

# Accepted Manuscript

The effect of task sequencing on second language written lexical complexity, accuracy, and fluency

Elissa Allaw, Kim McDonough

PII: S0346-251X(18)30798-X

DOI: <https://doi.org/10.1016/j.system.2019.06.008>

Reference: SYS 2104

To appear in: *System*

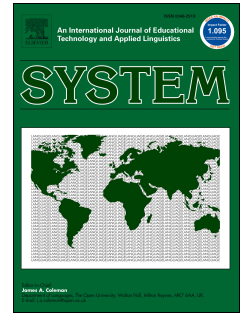
Received Date: 30 September 2018

Revised Date: 24 June 2019

Accepted Date: 26 June 2019

Please cite this article as: Allaw, E., McDonough, K., The effect of task sequencing on second language written lexical complexity, accuracy, and fluency, *System* (2019), doi: <https://doi.org/10.1016/j.system.2019.06.008>.

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.



The effect of task sequencing on second language written lexical complexity, accuracy, and fluency

Corresponding author's info:

1) Elissa Allaw

1455 de Maisonneuve Blvd W

Concordia University

Education Department, FG 6.141

Montreal, QC H3G 1M8

Canada

Email: [elissa.allaw@mail.concordia.ca](mailto:elissa.allaw@mail.concordia.ca)

2) Second author: Kim McDonough

1455 de Maisonneuve Blvd W

Concordia University

Education Department, FG 6.141

Montreal, QC H3G 1M8

Canada

Email: [Kim.mcdonough@concordia.ca](mailto:Kim.mcdonough@concordia.ca)

### Abstract

Planning and sequencing lessons in task-based language teaching has been considered a challenge because there is no agreed-upon theoretical framework for sequencing tasks. The SSARC model (stabilize, simplify, automatize, reconstruct, and complexify) of task sequencing allows for predictions about L2 learners' interlanguage development. However, previous task sequencing studies have reported mixed findings. Therefore, the current study further investigated the effectiveness of sequencing tasks using the SSARC model for promoting L2 written lexical complexity (e.g., lexical diversity), grammatical accuracy, and fluency. Novice French L2 writers ( $N = 42$ ) at an elementary school in Lebanon carried out three experimental tasks in two different orders: simple-to-complex, and complex-to-simple. Pre-test and post-test measures of their written production and discrete point tests of target lexical and grammatical forms were administered. Results showed that the writers in both groups improved in terms of their lexical diversity, grammatical accuracy of relative clauses, and fluency, but the simple-to-complex group maintained the gains over time. Pedagogical implications for task sequencing in L2 contexts are discussed.

*Keywords:* task sequencing, cognitive complexity, the SSARC model, L2 French, lexical diversity, accuracy, fluency

The effect of task sequencing on second language written lexical complexity, accuracy, and fluency

Sequencing pedagogic tasks is considered one of the main challenges in designing and implementing tasks (Ahmadi & Nazari, 2014; Baralt, Gilabert, & Robinson, 2014; Nunan, 2004). In the early days of task-based language teaching (TBLT), researchers proposed models for creating task-based syllabi that sequenced tasks in terms of how challenging they were (Prabhu, 1987) or how well they addressed learners' needs (Candlin, 1984). However, such approaches were criticized for being too reliant on teachers' intuitions about task complexity and learners' needs (Long & Crookes, 1992; Robinson, 2007). Subsequent task researchers proposed sequencing tasks according to linguistic criteria to promote awareness of specific grammatical structures or lexical items (Nunan, 2004). However, the linguistic approach was criticized for not providing a sufficiently clear rationale for selecting target structures (Baralt et al., 2014; Long, 1991; Long & Crookes, 1992). The main problem with these task sequencing proposals was the lack of a theoretical rationale or empirical basis for understanding how specific kinds of tasks should be sequenced to maximize learning.

As a crucial first step for task sequencing, researchers put forth theoretically-motivated frameworks for classifying tasks in terms of their potential impact on L2 development (Ellis, 2003; Robinson, 2007; Skehan, 1998). Formulating a task classification system provided both researchers and teachers with a framework for identifying task characteristics that can be manipulated to create pedagogical tasks that drive L2 learning. The most up-to-date and comprehensive task classification system is Robinson's Triadic Componential Framework (for more information see Robinson, 2001, 2003, 2005; Robinson & Gilabert, 2007), which consists of three components: task complexity, which refers to the amount of cognitive effort that a task

imposes on learners; task condition, which are characteristics that influence the amount and type of interaction that occurs between learners; and task difficulty, which refers to factors that impact whether learners perceive a task as being difficult. The components of the Triadic Componential Framework are summarized in Table 1.

Table 1

*The Triadic Componential Framework (from Robinson & Gilabert, 2007)*

Task Complexity: Cognitive factors	Task Condition: Interactive factors	Task difficulty: Learner factors
Resource-directing ± Here-and-Now ± few elements ± spatial reasoning ± causal reasoning ± intentional reasoning ± perspective taking	Participation variables ± open solution ± one-way flow ± convergent solution ± few participants ± few contributions needed ± negotiation not needed	Ability variables and task-relevant resource differentials h/l working memory h/l reasoning task-switching h/l aptitude h/l field dependence h/l mind/intention-reading
Resource-dispersing ± planning ± single task ± task structure ± few steps ± independency of steps ± prior knowledge	Participant variables ± same proficiency ± same gender ± familiar ± shared content knowledge ± equal status and role ± shared cultural knowledge	Affective variables and task-relevant state-trait differentials h/l openness to experience h/l control of emotion h/l task motivation h/l processing anxiety h/l willingness to communicate h/l self-efficacy

Task complexity, which is considered the primary mechanism for designing and sequencing tasks (Robinson, 2010), is operationalized in terms of resource-directing and resource-dispersing factors. Resource-directing factors place conceptual demands on learners by directing their attention and effort toward specific cognitive processes and related language domains. In contrast, resource-dispersing factors create procedural or performative demands that influence how learners carry out the tasks.

Several task complexity studies have reported that task complexity has an overall positive impact on L2 written production. For example, some studies found that task complexity created by increasing the complexity of resource-directing features promoted the accuracy, fluency, and complexity of L2 written production (Ishikawa, 2007; Salimi, Dadaspour, & Asadollahfam, 2011), although accuracy gains may occur at the expense of fluency and complexity (Kuiken & Vedder, 2007, 2008, 2012). In addition, manipulating the resource-dispersing factor of planning time has been shown to facilitate written fluency and lexical complexity (Ong & Zhang, 2010). However, planning time (careful planning) contributes to less fluent but syntactically more complex and varied written structures (Ellis & Yuan, 2005), whereas pretask planning leads to less accurate but more fluent and more syntactically complex writing compared to unpressured online planning (Ellis & Yuan, 2004). Although task complexity has shown that it has an overall positive impact on L2 written production, it was beyond the scope of these studies to examine the use of task complexity for making sequencing decisions, as they focused more narrowly on the comparison of simple vs. complex task performance.

To address task sequencing specifically, Robinson (2010, 2015) proposed the Stabilize, Simplify, Automotize, Reconstruct, and Complexify (SSARC) model, which presents steps for sequencing oral or written tasks based on task complexity levels. The first step is to provide a task that stabilizes learners' current interlanguage system and simplifies the input, which helps learners use their existing linguistic resources. The second step is to create opportunities for learners to express similar ideas, but faster and more fluently, thereby promoting automatization. This is accomplished by increasing complexity through the removal of a resource-dispersing variable, such as task structure or planning. Finally, the third step is to provide a task that allows learners to create new form-meaning connections and complexify their interlanguage.

To test Robinson's model for sequencing tasks according to task complexity, researchers have created tasks with different complexity levels and implemented them in different orders. For example, Baralt (2014) created oral and written simple and complex tasks that differed in terms of one resource-directing feature (+/-intentional reasoning). Whereas the simple tasks provided the characters' intentional reasoning, the complex tasks required learners to generate their own reasons. English L1 undergraduates studying intermediate-level Spanish ( $N = 94$ ) at a public university in the United States were randomly assigned to carry out three tasks in one of four orders: simple-simple-complex, complex-complex-simple, complex-simple-complex, and simple-complex-simple. The study used a pre-test, post-test, and delayed post-test design. The results indicated that complex tasks, regardless of order or mode, elicited more language-related episodes involving the use of the Spanish subjunctive. While providing insight into the benefits of carrying out complex tasks, the findings did not test Robinson's complete model of task sequencing because only one resource-directing feature was manipulated.

