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STUDY

Exploring patterns of interaction, LREs and writing performance of adolescent EFL learners

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Abstract
Learners completing writing tasks in pairs or small groups engage in peer interaction, operationalized as language-related episodes (LREs), which seem to facilitate second or foreign language (L2) acquisition. Multiple studies have shown that the patterns of interaction learners form during collaborative language tasks affect the frequency, nature, and outcome of LREs, as well as the quality of the written texts. However, most findings come from studies involving young and adult learners of English as a foreign or a second language (EFL/ESL), whereas research with adolescent EFL learners (aged 13–15) remains scarce. Given the widespread presence of L2 instruction in compulsory education and adolescents' unique developmental traits, further research is crucial. This study addresses this gap by examining the patterns of interaction, the number, type, and outcome of LREs, and the written texts produced by 60 adolescent EFL learners (aged 13–14) completing a writing task in pairs. Results showed that adolescent learners formed predominantly collaborative patterns of interaction, followed by expert/novice, dominant/dominant, and dominant/passive. Additionally, the pairs with collaborative orientation produced and correctly resolved more LREs and created higher quality texts, measured through global evaluation rubrics. These findings underscore the importance of fostering collaborative pair work in L2 classrooms to enhance peer interaction, LREs, and writing quality.

Keywords: adolescent learners; collaborative writing; LREs; patterns of interaction; text quality

1. Introduction

Over the past two decades, research has extensively examined how learner interaction fosters language learning opportunities (Adams and Oliver, 2023; Behney and Gass, 2021; Loewen and Sato, 2018). From an interactionist perspective (Long, 1996), peer interaction provides learners with comprehensible input, feedback, and opportunities for output, thereby facilitating language acquisition (Ellis, 2008; Loewen, 2012; Mackey, 2012). Meanwhile, a sociocultural viewpoint (Vygotsky, 1978) considers learning as a socially bound activity, where interaction, particularly between an expert and a novice, is pivotal for cognitive and language development. This interaction allows the expert (e.g. a teacher or a more capable peer) to provide attuned assistance, enabling the learners to perform beyond their individual capacity (Storch, 2017), a concept known as Zone of Proximal Development (ZPD) (Vygotsky, 1978). Recent research, however, has also shown that parallel-level peers provide fine-tuned assistance that moves learning forward (Villarreal and Gil-Sarratea, 2020; Villarreal and Munarriz-Ibarrola, 2021). Consequently, educational approaches that encourage peer interaction and

tasks that promote both speaking and writing have become increasingly important in L2 pedagogy (see Lázaro-Ibarrola, 2023; Storch, 2013 for an overview).

Against this backdrop, collaborative writing (CW) tasks defined as writing tasks in which two or more learners work together to produce a single text (Storch, 2019), have emerged as prominent L2 learning tools (Mozaffari, 2017; Villarreal and Gil-Sarratea, 2020; Wigglesworth and Storch, 2009). Collaborative writing encourages interaction on language usage, task content, and organization of ideas (McDonough et al., 2016). Learners completing CW tasks often engage in 'languaging', a process defined as 'making meaning and shaping knowledge and experience through language' (Swain, 2006, p. 89). Languaging enables learners to test hypotheses, identify gaps in their L2 knowledge, and reflect on their language production (Swain, 1995). Moreover, languaging helps learners to tackle cognitively demanding tasks, consolidate existing knowledge and potentially co-construct new knowledge about the target language (Suzuki and Storch, 2020; Swain and Watanabe, 2013). However, the quantity and quality of languaging are crucial for effective L2 learning (Swain and Watanabe, 2020). Languaging has been operationalized as language-related episodes (LREs), defined as '… any part of a dialogue in which students talk about the language they are producing, question their language use, or correct themselves or others' (Swain and Lapkin, 1998, p. 326). Several factors affect the quantity and quality of languaging, including task nature (e.g. Alegría de la Colina and García Mayo, 2007; Gallardo-del-Puerto and Martínez-Adrián, 2022; Storch, 2016), L2 proficiency (e.g. Kim and McDonough, 2008; Watanabe and Swain, 2007), or interaction patterns (e.g. Azkarai and Kopinska, 2020; Basterrechea and Gallardo-del-Puerto, 2023; Storch, 2002a, 2002b).

Research with adults and young learners indicates that collaborative and expert/novice interaction patterns lead to more LREs and higher quality texts (Abrams, 2019; Jang and Cheung, 2020; Li and Zhu, 2017; Watanabe, 2019). Building on Storch's seminal work (2002a, b), studies with EFL/ESL learners indicate that those who engage in collaborative and expert/novice interactions produce and resolve more LREs correctly (e.g. Azkarai and Kopinska, 2020; García Mayo and Imaz Agirre, 2019; Oliver and Azkarai, 2019; Storch and Aldosari, 2013; Watanabe and Swain, 2007) and create higher quality texts (Abrams, 2019; Jang and Cheung, 2020; Li and Zhu, 2017; Watanabe, 2019; Watanabe and Swain, 2007) than learners who display non-collaborative patterns. Despite these findings, research on adolescent EFL learners in CW tasks remains limited, and the link between interactional patterns and text quality among adolescents is not well understood (Elabdali, 2021; Li and Zhang, 2021; Zhang and Plonsky, 2020). The study of adolescent EFL learners is particularly important because adolescents differ from both younger and adult learners (Erlam et al., 2021) in their cognitive, social, and emotional development and needs (Dörnyei, 2009; Ellis, 2008; Lightbown and Spada, 2013). Adolescents are developing abstract thinking, metacognitive skills, and the ability to understand complex linguistic elements (Lightbown and Spada, 2013). They also place a high value on peer interaction and social connections, making collaborative work highly relevant (Ellis, 2008). It is also essential to consider their emotional needs and motivational drivers, which can affect engagement and learning (Dörnyei, 2009). Collaborative work tasks align well with these characteristics, highlighting the necessity for more research.

