularly in the context of their impact on learners' L2 lexical complexity. These gaps have been addressed in the present study by investigating the performance of English L2 learners who altogether performed four differently designed oral communicative tasks: (1) a simple picture description task with an element of negotiation, (2) the same simple task repeated immediately three times in decreasing time periods, (3) a complex task requiring of learners an element of creative thinking, and (4) the same complex task repeated immediately three times in decreasing time periods.

The effect of task repetition on lexical complexity is not easy to determine. With reference to the simple task, the repetition resulted in a higher total number of words. These included a significantly higher number of the most frequent words. As regards the complex task, its repetition yielded more lexical items from the learners including less frequent and less familiar words. The repetition of the complex task also resulted in a greater production of off-list words, that is, proper nouns, abbreviations, unusual words, and/or specialist vocabulary. In the case of both simple and complex tasks, task repetition resulted in a lowered lexical density, manifested in a more lucid and precise expression of a learner's ideas.

A significant impact of task complexity on L2 lexical complexity was only demonstrated in the situation of repeating the complex task. As has been shown above, this repetition resulted in greater lexical complexity. When the complex task was only performed once, it produced a higher number of off-list words than the simple task.

The present study adds to the scant literature on the effects of task complexity and task repetition on L2 lexical complexity. Any pedagogical implications should be treated with caution and can only be tentative. Unlike monologic tasks, all dialogic ones seem to suffer from the same problem. When a task is performed in collaboration, learners echo each other's production, so their performance is influenced by the performance of their interlocutors. What stems from the study is that task repetition is beneficial to learner fluency irrespective of whether the task is cognitively simple or complex, and that task repetition significantly impacts lexical complexity if the task is cognitively complex. Although the gap between research and teaching practice seems to remain, it can be assumed that the findings of the present study are in accordance with the intuition of most language teachers, namely that setting high standards and offering learners opportunities for practice are conducive to language acquisition.

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