Rather than manipulate a single resource-directing feature, Malicka (2014, 2018) created simple, medium, and complex tasks that manipulated two resource-dispersing variables: reasoning demands (describing, recommending, apologizing, and justifying) and few elements (client profiles, hotel or room options). Whereas the simple task had few elements and no reasoning demands, the medium task required reasoning, while the complex task both had more elements and required reasoning demands (Malicka, 2014, 2018). In Malicka's (2014) study, the participants ( $N = 117$ ) were divided into three groups: simple-to-complex sequencing, random sequencing (all five possible combinations of simple, complex, and + complex), and individual task performance group. Each group performed monologic oral tasks. In the sequencing groups, half of the participants were classified as low proficiency and half as high proficiency. The

findings revealed that different task performance yielded different effects on oral production. That is, the simple-to-complex sequencing promoted more target-like output, but individual task performance orders presented advantages in speech rate and lexical complexity. Regarding proficiency, while high proficiency speakers took advantage of increases in cognitive complexity in terms of accuracy, low proficiency speakers did so at the level of structural complexity.

In Malicka's (2018) study, English L2 adult learners ( $N = 87$ ) carried out monologic oral tasks in two groups. The first group performed tasks in a simple-to-complex order, and the second group was subdivided into three groups where the participants performed individual tasks: simple, complex, or +complex tasks. The results indicate that simple-to-complex sequencing led to a higher speech rate, enhanced accuracy, and greater structural complexity, as compared to individual task performance. While the findings confirmed that sequencing tasks from simple-to-complex order is effective at encouraging accuracy and lexical complexity, the studies did not sequence tasks according to SSARC's proposed order of resource-directing and resource-dispersing variables.

Task sequencing created by manipulating two resource-directing dimensions was also tested by Levkina and Gilabert (2014), who created simple, medium, and complex oral tasks that differed in terms of spatial reasoning (presence or absence of spatial referents) and perspective taking. The study measured the learners' use and retention of spatial expressions at two points in time: immediately after the task completion, and two weeks later. The simple task did not require spatial reasoning or perspective taking, but the medium complexity task required spatial reasoning. The complex task required both spatial reasoning and perspective taking. The oral tasks were carried out by Catalan L1/English L2 adult learners of intermediate proficiency level according to three different sequences: simple-to-complex, complex-to-simple, or randomized.



Comparing pre- to post-test performance indicated that learners who carried out the tasks in the simple-to-complex sequence had greater knowledge of spatial expressions on the delayed post-test, although learners who completed the tasks in the complex-to-simple sequence scored highest on the immediate post-test. Although task sequencing steps in the SSARC model were not implemented, the findings demonstrated that carrying out simple tasks before complex tasks was associated with longer-term learning outcomes.

To the best of our knowledge, the only study that directly tested the SSARC model steps for sequencing tasks along both resource directing and resource-dispersing dimensions was carried out by Lambert and Robinson (2014). They used a quasi-experimental pre-test, post-test design where participants carried out tasks in either a simple-to-complex order (experimental group) or according to no particular order (control group). Task complexity was operationalized along resource-directing variables (+/-number of elements and +/-intentional reasoning demands) and along resource-dispersing variables (+/-planning time, +/-prior knowledge, +/-number of steps and +/-multi-tasking). Although Lambert and Robinson (2014) concluded that no significant differences between the groups were related to structural complexity or accuracy, they observed that the simple-to-complex group showed greater gains over time. One possible explanation for similar results between the experimental and the control group is that in the experimental group too many variables were manipulated at the same time, thus masking any potential sequencing effects. That is, the authors manipulated two resource-directing features (number of elements and intentional reasoning) and four resource-dispersing features (planning time, prior knowledge, number of steps, and multi-tasking), which may have resulted in too many combinations and tasks to perform.

To summarize, relatively few studies have tested the effect of task sequencing on L2 oral language production (Baralt, 2014; Levkina & Gilabert, 2014; Malicka, 2014, 2018) and even fewer studies have investigated the impact of task sequencing on written language production. However, these studies have varied task complexity levels by manipulating either resource-directing or resource-dispersing variables, but not both variables as suggested in the SSARC model. Furthermore, the only study that we are aware of that tested the specific sequencing order proposed in the SSARC model reported few differences in learners' performance (Lambert & Robinson, 2014). Therefore, the purpose of the current study was to test the impact of manipulating task sequencing along both resource-directing and resource-dispersing dimensions by applying the principles of the SSARC model (Robinson, 2010, 2015). The research question was as follows:

**RQ:** What is the effect of task sequencing on novice L2 French writers' lexical diversity, accuracy, and fluency?

Based on the claims of the SSARC model of task sequencing (Robinson, 2010, 2015) and previous task sequencing studies, it was predicted that sequencing tasks along resource-directing and resource-dispersing dimensions will lead to increased lexical diversity, higher grammatical accuracy, and greater fluency.

## Method

### Participants and Instructional Setting

The participants were 42 French learners (24 females and 18 males) in two Grade 8 French classes at a private elementary school in Lebanon. The learners ranged in age from 13 to 14 years old, with a mean of 13.3 years ( $SD = .4$ ). To increase the homogeneity of the sample, only learners who had been through the French curriculum at the elementary school for four

years and had scored at least 75% on the Grade 7 final exam were included in the study. The participants could understand basic written and spoken French phrases and sentences with high-frequency vocabulary, read and produce simple sentences, and orally exchange basic and routine information on familiar topics. In terms of writing skills specifically, the curriculum introduced paragraph writing at the end of Grade 7; however, the focus was on writing as a tool for self-expression and grammar and vocabulary learning. Learners were able to join sentences into one or two paragraphs in French, but were not familiar with rhetorical devices, such as topic sentences, discourse markers, or concluding sentences. The learners had five hours of French language instruction per week, distributed across three classes: grammar (two hours), writing (two hours), and dictation (one hour). The learners did not take any standardized French proficiency exams, but they could be considered at the A2 level in the Common European Framework of Reference of Language (Council of Europe, 2010), based on their French proficiency in Grade 8.

### **Design**

In light of the Cognition Hypothesis and the Triadic Componential Framework (Robinson, 2001), the present exploratory study adopted a mixed design to test the effect of task sequencing on learners' written lexical complexity, accuracy, and fluency. The independent variables were time and task sequencing. Time was a within-groups variable with three levels: pre-test, post-test 1, and post-test 2 (two weeks after post-test 1). To create tasks with varying levels of complexity (simple, medium, complex), both resource-directing (+/- spatial reasoning) and resource-dispersing (+/- task structure) dimensions were manipulated. Task sequencing was a between-group variable with two levels: simple-to-complex group, and complex-to-simple group. The rationale for choosing the opposite order to the SSARC sequence was that the

findings of some task sequencing studies (e.g., Baralt, 2014; Malicka, 2014; Robinson, 2011) suggested that not only the simple-to-complex sequence, but also other sequences such as a complex-to-simple sequence, may yield potentially beneficial effects on L2 development.