This study aims to address the gaps in our understanding by examining the interaction patterns, the nature and outcome of LREs, and the quality of the texts produced by 60 adolescent EFL learners (aged 13–14) during CW tasks. This research seeks to explore the potential benefits of CW for this age group and contribute to the field of SLA, where research on adolescents is growing but is still underrepresented (Collins and Muñoz, 2016; Elabdali, 2021; Storch, 2013; Zhang and Plonsky, 2020). The study also seeks to investigate how CW can foster peer interaction and develop writing skills in the context of Kosovo's education system. This research is important because while second and foreign language learning is widespread in compulsory education worldwide (Banfi, 2017; Eurydice, 2023; Kosonen, 2017), there is a lack of dedicated research on adolescent language learners, who have distinctive needs.

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2. Literature review

In what follows, we establish the main findings obtained regarding the effect of interaction patterns on LREs (2.1) and text outcomes (2.2).

2.1. Patterns of interaction and LREs

One of the most distinguishing features of CW is that it provides learners with opportunities for peer interaction and L2 learning (Storch, 2021). The degree to which learners engage in meaningful interaction and benefit from peer collaboration during CW tasks depends on the interaction patterns they establish while working with their peers.

Storch (2002a), in her seminal work on pair dynamics, examined the interactional patterns of ten pairs of adult ESL learners across multiple language tasks over a semester. The model used to describe these dynamics followed Damon and Phelps (1989) and considered learners' equality and mutuality during collaborative work. Equality refers to participants' contribution to the task, measured by computing the number of turns each participant produces, and the degree of control over a task illustrated in interactions where participants take directions from each other (Van Lier, 1996). Mutuality, on the other hand, describes the level of engagement with each other's contributions, measured by examining the degree of participants' engagement with one another's feedback, suggestions, or counter-suggestions and ideas that contribute to the task completion, characterized by a high degree of agreement between participants. Based on this model, she identified four interaction patterns: collaborative, dominant/dominant, dominant/passive, and expert/novice. Most of her pairs showed collaborative patterns, with collaborative and expert/novice pairs more effectively transferring knowledge gained from discussing LREs to subsequent individual tasks compared to dominant/dominant and dominant/passive pairs. These findings suggest that not all pair and group work fosters language learning; instead, L2 learning is more likely in collaborative or expert/novice dyadic relationships.

Subsequent studies with adult EFL/ESL participants have reinforced the advantages of collaborative and expert/novice pairs. Watanabe and Swain (2007) examined how interaction patterns influenced the nature and outcome of LREs and subsequent individual writing performance among university ESL core learners (learners of intermediate L2 proficiency who completed two consecutive tasks, one with learners of lower proficiency and one with learners of higher proficiency). Participants were paired once with higher L2 proficiency learners and once with lower L2 proficiency peers to complete a multistage writing task involving both pair and individual work. The study found that most pairs formed collaborative and expert/novice patterns, followed by dominant/passive and expert/passive patterns. Similar to Storch's (2002a) findings, collaborative pairs demonstrated the highest number of correctly resolved LREs, with expert/novice, dominant/passive, and expert/passive pairs resolving fewer language-related issues accurately. Consequently, the authors concluded that collaborative patterns are the most beneficial for collaborative work.

Subsequent studies with EFL participants, such as the work of Storch and Aldosari (2013), further corroborated the importance of collaborative pair work. They investigated ways to promote the effectiveness of pair work by considering learners' L2 proficiency and relationships as moderating variables. Thirty university EFL students were paired based on similar proficiency (high-high = 5; low-low = 5) and mixed proficiency (high-low = 5) to write a composition. The study revealed that most pairs exhibited collaborative patterns, especially among similar L2 proficiency learners, while mixed-proficiency pairs showed a wider range of interaction patterns. Interestingly, high-high pairs outperformed the high-low and low-low pairs in terms of LRE production, but the high-low pairs outperformed the low-low pairs only when they formed collaborative or expert/novice patterns. This conclusion expanded on Watanabe and Swain's (2007) work, indicating that both collaborative and expert/novice relationships benefit from collaborative work, irrespective of the L2 proficiency asymmetry. Additionally, the study highlighted that lexical LREs

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predominated over grammatical and mechanical LREs across interactional patterns and proficiency levels.

Building on findings primarily focused on adult ESL/EFL learners, a few studies have also included young learners. For example, García Mayo and Imaz Agirre (2019) examined the effect of different pair formation methods and task modality on LREs and pair dynamics among 62 young EFL learners. These learners participated in oral and oral plus written tasks under three pairing conditions: proficiency-paired, teacher-assigned, and student-selected. Consistent with Storch and Aldosari (2013) and Watanabe and Swain (2007), their research found that the majority of pairs engaged collaboratively, with proficiency-paired dyads exhibiting higher levels of collaboration compared to teacher-assigned and student-selected pairs, especially in tasks involving a written component. They also discovered that proficiency-paired and teacher-assigned pairs outperformed student-selected pairs in terms of the number and successful resolution of LREs, with lexical LREs being the most common type, which is consistent with previous research by Mozaffari (2017).