The dependent variables were lexical diversity, grammatical accuracy, and fluency. Lexical diversity, which is a subcomponent of lexical complexity (Bulté & Housen, 2012; Johnson, 2017; Michel, 2017; Norris & Ortega, 2009), was measured as the number of different spatial expressions, following Levkina and Gilabert (2014) and the nature-related vocabulary used in writing. Grammatical accuracy was determined by the correct use of the relative pronouns in a clause (see Table 2). These lexical and grammatical forms were selected for the experimental tasks as they were the focus of instruction in the learners' French textbook. The textbook chapter's theme was about nature, and included explicit information about spatial expressions, nature vocabulary, and relative pronouns. Task-specific lexical and grammatical features were selected following recommendations in previous studies (Cho, 2015; Lambert & Kormos, 2014; Michel, 2017; Robinson, 2005; Robinson, Cadierno, & Shirai, 2009). Whereas general measures have been shown to capture writing development for high-proficiency learners (Yoon & Polio, 2016), task-specific measures may be more suitable for low-proficiency learners and for short interventions (Lambert & Kormos, 2014; Michel, 2017). Although the textbook provided information about these forms, it did not provide many opportunities for learners to practice and produce them. Therefore, the present study was designed as supplementary material to provide the learners with learning opportunities to enhance their writing skills by instructing them to respond to a series of written tasks of varying complexity levels. In this study, a task is defined as an activity that requires language learners to use given information through some process of thought provided to arrive at an outcome (Prabhu, 1987).

Table 2

*Lexical and Grammatical Measures*

Target structures	Examples
Spatial expressions	En haut, en bas, en face de, entre, à gauche, à droite, au long de, entouré par, à cote de, au-dessus, au-dessous, derrière, dedans, parallèle, au milieu de, au centre de, devant, au fond, sous, sur
Nature vocabulary	Plantes, décoratives, le banc, le toboggan, la balançoire, le cycliste, la fontaine d'eau, la piste, cyclable, le gazon, le jardin, la clôture, les arbres, touffus, l'aire de jeux, le nuage, le bois, la trottinette, la colline, lever du soleil.
Relative pronouns	Qui, que, dont, où.

Reflecting the definition of fluency as the speed of accessing L2 knowledge (Michel, 2017; Sasaki, 2004; Skehan, 2003, 2009; Tavakoli & Skehan, 2005), written fluency was operationalized as the number of words produced during 30 minutes. That is, the more writers write during a 30-minute period, the more able they are to access the relevant lexical and grammatical structures. Although researchers (e.g., Cho, 2015; Johnson, 2017; Hwang, 2012; Wolfe-Quintero et al., 1998; Yoon & Polio, 2016) have pointed out that measuring fluency in terms of word counts can be problematic, ratio-based measures of fluency, such as average sentence length/time or number of words/t-units, have been shown to measure global syntactic complexity as opposed to fluency (Bulté & Housen, 2014; Norris & Ortega, 2009).

**Procedure**

The study lasted for five weeks and was carried out in the learners' regularly-scheduled French classes. In week 1, day 1 of the experiment, the learners carried out the discrete-point

grammar and vocabulary test for 20 minutes. On the following French class (day 2 of the experiment), the teacher explained the lesson in the textbook about the target structures (spatial expressions, nature vocabulary, and relative pronouns) as usual. The teacher elicited the meaning of the vocabulary and explained the grammar point while reading the descriptive text provided in the textbook. The descriptive text in the textbook served as an example of how to write descriptive paragraphs for the learners. On day 3, both classes solved the grammar exercises provided in their French textbook, checked their answers in pairs, and the teacher wrote the correct answers on the board. Finally, the learners wrote descriptive paragraphs which were collected as written pre-test. These written paragraphs that were collected after the regular French lesson on the lexical and grammatical forms served as a basis to compare the learning outcomes on the post-tests between two groups. The learners worked individually for 30 minutes to write their paragraphs, and they were not allowed to ask questions.

In week 2, the classes were randomly assigned to a task sequencing order (simple-to-complex or complex-to-simple) and the learners carried out their assigned sequence of tasks over a period of three French-class periods in that week. After each task they completed a task perception questionnaire. In weeks 3 and 5, learners carried out two post-tests two weeks apart, following the same guidelines as in the pre-test. The procedure is presented in Table 3.

Table 3

*Experimental Procedure*

Week	Duration (in minutes)	Simple to complex group	Complex to simple group
1	50	Pre-test1 (grammar and vocabulary only)	
	120	Explicit instruction	

		Pre-test 2 (paragraph writing test)	
2	30	Simple task	Complex task
	30	Medium task	Medium task
	30	Complex task	Simple task
3	50	Post-test 1 (paragraph writing followed by grammar and vocabulary test)	
5	50	Post-test 2 (paragraph writing test followed by grammar and vocabulary test)	

## Materials

The experimental materials included written and discrete-point tests, sequenced tasks, and a task perception questionnaire administered to the learners after each written task.

**Tests.** There were three paragraph writing tests that consisted of instructions to write a descriptive paragraph describing a natural scene. The written pre-test scores were used as a basis for the comparison of the performance of two sequencing groups after the explicit explanation of the target forms. In addition to written tests, three discrete-point grammar and vocabulary tests were created to measure the learners' knowledge of the vocabulary and grammatical structures (see Appendix A). The discrete-point tests consisted of two parts: vocabulary and grammar. The discrete-point pre-test was introduced before the explanation of the lesson to serve as a basis for the learner's initial knowledge of the target forms. The written post-tests were introduced after performing the sequenced tasks and were followed by the discrete-point tests.

The vocabulary section of the discrete-point tests had two fill-in-the-blank activities that tested the learners' knowledge of spatial expressions and nature vocabulary. The spatial

expression activity provided a picture of a bedroom with various labelled items located throughout the room, followed by 20 sentences from which spatial expressions had been partially deleted by removing all but the first three letters. The nature vocabulary activity consisted of 16 sentences from which 20 words had been partially deleted. Partial deletion was modeled after the controlled productive Vocabulary Level Test available through LexTutor ([www.lextutor.com](http://www.lextutor.com)), which was originally developed by Laufer and Nation (1999). Only the first two or three letters of the missing word were provided to reduce the likelihood that the learners would provide a synonym for the target word. For example, the sentence for the target vocabulary *jardin* (garden) was *J'ai acheté une maison avec un jar\_\_\_\_\_ plein de fleurs* (I bought a house with a gar\_\_ full of flowers).

The grammar section of the discrete-point tests contained 20 sentences with one missing word per sentence. The deleted words were 12 relative pronouns (three each of *qui*, *que*, *ou*, and *dont*), while the remaining eight items targeted a variety of word types (such as adverbs of time and place) that served as distractors. Instrument reliability (Cronbach's  $\alpha$ ) for the discrete point items was .85 for spatial expressions, .79 for nature vocabulary, and .81 for grammar.

**Sequenced tasks.** Following the principles of the SSARC model, a sequence of simple, medium, and complex tasks was created and was introduced in two orders: simple-to-complex and complex-to-simple (see Appendix B). The sequenced tasks consisted of three paragraph writing tasks manipulated along resource-directing and resource-dispersing variables of task complexity. Each writing task elicited different natural scenes, none of which were targeted in the paragraph writing tests. More specifically, different levels of cognitive complexity within a sequence were created by providing or removing a visual picture of a natural scene, and thus decreasing or increasing the spatial reasoning demands of the task (a resource-directing variable



as manipulated in Levkina and Gilabert, 2014). The instructional complexity (resource-dispersing variables of task complexity) was manipulated by providing or removing the guidelines for paragraph writing and paragraph format (+/- task structure) as manipulated in Masrom, Alwi, and Daud (2015) (see the supplementary materials). The resulted task features used in the present study are summarized in Table 4.

Table 4

*Task Sequencing following the SSARC Model*

Features	Task complexity		
	Simple	Medium	Complex
Resource-directing: Spatial reasoning	+ Picture with location of objects	+ Picture with location of objects	- No picture
Resource-dispersing: Task structure	+ Paragraph format and guidelines	- No paragraph format or guidelines	- No paragraph format or guidelines

The simple task was designed to make learners write a paragraph in which they rearranged items to create different play zones in the playground with an objective of simplifying the input (step 1 in the SSARC model). By providing a playground picture, learners could direct their attentional resources to the description or rearranging of the already available objects in the picture, rather than mentally reconstructing them to describe the playground image. In addition, the paragraph format was provided, including instructions on how to write a paragraph, i.e., topic sentence, supporting details, and concluding sentence. Guidelines to stimulate imagination and ideas were also provided in the form of a bullet list suggesting that learners pay attention to details, use sensory descriptors, and describe their feelings about the picture (see the supplementary materials). Variation in task complexity was created by manipulating the cognitive resources of spatial reasoning. Providing the playground picture with its empty

template removed the cognitive load of drawing on spatial reasoning from memory, and focused the learners' attention on a specific task of describing a picture attending to details. The provided picture also elicited the target vocabulary and grammatical forms. To complete this task, the learners needed to draw on their linguistic knowledge acquired from the instruction as the paragraph template and the visuals of the target vocabulary were provided for them.

For the medium-complexity task, learners were provided with an image of a park that was different from the picture in the simple task. They were asked to describe it without any instructions about paragraph format or guidelines. The objective was to provide learners with an opportunity to express similar ideas as in the simple task with less guidance to promote automatization of the writing process (step 2 in the SSARC model). Because the pictures in the medium tasks provided the location of objects, it is hypothesized that the spatial reasoning demands were low. The medium task was more complex than the simple task as the guidelines and paragraph format were not provided, and it required the learners to attend to the lexical structures provided in the visual image of the picture and to the paragraph format.

For the complex task, the learners were asked to provide a detailed and vivid description of their favorite natural location covered in the textbooks, ranging from seashores, natural resorts, and mountains to playgrounds. The objective was to provide the learners with a task that allowed them to create new form/meaning connections and complexify their interlanguage (step 3 in the SSARC model). The task was considered complex because it did not provide any pictures or objects, thereby requiring learners to mentally construct an image of a natural scene themselves and then describe it, based on the natural locations covered in the textbook as they had a discussion in class about which place they have visited before and whether they liked it. In complex tasks, the natural scenes to be described were determined within each instructional

prompt, and the learners were encouraged to implement the acquired forms in their writing as they used to do regularly in their French writing classes. That is, the learners were always encouraged to implement newly acquired lexical and grammatical forms in their writing based on what they had studied in their textbook. Furthermore, no information about paragraph format and writing guidelines was provided in these tasks.

**Learner's task perception questionnaire.** Following previous research that examined learner perceptions about task complexity (Frear & Bitchener, 2015; Robinson, 2007; Thompson, 2014), a task perception questionnaire was created by the researchers as an additional tool to verify the hypothesized differences in complexity levels between the three tasks (see Appendix A). The questionnaire contained 21 Likert-scale items with a six-point scale (1 = strongly disagree, 6=strongly agree) that targeted seven categories (three items per category): task difficulty, attitude, fatigue, task sequencing, task time, usefulness of the tasks, and clarity of instructions. Learners completed the questionnaire after each writing task. Instrument reliability (Cronbach's  $\alpha$ ) for the questionnaire items was as follows: task difficulty = .73; attitude = .89; fatigue = .71; task sequencing = .79; task time = .85; task usefulness = .89; and clarity of instructions = .91. Descriptive statistics (provided in Table 5) indicated that students in both task sequencing groups rated the simple task the highest, followed by the medium task and complex task, thus confirming the researchers' task classification according to complexity.

Table 5  
*Descriptive Statistics of Task Perception Questionnaire*

	Simple task	Medium task	Complex task
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Simple-to-complex group	5.57 (.59)	4.95 (.59)	2.19 (.68)
Complex-to-simple group	5.48 (.75)	4.00 (.44)	1.81 (.40)

## Data Analysis

To assess the learners' lexical diversity (various use of spatial expressions and nature vocabulary) and grammatical accuracy (correct use of relative pronouns in relative clauses), lexical and grammatical forms were scored following Levkina and Gilbert's (2014) scoring method, which awarded one point for each (correct) use of a form in the discrete point tests and written paragraphs. Half points were given for forms that were spelled incorrectly, and use of an incorrect form was scored as zero. For the written paragraphs, the correct use of a spatial expression or nature vocabulary was counted only once to avoid inflating the learners' accuracy level; therefore, repeated tokens of the same word were excluded. For relative pronouns, three criteria were taken into consideration when coding correct usage: 1) appropriate relative pronoun; 2) correct word order in the relative clause; and 3) occurrence of the relative clause within a main clause. For the written paragraphs, the lexical and grammatical scores for the written paragraphs were divided by the total number of words to account for variation in text length. An independent rater coded a subset (25%) of the paragraphs to check for reliability of the coding. Interrater reliability was assessed through Pearson correlations, which revealed the following values: spatial expressions  $r = .96$ ; nature vocabulary  $r = .93$ ; relative pronouns  $r = .88$ . An adjusted alpha level of .01 for tests and sequenced tasks was set to account for the use of multiple statistical tests. The learner's task perception questionnaire was also analyzed to assess whether the learners perceived the tasks as they were intended to be perceived.

## Results

The research question asked whether task sequencing promoted novice L2 French writers' lexical diversity, accuracy, and fluency. The question was addressed by comparing the scores on the written pre-test in both groups immediately after the explicit explanation of the grammatical and lexical features to their scores on the post-test 1 and post-test 2. The analysis of the learner's performance was also complemented by analyzing their scores on the discrete-point grammar and vocabulary tests.

For the written nature vocabulary and spatial expressions scores, the results revealed that both groups produced a similar number of target lexical forms on the pre-test and showed increased production on the post-test 1. However, learners in the simple-to-complex group had greater gains in post-test 1 and maintained their higher use in post-test 2 (two weeks later). In contrast, learners in the complex-to-simple group failed to maintain any gains at post-test 2. For their use of relative pronouns, the learners in both groups rarely produced target forms on the pre-tests, but their production increased at post-test 1 and was maintained over time. For written fluency, the simple-to-complex group showed higher fluency on both post-tests compared to the other group knowing that they produced similar number of words on the pre-test. The descriptive statistics of the scores on the written lexical diversity, grammatical accuracy of the relative clause, and fluency are displayed in Table 6.

Table 6

*Descriptive Statistics of Written Lexical Diversity, Accuracy, and Fluency by Group and Time*

	Pre-test		Post-test 1		Post-test 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Written nature vocabulary						
Simple-to-complex	.95	.80	6.90	2.82	3.85	1.10
Complex-to-simple	.80	.43	3.66	1.35	1.95	.66
Written spatial expressions						
Simple-to-complex	1.09	.76	5.38	1.90	2.20	.92

Complex-to-simple	1.19	.87	2.04	1.50	1.04	.74
Written relative clauses						
Simple-to-complex	.43	.50	2.05	.74	.81	.40
Complex-to-simple	.38	.49	1.38	.59	1.00	.00
Written fluency						
Simple-to-complex	59.57	14.08	155.04	30.28	93.95	14.05
Complex-to-simple	62.47	11.38	116.57	19.85	78.57	9.98

Turning to the discrete point test scores, a similar pattern as in writing emerged in the tests. The learners in both groups had similar scores for the target lexical items in the pre-test (see Table 7) and increased their scores in the post-tests. However, learners in the simple-to-complex group had higher scores in both post-tests than learners in the complex-to-simple group. The same pattern was observed for relative pronouns. Although the learners had similar scores in the pre-test and both increased over time, learners in the simple-to-complex group showed greater gains.

Table 7

*Discrete Point Test Scores by Group and Time*

	Pre-test		Post-test 1		Post-test 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Nature vocabulary scores						
Simple-to-complex	3.76	1.48	16.42	.97	15.38	2.10
Complex-to-simple	4.04	1.56	13.95	1.43	12.14	1.85
Spatial expressions scores						
Simple-to-complex	6.23	1.30	18.90	.88	17.95	1.20
Complex-to-simple	6.28	1.58	16.14	1.19	12.95	2.31
Relative pronouns scores						
Simple-to-complex	1.76	.70	16.71	.90	15.61	1.07
Complex-to-simple	1.61	.74	14.66	1.55	11.61	1.35
Written fluency						
Simple-to-complex	59.57	14.08	155.04	30.28	93.95	14.05
Complex-to-simple	62.47	11.38	116.57	19.85	78.57	9.98

Mixed ANOVAs were carried out for the written test scores and discrete-point test scores on nature vocabulary, spatial expressions, grammatical accuracy of relative clauses, and fluency

(written fluency only) separately. The ANOVA results are reported with the Greenhouse-Geisser correction because the homogeneity of variance assumption was violated. The ANOVA tests revealed that there were significant main effects for time and group, and a significant interaction between time and group for all three variables (see Table 8).