Basterrechea and Gallardo del Puerto obtained similar results in two studies with CLIL (2020) and EFL students (2023). In their 2020 study, they further confirmed that proficiency-matched pairs exhibited greater collaborative patterns and more accurate resolution of predominantly lexical LREs compared to self-selected pairs. This finding was replicated in their 2023 study with 57 young EFL learners (aged 10–11) completing a map task in dyads and triads. In this study, the majority of interactions were collaborative, mirroring their previous findings and the findings of studies with adults (e.g. Storch and Aldosari, 2013; Watanabe and Swain, 2007) and young learners, with collaborative and expert/novice pairs outperforming non-collaborative pairs in terms of LRE production. Nevertheless, regardless of the patterns of interaction exhibited, the majority of LREs were lexical, although collaborative and expert/novice pairs focused more on grammatical LREs than non-collaborative pairs.

In contrast to these studies which have reported results that mirrored those of adults, Azkarai and Kopinska (2020) obtained somewhat diverging findings. These authors explored patterns of interaction, engagement levels in LREs, and task motivation among 62 young EFL learners (aged 11–12) completing a collaborative dictogloss task. They found a similar number of pairs exhibiting collaborative and cooperative patterns, which were the most frequent. However, collaborative pairs produced a significantly larger number of LREs with elaborate engagement compared to cooperative pairs. They concluded that task-based differences might have affected the interaction patterns.

Overall, these studies underscore the prevalence of collaborative patterns of pair interaction characterized by a high level of learners' engagement with each other's contribution during the task completion process across age groups, L2 proficiency levels, and learning contexts.

2.2. Patterns of interaction and writing performance

Collaborative work has been consistently shown to enhance written outcomes compared to individual work, with learners in pairs or small groups often outperforming those working alone in terms of accuracy and overall text quality (Bllaca and Dalton-Puffer, 2024; Fernández Dobao, 2012; Shehadeh, 2011; Villarreal and Gil-Sarratea, 2020; Villarreal and Munarriz-Ibarrola, 2021; Wigglesworth and Storch, 2009). This improvement is primarily attributed to the pooling of linguistic resources. However, the influence of specific patterns of interaction on the quality of students' writing remains a key area of investigation.

A pioneering study by Watanabe and Swain (2007) explored how pair dynamics affected the quality of compositions by Japanese ESL learners ($n = 12$) completing a multistage writing activity. The study included two pair-writing tasks with learners of varying proficiency levels (pre-test), followed by a native speaker's reformulation of their work and an individual writing task (post-test). The results showed that learners with collaborative and expert/novice relationships produced higher quality texts, both collaboratively and individually, compared to pairs with non-collaborative dynamics,

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such as dominant/dominant or expert/passive. These findings were supported by later research, such as Watanabe (2019), who examined the written products of twenty adult ESL learners completing two writing tasks, one in pairs and one individually. The study found that while the results of collaborative and individual writing were similar, collaborative and expert/novice pairs produced higher quality texts than non-collaborative pairs. Similarly, Jang and Cheung (2020) reported that young ESL learners (n = 8) who exhibited collaborative or expert/novice roles in CW tasks, wrote texts of better quality in their final individual task (post-test).

The positive impact of collaborative relationships extends to computer-mediated contexts. Abrams (2019) examined the relationship between patterns of interaction and the text quality of 28 students of German as an FL working in small groups on a film script in Google Docs. The study found that groups with collaborative relationships produced texts of better quality in terms of fluency, propositional content, and textual coherence. Li and Zhu (2017) similarly found that university ESL groups (n = 4) with collective and expert/novice patterns produced higher quality wiki texts, particularly in terms of rhetorical structure and coherence. More recently, Akoto and Li (2025) reported that groups of adult learners (n = 7) of French completing a digital multimodal composing (DMC) project in Google Docs exhibited higher quality outcomes when collaboration was marked by high levels of equality and mutuality. Groups with non-collaborative or non-supportive dynamics, characterized by low levels of equality and mutuality, produced lower-quality projects.

Overall, the literature reveals that learners are more likely to form collaborative and expert/novice patterns during collaborative tasks, irrespective of task modality, proficiency level, or age. Young learners, in particular, tend to display higher collaboration tendencies (Basterrechea and Gallardo-del-Puerto, 2023; García Mayo and Imaz Agirre, 2019). These patterns result in greater language use and more accurate resolutions of linguistic issues during text co-construction. Furthermore, texts produced in collaborative circumstances tend to be of higher quality, regardless of whether the interaction is face-to-face or computer mediated (Abrams, 2019; Watanabe, 2019; Watanabe and Swain, 2007).

Despite the wealth of evidence supporting the benefits of CW, there are notable gaps in the current research. There is a scarcity of studies focusing on adolescent EFL learners (aged 13–15), with most studies focusing on young or adult learners. With the exception of Jang and Cheung's (2020) study with young learners (aged 10–11), there is a lack of research examining the link between interaction patterns and writing quality with non-adult learners. Understanding interaction patterns and LREs among adolescent learners is crucial for grasping the potential of CW tasks for promoting language learning. Further exploration of pair dynamics among adolescent EFL learners can help language teachers develop teaching strategies that foster collaboration and maximize learning outcomes for this age group. Therefore, this study aimed to fill this gap by examining the patterns of interaction, the nature and outcome of LREs, and the quality of writing performance among 60 adolescent EFL learners completing a picture story task in pairs face-to-face. Specifically, this study sought to answer the following research questions:

1. What patterns of interaction do adolescent EFL learners exhibit when they work in pairs on a writing task?
2. Does the pattern of pair interaction affect the frequency, nature, and outcome of LREs produced?
3. Does the pattern of pair interaction affect the quality of the texts produced?