Table 8

*Results of Main Effect for Time, Group, and Time\*Group*

	Written Test Scores			Discrete-point Test Scores		
	F-value	p-value	partial $\eta^2$	F-value	p-value	partial $\eta^2$
<b>Nature vocabulary</b>						
Time	99.77	<.001	.71	771.41	<.001	.95
Group	42.30	<.001	.51	28.27	<.001	.41
Time*group	12.37	<.001	.24	17.55	<.001	.30
<b>Spatial expressions</b>						
Time	698.68	<.001	.94	52.04	<.001	.56
Group	90.96	<.001	.69	51.35	<.001	.56
Time*group	90.96	<.001	.43	20.95	<.001	.34
<b>Relative clauses</b>						
Time	193.29	<.001	.82	2601.43	<.001	.98
Group	28.27	<.001	.41	74.64	<.001	.65
Time*Group	15.36	<.001	.27	42.36	<.001	.51
<b>Fluency</b>						
Time	187.91	<.001	.82	-	-	-
Group	28.27	<.001	.41	-	-	-
Time*Group	28.27	<.001	.25	-	-	-

**Post-hoc Comparisons**

The post-hoc comparisons showed that there was no significant difference in performance between the groups in the pre-test for written nature vocabulary ( $p = .570$ ,  $d = 0.18$ ), spatial expressions ( $p = .91$ ,  $d = .12$ ), relative clauses ( $p = .52$ ,  $d = .20$ ), and for fluency ( $p = .46$ ,  $d = 3.07$ ). However, between groups, the simple-to-complex group scored higher than the

complex-to-simple group in both post-tests for the written and discrete point scores of nature vocabulary, spatial expressions, relative clauses, and fluency.

For written forms, the simple-to-complex group scored significantly higher on nature vocabulary than the complex-to-simple group in post-test 1 ( $p < .001$ ,  $d = 2.02$ ) and post-test 2 ( $p < .001$ ,  $d = 1.63$ ), and achieved higher scores for spatial expressions in post-test 1 ( $p < .001$ ,  $d = 1.95$ ) and post-test 2 ( $p < .001$ ,  $d = 1.18$ ). The simple-to-complex group also scored higher on the use of the relative clauses than the complex-to-simple in post-test 1 ( $p = .002$ ,  $d = 2.7$ ). However, there was no significant interaction effect of grammatical accuracy in post-test 2 ( $p = .015$ ,  $d = 0.83$ ). The simple-to-complex group was more fluent than the complex-to-simple group in post-test 1 ( $p < .001$ ,  $d = 1.86$ ) and post-test 2 ( $p < .001$ ,  $d = 2.00$ ), as indicated by the number of written words per 30 minutes.

Regarding the discrete point tests, the simple-to-complex group had significantly higher nature vocabulary scores in post-test 1 ( $p < .001$ ,  $d = 2.02$ ) and post-test 2 ( $p = .001$ ,  $d = 1.63$ ), higher spatial expressions scores in post-test 1 ( $p = .001$ ,  $d = 0.5$ ) and post-test 2 ( $p p < .001$ ,  $d = 1.44$ ), and higher relative pronoun scores in post-test 1 ( $p = .002$ ,  $d = 1.00$ ) than the complex-to-simple group. Regarding the within-groups post-hoc comparisons, the p-values and effect sizes (Cohen's  $d$ ) are presented in Table 9.

Table 9

*Within-Group Post-hoc Comparisons*

Scores	Post-hoc Comparisons				
Writing test		Simple-to-complex		Complex-to-simple	
Nature Vocabulary		$p$ -value	Cohen's $d$	$p$ -value	Cohen's $d$
	Pre-test 2/post-test 1	.001	2.8	.001	2.5
	Pre-test 2/Post-test 2	.001	1.42	.001	1.5



	Post-test 1/Post-test 2	.001	3.1	.001	1.6
Spatial expressions	Pre-test 2/post-test 1	<.001	2.96	.91	.12
	Pre-test 2/Post-test 2	<.001	1.30	.52	.20
	Post-test 1/Post-test 2	<.001	2.13	.76	.10
Relative clauses	Pre-test 2/post-test 1	.001	13.9	.001	4.7
	Pre-test 2/Post-test 2	.001	4.9	.001	1.90
	Post-test 1/Post-test 2	.006	.89	.04	.82
Fluency	Pre-test 2/post-test 1	<.001	4.04	.001	3.34
	Pre-test 2/Post-test 2	<.001	2.44	.001	1.50
	Post-test 1/Post-test 2	<.001	2.58	.001	2.41
Discrete-point tests					
Nature Vocabulary	Pre-test 2/post-test 1	<.001	10.1	.001	6.6
	Pre-test 2/Post-test 2	<.001	6.39	.001	4.7
	Post-test 1/Post-test 2	<.001	.63	.001	1.09
Spatial expressions	Pre-test 2/post-test 1	<.001	11.3	.001	7.04
	Pre-test 2/Post-test 2	<.001	9.36	.001	3.37
	Post-test 1/Post-test 2	<.001	.90	.001	.34
Relative clauses	Pre-test 2/post-test 1	.001	2.5	.001	10.74
	Pre-test 2/Post-test 2	.001	.83	.001	9.18
	Post-test 1/Post-test 2	.023	2.08	.001	2.09

### Discussion

The current study examined the effect of the SAARC model of task sequencing on novice French L2 writers' production of target lexical forms and relative pronouns. Since previous studies on SSARC sequencing (e.g., Baralt, 2014) reported that the complex-to-simple sequence may be beneficial for language learning, the present study compared both sequences. The findings of the present study suggested that although both sequences led to increased lexical diversity, grammatical accuracy, and fluency in French writing classes, as revealed by the pre-test/post-test design, the simple-to-complex group exhibited overall better performance on both post-tests.

The gain in both groups, as indicated by the post-test scores, can be explained in terms of manipulating each task along both resource-directing and resource-dispersing variables of task complexity (Robinson, 2001; Robinson & Gilabert, 2007). That is, the role of the resource-directing factors (spatial reasoning here) was to direct the learners' attention and effort in both groups toward implementing the newly acquired targeted linguistic and grammatical forms through writing descriptive paragraphs of the natural scenes. Therefore, writing served as an exercise to use newly acquired terms. Meanwhile, the role of resource-dispersing factors (task structure here) was to provide the learners with subsequent opportunities to practice writing paragraphs, with and without guidance, until they managed to write organized paragraphs on their own. In other words, the SSARC model provided learners with scaffolded opportunities to repeat written tasks several times by manipulating both cognitive efforts and instructional procedures (Lambert & Robinson, 2014; Robinson, 2010, 2015).

However, the greater gains in the simple-to-complex group can be explained in terms of the SSARC model (Robinson, 2010, 2015). Theoretically, the simple task with its simplified input stabilized the learners' newly acquired knowledge of the target lexical and grammatical forms. The medium task created opportunities for the learners to express similar ideas, but with more independence due to the lack of the task structure, thereby promoting automatization. The complex task took the learners' potentials further by providing them with an opportunity to create new form/meaning connections by letting them engage in spontaneous writing on a specific theme (Robinson, 2010, 2015).

The findings support those of the previous task sequencing oral and written studies that found that the SSARC model elicited greater use of target forms (Lambert & Robinson, 2014; Robinson, 2010; Thompson, 2014) and led to greater retention (Levkina & Gilabert, 2014). In

Levkina and Gilabert's (2014) study the pre- and post-test oral performance indicated that learners who carried out the tasks in the simple-to-complex sequence had greater knowledge of spatial expressions on the delayed post-test but not on the immediate post-test. The present study added that the simple-to-complex group also used more target vocabulary in writing during post-test 1 compared the complex-to-simple group. This finding can be explained by the fact that Levkina and Gilabert (2014) did not design their sequences as recommended by the SSARC principles along both resource-directing and resource-dispersing dimensions of task complexity.