3. Methodology

3.1. Participants

The present study analyzes data from 60 learners (male = 54%, female = 46%) of English as a foreign language (EFL) at a public school in Kosovo. All participants spoke Albanian as their first language

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(L1). At the time of data collection, participants were in their penultimate year of lower secondary school, specifically in Grade 8, with ages ranging from 13 to 14 years (M = 13.82, SD = 0.20). These learners had been learning English since Grade 3, with two 45-minute English lessons per week throughout each school year (MEST, 2016). The first author had been teaching these students English for at least three consecutive school years, from Grade 6 to 8.

The instructional approach was predominantly teacher-directed, with grammar-translation methodology being the most common, although communicative and task-based language teaching methods were occasionally employed. Activities such as role-play, jigsaw, and picture placements were included to foster oral interaction and promote collaborative learning (Mackey, 2012). The primary teaching resource was the English course book *Live Beat 3* (Kilbey et al., 2015), which guided planning, instruction, and evaluation. The curriculum primarily focused on developing learners' linguistic abilities, both spoken and written, through culturally relevant topics aimed at enhancing communication. However, a greater emphasis was placed on oral communication. Despite being less emphasized, learners at lower secondary levels of education were expected to master writing as a skill through the completion of writing tasks such as compare and contrast essays, picture descriptions, descriptions of characters, and stories using good grammatical and vocabulary structures and adequate tenses, and to demonstrate the ability to write, including writing as a process such as brainstorming, drafting, revising, and editing (MEST, 2019). Although pair and group work was encouraged, most of the writing was completed individually until recently when CW was introduced and was well received by the adolescent learners.

Despite English being the main foreign language in the Kosovar education setting, learners had limited exposure to English outside of school, with only two 45-minute lessons per week at school. The English proficiency of the participants was classified as B1 level ($M = 3.97$, $SD = 0.62$; min = 3, max = 5) according to the Common European Framework of Reference for Languages (Council of Europe, 2020). As in previous research (e.g. Bllaca and Dalton-Puffer, 2024; Leeser, 2004; Nguyen and Newton, 2020; Storch and Aldosari, 2013), participants' language proficiency was determined through a non-standardized, school-based assessment conducted by their teachers – an approach often used in research carried out in school settings, where standardized tests may not be available. In this study, the assessment included both formative and summative tasks targeting the four language skills: listening, speaking, reading, and writing. Formative assessments were based on global performance scores (1–5 scale) on the four language skills, while the summative assessment was derived from a test in the *Live Beat 3* (Kilbey et al., 2015) course book. The test measured students' development of English grammar, vocabulary, phrases, listening, reading comprehension, and writing. The average score was calculated from the average of both assessments. Based on the combined scores, participants were categorized into three proficiency levels in the intermediate range: low-intermediate (n = 12), intermediate (n = 32), and high-intermediate (n = 16) (see Appendix A for a more detailed description). The participants were then paired according to their proficiency levels, with the teacher initially forming the pairs, though students were allowed to choose their pair provided they were from the same proficiency level and class. Despite this possibility, only a few students expressed their preferences to work with their peers. We finally formed 30 pairs from three different classrooms (Class A = 10, Class B = 10, Class C = 10). All assessments were paper based, and fully adhered to the grading scheme of Kosovo's pre-university education level (MEST, 2016).

3.2. Collaborative writing task

For the present study, we used a picture description task. The task involved 18 pictures telling the story of a woman named Anna, taken from a course book *Exploring English 3* (Harris and Rowe, 2007, pp. 110–111). This task was selected because participants had previously worked with picture story prompts, and using a familiar, meaning-focused task (Storch, 2013), granted task feasibility and aligned with the curriculum objectives. Additionally, similar prompts have been successfully used

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Table 1. Data collection procedures

Week	Activities
1	a. Participants were informed about the study.
	b. Students received consent forms to be signed by their parents.
2	a. Students returned signed consent forms.
	b. Students were allocated into pairs of similar proficiency.
3	a. Students practised one collaborative writing task.
4	a. Students completed the assignment collaboratively during class time and audio recordings were taken.

in previous research with both adolescent and adult learners (e.g. Bueno-Alastuey and Lizarrondo Larumbe, 2017; Fernández Dobao, 2012).

The visual prompt consisted of six sets of three pictures, each depicting an event in Anna's story. The task required participants to collaboratively describe the story of what happened to Anna on a particular morning when she woke up late and left for work. The participants were instructed to use the past tense throughout the description. To encourage collaboration, they were asked to help each other with task-related issues such as content generation, organization, and language use. Each pair produced one text, with a word count ranging from 80 to 120 words.

3.3. Procedure

Data collection spanned four weeks and started in the final part of the school year. Initially, signed consent forms were obtained from the participants' parents/guardians. Then, to test the feasibility of collaborative writing, participants completed a piloting session one week before the actual data collection. Although the piloting task involved a picture story, it differed from the main task in two key aspects: the pictures used were different, and participants were asked to narrate the story in the present tense rather than the past tense, as in the experimental task. After the trial session, participants were paired according to their proficiency partners and given the writing prompt, which asked them to work in pairs in a face-to-face classroom setting. They were provided with a set of pictures to guide the writing process, and audio recordings of their conversations were taken for analysis.