Regarding grammatical accuracy, the present study also added to our knowledge that grammatical accuracy can be increased when sequencing tasks from simple-to-more complex tasks (Malicka, 2014, 2018). Performing the simple task first gave learners the opportunity to rehearse the target forms that were elicited through the visual image. On the subsequent medium and complex tasks, they recalled the target forms and practised them, even after the visual image had been removed. It should be mentioned also that the discrete-point tests were introduced after the paragraph writing test to avoid the memorization of the target forms due to repetition.

Regarding the written fluency, unlike in Malicka's (2014) study that investigated oral fluency, the current study revealed that written fluency increased when performing tasks in simple-to-complex order. This difference in findings can be explained in terms of how tasks were manipulated. For instance, the present study manipulated tasks along both resource-directing and resource-dispersing variables, whereas Malicka (2014, 2018) manipulated her tasks along resource-dispersing variables only and found that the simple-to-complex order leads to improved oral production. Second, oral and written modes are different and result in different findings (Baralt, 2014; Vasylets, Gilabert, & Manchon, 2017).

The current study provides several potential implications for L2 teaching. First, providing learners with writing tasks created to elicit target forms is an effective way to create practice opportunities. In contexts such as the one reported here, textbooks may not provide enough practice activities to help learners acquire productive language skills. By using the SSARC model, instructors can design supplementary tasks for use with their existing curricula in ways that complement learners' existing linguistic knowledge. Second, manipulating task complexity levels is an effective way to accommodate learners with a variety of proficiency levels. Simply by changing one task feature, such as the provision of planning time or a visual image, instructors can tailor tasks to meet the needs of diverse learners. The SSARC model identifies a variety of task features that can help instructors manipulate and sequence tasks while maintaining focus on their core content, language, and skill objectives. It should be also mentioned that the resulting tasks that are created based on the SSARC principles are different; they are not similar versions of the same task, but rather a sequence of tasks of different cognitive complexity and instructional demands.

Although the purpose of the learner's perception questionnaire was to verify the learner's perception of the designed tasks, it also suggested that the SSARC model of task sequencing can be used by teachers to create reliable tasks of different levels of cognitive complexity to supplement their textbook materials and to provide learners with more variety in practice, in this case various practice opportunities in writing. Teachers can equally ask their students to rate task difficulty to ensure the consistency of their task complexity designs with learners' perceptions and to guide them through their lesson planning.

Despite providing some empirical support for the SSARC model, the present study has some limitations that may impact the generalizability of the findings. First, the sample size was

relatively small ( $N= 42$ ), which reduced the power of the study, so future studies might replicate the findings using larger sample sizes, such as by collecting data in several phases. Although much task complexity and task sequencing research employs general and specific measures of complexity, accuracy, and fluency, the current study focused on specific measures for lexical diversity and grammatical accuracy as it was ecologically valid and appropriate for the participants' proficiency level (Cho, 2015; Lambert & Kormos, 2014; Michel, 2017; Robinson, 2005; Robinson, Cadierno, & Shirai, 2009). For instance, the writing activities were intended to provide the learners with practice of the target forms in their textbook to incorporate them in their written production. However, as ecological validity varies across contexts, future research might include both general and specific measures in order to make broader comparisons. As in previous SSARC studies (Baralt, 2014; Lambert & Robinson, 2014), the present study investigated the role of instruction and cognitive complexity on lexical complexity, accuracy, and fluency (automaticity) of written production. It was beyond the scope of the study to explore how task sequencing may have impacted the learners' writing processes (planning, editing, monitoring), although this may be an important avenue for future research as suggested by Révész, Kourtali, and Mazgutova (2017).

The current study did not elicit any information about the learners' mental processes while carrying out the written treatment tasks, instead relying on questionnaires administered after the tasks. To gain more information about learners' mental processes, future studies could implement think-aloud protocols or stimulated recalls (Levkina & Gilabert, 2014), which might shed more light on the mental processes during language learning. Finally, learners did not receive any feedback about their performance on the written tasks. While this was useful for controlling variation across the two task sequencing groups, it may not be representative of

classroom contexts where learners are given feedback. In order to explore the individual and combined effect of task sequencing and instructor feedback, future studies might include both factors and explore their longer-term impact on learners' production of target forms.

### **Conclusion**

To conclude, the current study found that carrying out simple-to-complex tasks helped novice French L2 learners produce more lexical forms, more accurate relative clauses, and more fluent texts compared to the learners in the complex-to-simple group. More specifically, completing the tasks in the simple-to-complex order recommended by the SSARC model (Robinson, 2010, 2015) led to greater post-test gains, particularly for relative clause accuracy. To provide a more robust empirical basis for task sequencing, our future research aims to further explore how specific task features can be manipulated to create series of simple-to-complex tasks for use in a variety of instructional settings. Through additional empirical research to test the SSARC model, we aim to provide L2 instructors with the information they need to make informed decisions about how to create and implement tasks in their classrooms in ways that facilitate learners' use of forms targeted through instruction.

## References

- Ahmadi, H., & Nazari, O. (2014). Grading and sequencing tasks in task-based syllabus: A critical look at criterion selection. *International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering*, 8, 337-34.
- Baralt, M. (2014). Task sequencing and task complexity in traditional versus online classes. In M. Baralt, R. Gilabert, & P. Robinson (Ed.), *Task sequencing and instructed second language learning* (pp. 95-122). London: Bloomsbury.
- Baralt, M., Gilabert, R., & Robinson, P. (2014). *Task sequencing and instructed second language learning*. London: Bloomsbury Publishing.
- Bulté, B., & Housen, A. (2012). Defining and operationalising L2 complexity. In A. Housen, F. Kuiken, & I. Vedder (Eds.), *Dimensions of L2 performance and proficiency: Complexity, accuracy and fluency in SLA* (pp. 21-46). Netherlands, Amsterdam: John Benjamins.
- Bulté, B., & Housen, A. (2014). Conceptualizing and measuring short-term changes in L2 writing complexity. *Journal of Second Language Writing*, 26, 42-65. DOI: 10.1016/j.jslw.2014.09.005
- Candlin, C. N. (1984). Syllabus design as a critical process. In C. J. Brumfit (ed.), *General English syllabus design* (pp. 29-40). Oxford: Pergamon.
- Cho, H. (2015). Effects of task complexity on English argumentative writing. *English Teaching*, 70(2), 107-131. <https://doi.org/0.15858/engtea.70.2.201506.107>
- Council of Europe. (2010). *The Common European Framework of References for Languages*. Cambridge, UK: Cambridge Press. Retrieved from <https://rm.coe.int/1680459f97>
- Ellis, R. (2003). Designing a Task-Based Syllabus. *RELC Journal*, 34(1), 64-81. <https://doi.org/10.1177/003368820303400105>

- Ellis, R., & Yuan, F. (2004). The effects of planning on fluency, complexity, and accuracy in second language narrative writing. *Studies in Second Language Acquisition*, 26(1), 59-84. DOI: 10.1017/s0272263104026130.
- Ellis, R., & Yuan, F. (2005). The effects of careful within-task planning on oral and written task performance. In R. Ellis (ed.), *Planning and task performance in a second language* (pp. 167-192). Amsterdam: John Benjamins
- Frear, M. W., & Bitchener, J. (2015). The effects of cognitive task complexity on writing complexity. *Journal of Second Language Writing*, 30, 45-57. DOI: 10.1016/j.jslw.2015.08.009
- Hwang, E. (2012). Korean EFL learners' language development across proficiency levels in written productions. *English Teaching*, 67(3), 27-50. Retrieved from <http://0-eds.b.ebscohost.com/mercury.concordia.ca>
- Ishikawa, T. (2007). The effect of manipulating task complexity along the +/-here-and-now dimension on L2 written narrative discourse. In M. P Garcia Mayo (Eds.), *Investigating tasks in formal language learning* (pp.136-156). Clevedon, UK: Multilingual Matters.
- Johnson, M. D. (2017). Cognitive task complexity and L2 written syntactic complexity, accuracy, lexical complexity, and fluency: A research synthesis and meta-analysis. *Journal of Second Language Writing*, 37(1), 13-38. DOI: 10.1016/j.jslw.2017.06.001
- Kuiken, F., & Vedder, I. (2007). Task complexity and measures of linguistic performance in L2 writing. *International Review of Applied Linguistics in Language Teaching*, 45(3), 261-284. DOI: 10.1515/iral.2007.012