Participants were not allowed to use any external resources or aids such as dictionaries, smartphones, or books to complete the task. They could rely solely on their partner to resolve any issues during the writing process. Following previous research (e.g. Lázaro-Ibarrola and Hidalgo, 2022), each pair was given 30 minutes to complete the task. At the end of the data collection period, 30 compositions and 30 audio recordings of pair talks were collected for analysis. The data collection process is summarized in Table 1.

3.4. Data analysis

The data corpus consisted of 30 audio recordings of pair interactions and 30 CW texts. The pair talks were transcribed verbatim, and three types of analysis were conducted. First, the oral interactions were analysed for LREs, second, for pair dynamics, and third, the written compositions were assessed for overall quality. The total recording time was 529 minutes and 72 seconds, with a mean duration of 17.65 minutes. The shortest interaction lasted approximately 10 minutes, while the longest was nearly 27 minutes.

Language-related episodes were defined as any part of a dialogue in which learners discussed language use, questioned their language use, or engaged in self or other correction (Swain and Lapkin, 1998). Drawing on previous research (e.g. Lázaro-Ibarrola and Hidalgo, 2022; Villarreal

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Table 2. Taxonomy of patterns of interaction based on Storch (2002a)

Pattern	Characteristics	Mutuality	Equality
Collaborative	• Equal contribution, engagement, and extension of each other's contributions • Proposal of new alternatives, suggestions, and counter-suggestions	Moderate to high	Moderate to high
Dominant/Dominant	• Equal contribution but lack of engagement or consensus	Moderate to low	Moderate to high
Dominant/Passive	• One member controls the interaction, the other remains reluctant	Moderate to low	Moderate to low
Expert/Novice	• One member takes the lead, encouraging participation from the novice	Moderate to high	Moderate to low

and Munarriz-Ibarrola, 2021), LREs were categorized into three types: meaning-focused LREs (L-LREs), which involved discussions about lexical meanings, choice of words or lexical alternatives, as in example 1 below; form-focused LREs (F-LREs), which addressed morphological (e.g. word forms, use of tenses, gender agreement issues, use of articles) and syntactic issues (length of sentences, word order), as in example 2; and mechanics-focused LREs (M-LREs), which covered issues about spelling, punctuation, and capitalization, as in example 3.

Language-related episodes were further examined for resolution (e.g. Basterrechea and Gallardo-del-Puerto, 2020; Leeser, 2004; Villarreal and Gil-Sarratea, 2020). They were classified as correctly resolved (example 1), incorrectly resolved (example 2), or unresolved (example 3), based on the learners' ability to solve the linguistic issue. Examples of each LRE type from our data are provided below:

(1) Correctly resolved lexis-focused LRE
   1. Du: She dropped her purse, bag ja najsen, nuk o purse [bag or something else, it isn't purse]
   2. Ber: bag jo, purse eshte [It isn't a bag, it's a purse]
   3. Du: po purse se e vogel … huhuhu [Yes, it's a purse because it's small, laughing]

(2) Incorrectly resolved form-focused LRE
   1. Ble: All of her things was, were on the floor
   2. Jash: All of her things WAS on the floor
   3. Ble: All of her things …
   4. Jash: was on the floor.

(3) Unresolved mechanics-focused LRE
   1. Ai: How do you write cousin?
   2. Ism: C-o-s-i-n, no, I'm not sure.
   3. Ai: C-o-o-s-i-n
   4. Ism: Gjeje nje fjale tjeter [Look for another word]

Next, pair dynamics were analyzed using the taxonomy proposed by Storch (2002a), which classified patterns of interaction on mutuality and equality. The interactional patterns were categorized into four types (see Table 2): collaborative, dominant/dominant, dominant/passive, and expert/novice. Each pair's interaction was assessed for the representation of specific patterns throughout the entire conversation, and patterns were assigned if they were represented in at least 70% of the dyad's interaction.

Example 4 below illustrates a collaborative pattern where learners engage in a collaborative manner while trying to solve an issue centred on the use of the preposition *of*. Both learners work together until they reach a correct resolution for their problematized linguistic item. They repeat each other's

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utterances and agree with each other's suggestions (turns 4–8). Here the level of both equality and mutuality is moderate to high.

(4) Collaborative
1. Rio: started collecting the things that fell out the bag …
2. Ram: po. the things that fell out [Yes …]
3. Rio: the bag …
4. Ram: fell out of the bag a?
5. Rio: fell out the bag … of the bag a?
6. Ram: of the bag
7. Rio: hajt of the bag pra. [OK, let's write of the bag, then]
8. Ram: out of the bag

Example 5 represents a dominant/dominant pattern where both learners insist on using their grammatical form (*didn't make it* vs. *couldn't make it*) in their text. However, none of the learners agreed with each other's suggestions. They failed to reach a consensus for the grammatical form to be used (turns 1, 2, 4), and, as a result, Din unilaterally decided to incorporate her own grammatical form (*didn't make it*). In this conversation, the level of equality may be moderate to high, but the level of mutuality is moderate to low.

(5) Dominant/dominant
1. Din: she ran to catch the bus but she didn't make it
2. Jus: but she couldn't
3. Din: she didn't make it
4. Jus: but the bus was already gone …
5. Din: she didn't make it

Example 6 below illustrates a dominant/passive pattern where one learner dominates the task while the other assumes a more passive role. Org, who was also the scribe, took a leading role and often asked his partner for help while completing the task (turns 1–3). Ven, instead of helping his partner, kept asking a clarification request (turns 2 and 4), which seems to indicate that he either did not understand his partner's request or felt insecure about providing an alternative. Hearing Org's request for help, a classmate of theirs provided the word they needed (turn 5). Org incorporated his classmate's choice but corrected its spelling so that it was appropriately written. Surprisingly, Ven insists on using its original form, which was incorrectly spelt (turn 7). Org unilaterally decided to use his modified version, disregarding his peer's proposal. Thus this LRE illustrates that despite Org's willingness to encourage his peer to participate, he (Ven) displayed a more passive role and did not offer any proposal or suggestion to resolve their linguistic issue. Perhaps due to his peer's low contribution or inability to help, Org took a more leading role and had to decide on almost all issues on his own, even though he asked for his peer's assistance. Here, the level of both equality and mutuality is moderate to low.

(6) Dominant/passive
1. Org: Zjarrfikesav … Zjarrviksav, qysh I thojn anglsht? [How do we say firefighters in English?]
2. Ven: Si? [What?]
3. O: Zjarrfikesav qysh i thojn? [How do we say firefighters?]
4. Ven: qysh? [What?]
5. Someone in the classroom … Firefires.
6. Org: aha, firefighters

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7. Ven: Firefiters
8. Org: Firefighters

Finally, example 7 displays an expert/novice pattern where learners are willing to help each other to complete their task. In this transcript, Sal assumes or is afforded the role of the expert and leads the task. Whereas, Led participates in the task by asking questions (turn 2), repeating his peer's utterance (turn 4 – clarification request) and doing what his peer suggests (turn 6). Sal tries to encourage his peer to participate by repeating his sentence and words (turns 3 and 4) so that his peer can learn something. In this conversation, the level of equality is moderate to low, but the level of mutuality is moderate to high.

(7) Expert/novice
1. Sal: Then she paid the guy for helping her
2. Led: P A I a po ? (Is it P A I?)
3. Sal: Paid, she paid the guy for helping her
4. Led: Pay a Paid? (Pay or Paid?)
5. Sal: Paid, P A I D
6. She, paid the guy…

Finally, the third type of analysis examined the quality of written texts produced by pairs using a four-scale global evaluation rubric (Gassner et al., 2019). This rubric was developed to measure the writing performance of Austrian Grade 8 EFL learners. In addition to being common in secondary education contexts, using a global rating rubric is in full compliance with current views on education where formative assessment is a widespread practice (Ball et al., 2015; Villarreal and Gil-Sarratea, 2020). The rubric consists of four areas of measurement, aimed to assess the quality of compositions in terms of task achievement, coherence and cohesion, grammar, and vocabulary (see Appendix B). In short, task achievement (TA) evaluated the completeness and elaboration of content points; coherence and cohesion (CC) addressed clarity, organization, and flow, while grammar (G) and vocabulary (V) examined the range and accuracy of grammatical structures and words, respectively. The written texts were assigned a band score of 1–7, 1 being the lowest, and 7 being the highest, based on the writing quality. In the rubric bands, 2, 4, and 6 are not defined, but raters could assign one of these bands when they judged that the quality of texts assessed was between any of the described bands (e.g. between 1 and 3).

For all types of data analyses, the researcher and a second rater independently coded part of the data to ensure interrater reliability. Initially, eight pair talks were independently coded by a second rater (a fellow English teacher with a master's degree in applied linguistics) and the first author of the study for LREs. The interrater reliability using the simple percent agreement method was 87% for the identification of LREs, 88% for the focus of LREs, and 91% for the outcome of LREs. Secondly, eight transcripts were independently coded for the patterns of interaction by the first author of the study and a second rater. For this analysis, the interrater reliability was 76% for the identification of patterns of interaction. Finally, both raters examined the written texts employing the global rubric. The interrater reliability using Cohen's Kappa procedure, a practice employed to check interrater reliability in L2 writing (Mackey and Gass, 2022), was .87 for task achievement, .81 for coherence and cohesion, .85 for grammar, and .83 for vocabulary. Any disagreements between the first author and the second rater coding all the data were discussed until fully resolved and all the cases were included in the data.

3.5. Statistical analysis

Shapiro-Wilk tests (Larson-Hall, 2016) confirmed that both the LRE and global scores data were not normally distributed ($p < 0.05$). Effect sizes, considered an index of practical significance and

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Table 3. Patterns of interaction

Pair types	N	%
Collaborative	16	53%
Expert-Novice	9	30%
Dominant-Passive	1	3%
Dominant-Dominant	4	13%
Total	**30**	**100%**

robustness of data (Field, 2017), were calculated using JASP (JASP Team, 2023) and interpreted using Plonsky and Oswald's (2014) discipline-specific benchmarks, based on Cohen's (1988) guidelines. Hence, for the Mann-Whitney U test, effect size values were considered small ($r = 0.25$), medium ($r = 0.40$), and large ($r = 0.60$). For One-Way ANOVA, the effect size values for post-hoc comparisons were small ($d = 0.4$), medium ($d = 0.7$), and large ($d = 1.0$).

To address research question one, a Chi-square test was conducted to explore the prevalence of different interaction patterns in the CW task, with an alpha level of .05. We also examined proficiency levels across pair types using one-way ANOVA tests. Raw scores and percentages for respective pair types were also reported.