- Kuiken, F., & Vedder, I. (2008). Cognitive task complexity and written output in Italian and French as a foreign language. *Journal of Second Language Writing*, 17(1), 48-60. DOI: 10.1016/j.jslw.2007.08.003
- Kuiken, F., & Vedder, I. (2012). Syntactic complexity, lexical variation and accuracy as a function of task complexity and proficiency level in L2 writing and speaking. In A. Houssen, F. Kuiken, I. Vedder (Ed.), *Dimensions of L2 performance and proficiency: Complexity, accuracy and fluency in SLA* (pp.1-21). Amsterdam: John Benjamins.
- Lambert, C., & Kormos, J. (2014). Complexity, accuracy, and fluency in task-based L2 research: Toward more developmentally based measures of second language acquisition. *Applied Linguistics*, 35(5), 607-614. <https://doi.org/10.1093/applin/amu047>
- Lambert, C., & Robinson, P. (2014). Learning to perform narrative tasks: A semester-long classroom study of L2 task sequencing effects. In M. Baralt, R. Gilabert, & P. Robinson (Eds.), *Task sequencing and instructed second language learning* (pp. 207-230). London: Bloomsbury.
- Laufer, B., & Nation, P. (1999). A vocabulary-size test of controlled productive ability. *Language testing*, 16(1), 33-51. <https://doi.org/10.1177/026553229901600103>
- Levkina, M., & Gilabert, R. (2014). Task sequencing in the L2 development of spatial expressions. In M. Baralt, R. Gilabert, & P. Robinson (Eds.), *Task sequencing and instructed second language learning* (pp.37-70). London: Bloomsbury.
- Long, M. H. (1991). Focus on form: A design feature in language teaching methodology. *Foreign language Research in Cross-Cultural Perspective*, 2, 39-52.
- Long, M. H., & Crookes, G. (1992). Three approaches to task-based syllabus design. *TESOL Quarterly*, 26(1), 27-56.

- Malicka, A. (2014). The role of task complexity and task sequencing in L2 monologic oral production. In M. Baralt, R. Gilabert, & P. Robinson (Eds.), *Task sequencing and instructed second language learning* (pp.71-93). London: Bloomsbury.
- Malicka, A. (2018). The role of task sequencing in fluency, accuracy, and complexity: Investigating the SSARC model of pedagogic task sequencing. *Language Teaching Research*, 1-24. <https://doi.org/10.1177/1362168818813668>
- Masrom, U., Alwi, N., & Daud, N. (2015). The role of task complexity and task motivation in language production. *GEMA Online Journal of Language Studies*, 15, 33-49. doi: 10.17576/gema-2015-1502-03
- Michel, M. (2017). Complexity, Accuracy and Fluency (CAF). In S. Loewen & M. Sato (Eds.), *The Routledge Handbook of Instructed Second Language Acquisition* (pp. 66-84). London: Routledge.
- Norris, J. M., & Ortega, L. (2009). Towards an organic approach to investigating CAF in instructed SLA: The case of complexity. *Applied linguistics*, 30(4), 555-578. <https://doi.org/10.1093/applin/amp044>
- Nunan, D. (2004). *Task-based language teaching*. Cambridge, UK: Cambridge University Press.
- Ong, J., & Zhang, L. J. (2010). Effects of task complexity on the fluency and lexical complexity in EFL students' argumentative writing. *Journal of Second Language Writing*, 19(4), 218-233. <https://doi.org/10.1016/j.jslw.2010.10.003>
- Prabhu, N. S. (1987). *Second language pedagogy*. Oxford: Oxford University Press.
- Révész, A., Kourтали, N. E., & Mazgutova, D. (2017). Effects of task complexity on L2 writing behaviors and linguistic complexity. *Language Learning*, 67(1), 208-241. <https://doi.org/10.1111/lang.12205>

- Robinson, P. (2001). Task complexity, task difficulty, and task production: Exploring interactions in a componential framework. *Applied Linguistics*, 22(1), 27-57. doi:10.1093/applin/22.1.27
- Robinson, P. (2003). The cognition hypothesis, task design, and adult task-based language learning. *Second Language Studies*, 21(2), 45-105. <http://hdl.handle.net/10125/40656>
- 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), 1-32. DOI: 10.1515/iral.2005.43.1.1
- Robinson, P. (2007). Criteria for classifying and sequencing pedagogic tasks. In M.P Garcia Mayo (Ed.), *Investigating tasks in formal language learning* (pp. 7-26). Clevedon, UK: Multilingual Matters.
- Robinson, P. (2010). Situating and distributing cognition across task demands: The SSARC model of pedagogic task sequencing. In M. Putz and L. Sicola (Ed.), *Cognitive processing in second language acquisition: Inside the learner's mind* (pp. 13, 243). Amsterdam: John Benjamins.
- Robinson, P. (2015). The Cognition Hypothesis, second language task demands, and the SSARC model of pedagogic task sequencing. In P. Robinson (Ed.), *Cognition and second language instruction* (pp.125-151). Amsterdam: John Benjamins.
- Robinson, P., Cadierno, T., & Shirai, Y. (2009). Time and motion: Measuring the effects of the conceptual demands of tasks on second language speech production. *Applied Linguistics*, 30(4), 533-554. <https://doi.org/10.1093/applin/amp046>

- 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(3), 161-176. DOI 10.1515/IRAL.2007.007
- Robinson, P. (2012). Syllabus design. In M. H., Long and C. J., Daughy (Ed.). *The handbook of language teaching* (pp. 294-310). Oxford: Wiley Blackwell.
- Salimi, A., Dadaspour, S., & Asadollahfam, H. (2011). The effect of task complexity on EFL learners' written performance. *Procedia-Social and Behavioral Sciences*, 29, 1390-1399. DOI: 10.1016/j.sbspro.2011.11.378
- Sasaki, M. (2004). A multiple-data analysis of the 3.5-year development of EFL student writers. *Language Learning*, 54, 525-582. DOI: 10.1111/j.0023-8333.2004.00264.x
- Skehan, P. (1996). A framework for the implementation of task-based instruction. *Applied Linguistics*, 17(1), 38-62. <https://doi.org/10.1093/applin/17.1.38>
- Skehan, P. (1998). *A cognitive approach to language learning*. Oxford: Oxford University Press.
- Skehan, P. (2003) Task-based instruction. *Language Teaching*, 36(1), 1-14. [doi.org/10.1017/S026144480200188X](https://doi.org/10.1017/S026144480200188X)
- Skehan, P. (2009). Modelling second language performance: Integrating complexity, accuracy, fluency, and lexis. *Applied Linguistics*, 30(4), 510-532. <https://doi.org/10.1093/applin/amp047>
- Tavakoli, P., & Skehan, P. (2005). Strategic planning, task structure, and performance testing. In R. Ellis (Ed.), *Planning and task performance in a second language* (pp. 239-273). Amsterdam; John Benjamins.

- Thompson, C. (2014). Guided planning, task complexity and second language oral development. In M. Baralt, R. Gilabert, & P. Robinson (Ed.), *Task sequencing and instructed second language learning* (pp.123-148). London: Bloomsbury.
- Vasylets, O., Gilabert, R., & Manchon, R. M. (2017). The Effects of Mode and Task Complexity on Second Language Production. *Language Learning*, 67(2), 394-430.
- Wolfe-Quintero, K., Inagaki, S., & Kim, H. Y. (1998). *Second language development in writing: Measures of fluency, accuracy & complexity*. Honolulu, HI: University of Hawaii Press
- Yoon, H. J., & Polio, C. (2016). The linguistic development of students of English as a second language in two written genres. *TESOL Quarterly*, 51(2), 275-301.  
<https://doi.org/10.1002/tesq.296>

## Appendix A – Test Sample

Partie 1:

Votre ami a déménagé au Canada et vous a envoyé une photo d'une scène naturelle. Rédigez un paragraphe décrivant en détail cette photo afin que le lecteur puisse imaginer la scène.

Partie 2: Vocabulaire

A.

Regardez la chambre à coucher et complétez les phrases avec les mots correspondants. Pour vous aider, chaque numéro dans la photo correspond à un mot dans l'image.

1-l'affiche, 2-le globe, 3-le lustre, 4-l'armoire, 5-le lit, 6-la lampe, 7- la table de nuit, 8-les pantoufles, 9- la guitare, 10- les chaises, 11-la table, 12- les jouets et étagères, 13-l'aquarium, 14-les rideaux, 15- le radio, 16-la caméra, 17-le perroquet, 18- la commode avec les tiroirs, 19-les fenêtres.



1. La table est ent... les deux chaises.
2. Le lit est en f ..... l'armoire.
3. Le perroquet est d.... la cage.
4. La commode a 4 tiroirs para.....
5. Le globe est à cô..... l'affiche.
6. Da..... l'étagère, il y a des jouets.
7. Les chaises et la table sont au m..... chambre.
8. Au c..... la chambre, il y a une boule.
9. La commode est à dr..... l'armoire.

10. La fenêtre se trouve der..... rideaux.
11. La table est ent..... les chaises.
12. D..... mur, il y a une commode et une armoire.
13. Il y a une guitare dev..... le lit
14. Il y a un lustre au mi..... du plafond.
15. L'affiche et le globe se trouvent au f..... la chambre.
16. La lampe se trouve à ga..... lit.
17. Les pantoufles sont d..... le lit
18. L'aquarium se trouve au d..... l'étagère.
19. La boule est sou..... la table.
20. Les pantoufles sont s..... lit.

B.

Complétez les phrases suivantes.

1. Quand j'étais enfant, j'avais l'habitude de faire mon tri..... dans le quartier.
2. J'ai acheté des pla..... déc .....et je les ai mises sur mon balcon. Il a l'air si vivant maintenant.
3. J'aime m'asseoir sur le ba..... dans le parc et lire des livres.
4. La personne qui roule en vélo est appelée une cyc.....
5. Mes enfants adorent faire du tob.....
6. La zone où vous trouvez l'image des bicyclettes imprimé sur le terrain est appelée la pis..... cyc.....
7. Regarde! Les oiseaux boivent dans la fon.....
8. J'aime la douceur du vent qui caresse mon visage lorsque je joue sur mon vieux bal.....
9. Dans La forêt près de notre maison, il y a des arb..... tou.....
10. Ce secteur est construit..... les jeunes puissent jouer là-bas.
11. J'ai acheté une maison avec un jar..... plein de fleurs.
12. Nous ne pouvons pas traverser le terrain car il est protégé par une clô..... filaire.
13. J'aime regarder le ga..... synthétique. Il ressemble au gazon naturelle.
14. Je me suis réveillé tôt ce matin, je me suis amusé à regarder le lev..... du sol..... Il était très beau.
15. Je connais cet endroit dont vous parlez. On peut trouver des col....., des vallées et des montagnes.
16. Les meubles de la salle à manger sont constitués de boi..... naturelle.
17. Le nua..... de cendres noires a rendu difficile la circulation dans les rues.

Partie 3: Grammaire

Remplir les espaces avec le mot approprié.

1. *Mon frère a pris l'argent..... était dans le tiroir.*

2. *J'ai soigneusement rangé la robe ..... J'ai achetée.*
3. *La ville ..... tu habites est très belle.*
4. *Au cinéma, j'ai vu un film ..... M'a beaucoup plu.*
5. *Son fils était malade..... hier soir.*
6. *J'ai versé à la banque l'argent ..... tu m'avais remis.*
7. *Nous avons passé les vacances dans le village ..... je suis née.*
8. *..... J'ai visité le musée du centre ville.*
9. *Paul a oublié le titre de ..... film préféré.*
10. *C'est un acteur..... est fou.*
11. *Je te présente M. Lafleur ..... je t'ai parlé hier, son fils est l'ami de Benjamin.*
12. *Mon père est parti à Nice; il passera le weekend end .....*
13. *Elle porte un chapeau..... tu ne devineras jamais la couleur.*
14. *Je fais du yoga ..... le jour.*
15. *J'ai écrit un article ..... je suis fier.*
16. *Le film ..... j'ai vu était nul.*
17. *Elle est sortie au moment ..... j'entrais.*
18. *..... je travaille jusqu'à 15h.*
19. *Mira était très occupée la semaine passée ..... elle a profité du weekend pour dormir.*
20. *Vous devez prendre l'autobus, ..... un taxi vous coûtera une fortune.*



## Appendix B - Treatment tasks

### Low-complexity task (No spatial reasoning = presence of a picture)

Votre municipalit  a d cid  d'organiser un concours de la meilleure conception d'une cour de r cr ation. La description la plus claire sera choisie. Imaginez que vous souhaitez proposer une cour de r cr ation qui ressemble   celle pr sent e dans l'image ci-dessous. Votre t che consiste   d crire la cour d'une fa on d taill e en utilisant les expressions dans la case ci-dessous et le mod le vide qui vous permettra de mieux organiser vos pens es.



### 2. +Task structure (paragraph format and guidelines are provided)

1. Format du paragraphe
  - a. Phrase sujet
  - b. Renseignements / d tails et pr cisions (5 phrases au minimum)
  - c. Phrase de conclusion
2. Instructions

- a. Regardez la figure et faites attention aux détails.
- b. Fournir des descriptions sensorielles: visuelle, sonore, tactile, olfactive, gustative
- c. Utilisez des métaphores et des personnifications
- d. Décrivez l'ambiance de la photo

**Medium-complexity task**

1. No spatial reasoning= presence of a picture
2. No task structure (no paragraph format and guidelines)

Décrivez la photo suivante. N'oubliez pas d'inclure le plus de détails possibles.

**High-complexity task**

1. + Spatial reasoning (no picture)
2. No task structure

Votre groupe a défini le plan pour un terrain de jeux. Vous devez rédiger un paragraphe décrivant le plan afin que l'architecte qui lit ce paragraphe puisse être capable de dessiner le même plan.

### Appendix C - Task Perception Questionnaire

Êtes-vous d'accord avec les phrases suivantes ? (1 = pas du tout d'accord et 6 = tout à fait d'accord)

Pas du tout d'accord	Pas d'accord	Assez pas d'accord	Assez d'accord	D'accord	Tout à fait d'accord
1	2	3	4	5	6

		1	2	3	4	5	6
1.	L'exercice était facile						
2.	L'exercice m'a permis d'utiliser mon imagination.						
3.	Je n'ai pas besoin de réfléchir profondément pour faire l'exercice.						
4.	Je comprends que ces exercices me permettront d'améliorer ma production écrite						
5.	Je me suis appliqué à faire l'exercice et j'ai utilisé au mieux mes capacités et mes connaissances.						
6.	J'ai essayé de faire de mon mieux durant cet exercice						
7.	Je pensais à autre chose tout en faisant la tâche						
8.	J'ai essayé de finir le plus rapidement possible.						
9.	J'étais fatigué pendant que je faisais l'exercice.						
10.	J'ai pu faire un lien entre cet exercice et le précédent.						
11.	J'ai eu l'impression que les exercices n'étaient pas liés						
12.	Je n'ai pas pu faire de lien entre cet exercice et le précédent						
13.	Le temps était suffisant pour finir l'exercice						
14.	J'ai passé beaucoup de temps à regarder la photo						
15.	J'aurais besoin de plus de temps pour finir les futurs exercices						
16.	Je n'ai pas besoin de penser au vocabulaire et aux expressions nécessaires pour finir l'exercice.						
17.	J'ai passé plus de temps sur la description de la photo que sur la recherche du vocabulaire approprié.						
18.	En général, les images ont facilité la réalisation du travail demandé.						
19.	Les instructions étaient claires						
20.	Les exercices étaient liés à des situations réelles.						
21.	J'étais bien préparé pour faire l'exercice						