For research question two, the Mann-Whitney U test was used to compare LRE frequencies and outcomes across pair types. This test was chosen due to its suitability for small samples and non-normally distributed data (Field, 2017). The dominant/passive pattern was excluded from the analysis, as only one pair exhibited this interaction pattern. This approach aligns with previous research (Azkarai and Kopinska, 2020; García Mayo and Imaz Agirre, 2019). Means and standard deviations were reported, where appropriate. Additionally, One-Way ANOVA tests were used to investigate variations in LRE nature and outcome within collaborative and expert/novice pairs, with η^2p reported for significant pairwise comparisons. Post-hoc Tukey tests identified significant pairwise differences.

Finally, for research question three, Mann-Whitney U tests were used to examine global score differences between collaborative and expert/novice pairs, with effect sizes (r) calculated. Means and standard deviations were reported for all pair types, excluding the dominant/passive pattern.

4. Results

4.1. Patterns of interaction

Table 3 presents the results for the patterns of interaction (RQ1).

Over 50% of the pairs exhibited a collaborative interactional pattern. In fact, collaborative pairs, combining collaborative and expert-novice interactions, were the most prevalent, comprising 83% of total pairs. Conversely, non-collaborative patterns, represented the least common pattern (16%), with the dominant-passive type accounting for only 3% of pairs (one pair). A Chi-square test revealed these differences were statistically significant for collaborative over expert/novice, dominant/passive, and dominant/dominant pairs ($X^2 = 17.200$, df = 3, $p < 0.001$).

To examine the relationship between proficiency levels and the nature of pair dynamics, we analyzed proficiency scores across different pair types using One-Way ANOVA. The results indicated no significant differences between pair types in terms of proficiency levels ($F = 2.246$, $p = .126$). Although collaborative and dominant/dominant pairs tended to have slightly higher proficiency scores (see Table 4), all learners remained within the intermediate proficiency range. These findings suggest that proficiency did not significantly influence the formation of interactional patterns, as adolescent EFL learners predominantly engaged in collaborative interactions, regardless of their proficiency level.

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Table 4. L2 proficiency across pair types

Pairs	N	Mean	SD
Collaborative	16	4.172	0.553
Expert/Novice	9	3.667	0.545
Dominant/Dominant	4	3.813	0.851

Table 5. Results of LREs across patterns of interaction

	C			E/N			D/D		
Type	No	M	SD	No	M	SD	No	M	SD
L-LRE	131	8.18	3.81	61	6.77	5.19	23	5.75	0.95
F-LRE	87	5.43	3.09	38	4.22	5.09	19	4.75	3.4
M-LRE	65	4.06	3.08	32	3.55	3.43	10	2.5	1.73
Total	**283**	**5.89**	**3.33**	**131**	**4.85**	**4.57**	**52**	**4.33**	**2.03**

Note: C = collaborative; E/N = expert/novice; D/D = dominant/dominant.

4.2. LREs: Nature, frequency, and resolution

Table 5 displays the descriptive statistics for the results of research question two which examined how pair interaction patterns influenced LRE frequency, nature, and outcome.

As shown in Table 5, collaborative pairs produced the highest number of LREs (283, 61%), followed by expert/novice pairs (131, 28%) and dominant/dominant pairs (52, 11%). Statistical tests revealed no significant differences in LRE frequency between collaborative and expert/novice pairs ($U = 96.5$, $p = 0.173$, $r = 0.34$).

A One-Way ANOVA test, however, indicated significant differences in the nature of LREs within collaborative pairs ($F = 6.6116$, $p < 0.004$, $\eta^2 p = 0.214$). Specifically, lexical LREs were produced significantly more frequently than mechanical ones ($p < 0.004$, $d = 1.26$), with no significant differences between lexical and form-focused LREs ($p < 0.070$, $d = 0.80$), or between formal and mechanical LREs ($p < 0.481$, $d = 0.41$). Conversely, within expert/novice pairs, no significant differences were found in the nature of LREs ($F = 1.820$, $p = 0.316$), although lexical LREs were most common. These findings suggest that regardless of interaction patterns, adolescent EFL learners predominantly focused on lexical aspects during CW tasks.

Table 6 shows the resolution of LREs across types. Collaborative pairs demonstrated the highest correct resolution rate (85%), followed by expert/novice pairs (75%), and dominant/dominant pairs (63%).

The difference between collaborative and expert/novice pairs was not statistically significant ($U = 105$, $p = 0.065$, $r = 0.45$). Grammatical and mechanical LREs were more successfully resolved than lexical LREs, except in the dominant-dominant group, where lexical LREs were the most successfully resolved. An ANOVA test revealed a significant difference in LRE outcomes for collaborative pairs ($F(2, 45) = 65.557$, $p < 0.001$, $\eta^2 p = 0.74$), with post-hoc Tukey's analysis showing a significantly higher proportion of correctly resolved LREs compared to incorrectly resolved ($p < 0.001$, $d = 3.40$) and unresolved LREs ($p < 0.001$, $d = 3.60$). A similar pattern was observed for expert/novice pairs ($F(2, 24) = 8.045$, $p < 0.002$, $\eta^2 p = 0.40$), with correctly resolved LREs outnumbering incorrectly resolved ($p < 0.007$, $d = 1.58$) and unresolved LREs ($p < 0.004$, $d = 1.68$). These results highlight the significant influence of pair dynamics on the resolution of LREs during CW tasks among adolescent EFL learners.

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Table 6. Outcome of LREs across patterns

		C		E/N		D/D		Pairs = 30	
Type	Outcome	N	%	N	%	N	%	N	%
L-LREs	Correct	108	82%	42	69%	16	70%	166	77%
	Incorrect	12	9%	8	13%	4	17%	24	11%
	Unresolved	11	8%	11	18%	3	13%	25	12%
Sub-total		131		61		23		215	
F-LREs	Correct	77	89%	32	84%	12	63%	121	84%
	Incorrect	8	9%	6	16%	7	37%	21	15%
	Unresolved	2	2%	0	0%	0	0%	2	1%
Sub-total		87		38		19		144	
M-LREs	Correct	56	86%	24	75%	5	50%	85	79%
	Incorrect	6	9%	5	16%	4	40%	15	14%
	Unresolved	3	5%	3	9%	1	10%	7	7%
Sub-total		65		32		10		107	
Outcome	Correct	241	85%	98	75%	33	63%	372	80%
	Incorrect	26	9%	19	15%	15	29%	60	13%
	Unresolved	16	6%	14	11%	4	8%	34	7%
Total LREs		283		131		52		466	

Note: C = collaborative; E/N = expert/novice; D/D = dominant/dominant.

Table 7. Results of global measures

	TA			CC			GRAM			VOC		
	C	E/N	D/D	C	E/N	D/D	C	E/N	D/D	C	E/N	D/D
No	16	9	4	16	9	4	16	9	4	16	9	4
M	5.5	3.4	1.75	4.56	2.55	1	5.43	3.55	1.5	5.37	4.77	2.25
SD	1.36	0.72	1.25	1.5	1.33	1.41	1.75	1.33	2.38	1.45	2.1	2.63

Note: TA = task achievement, CC = coherence and cohesion, GRAM = Grammar, VOC = vocabulary, C = collaborative, E/N = expert/novice, D/D = dominant/dominant.

4.3. The interplay between patterns of interaction and CW text quality (RQ3)

To address RQ3, we evaluated how pair interaction patterns influenced the quality of the texts produced. Table 7 presents the descriptive statistics for the global measures of text quality.

Collaborative pairs scored higher across all measures compared to both expert/novice and dominant/dominant pairs. Significant differences were found between collaborative and expert/novice pairs in task achievement ($U = 127.5$, $p = 0.001$, $r = 0.77$), coherence and cohesion ($U = 121$, $p = 0.005$, $r = 0.68$), grammar ($U = 117.5$, $p = 0.010$, $r = 0.63$), with large effect sizes. However, no significant difference was found in vocabulary ($U = 81.5$, $p = 0.293$, $r = 0.13$), where both patterns performed similarly. These findings underscore the superior quality of texts produced by collaborative pairs.

All in all, the study found that collaborative patterns were the most prevalent (83%). Analysis of LREs revealed a focus on lexical aspects, with collaborative pairs producing significantly more

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LREs compared to other pair types. Moreover, despite similar resolution rates between collaborative and expert/novice pairs, collaborative pairs demonstrated significantly higher quality in task achievement, coherence, cohesion, and grammar.

5. Discussion and conclusions

This study aimed to investigate how pair dynamics among Kosovar adolescent EFL learners (aged 13–14) influenced the quantity, nature, and resolution of LREs, as well as text quality. The analyses focused on pair discussions and collaborative texts.

5.1. Patterns of interaction (RQ1)

Our results indicated that collaborative patterns dominated (83%). The collaborative interactional pattern was statistically the most frequent one (53%), followed by the expert/novice type, and then, at a distance, by the dominant/dominant type. The limited occurrence of dominant-passive interactions suggests that more egalitarian dynamics prevail among adolescent EFL learners during collaborative tasks. These findings align with previous research on young and adult EFL learners (e.g. Basterrechea and Gallardo-del-Puerto, 2020, 2023; García Mayo and Imaz Agirre, 2019; Storch and Aldosari, 2013), confirming that collaborative patterns, characterized by high mutuality and equality, are the most common across age groups. This study extends these findings by focusing on adolescent learners, a group underrepresented in research on CW in general and on patterns of interaction in particular.

5.2. LREs: Frequency, nature, and resolution (RQ2)

We found that collaborative and expert/novice pairs generated more LREs than non-collaborative patterns, such as dominant/dominant and dominant/passive. This is consistent with prior research on young and adult EFL/ESL learners (e.g. Basterrechea and Gallardo-del-Puerto, 2023; Storch and Aldosari, 2013; Watanabe and Swain, 2007). Interestingly, learners across interaction patterns tended to focus more on lexical aspects rather than grammatical and mechanical issues, aligning with previous studies (e.g. Basterrechea and Gallardo-del-Puerto, 2023; García Mayo and Imaz Agirre, 2019; Storch and Aldosari, 2013) which indicates that linguistic focus is unaffected by pair dynamics. However, further research, including meaning-focused and language-focused (e.g. dictogloss) tasks is needed to determine whether learners vary their attention depending on the task type (e.g. Villarreal et al., 2021) or whether other reasons including maturational or proficiency-related factors might be at play (Muñoz, 2014; Talib and Cheung, 2017; Villarreal and Munarriz-Ibarrola, 2021).

Regarding LRE resolution, collaborative pairs had the highest correct resolution rate (85%), followed by expert/novice (75%) and dominant/dominant pairs (63%). However, no significant difference was observed between the collaborative and expert/novice pairs. This is consistent with earlier studies with young and adult EFL/ESL learners (e.g. Jang and Cheung, 2020; Storch and Aldosari, 2013; Watanabe and Swain, 2007) which reported that the collaborative and expert/novice pairs not only produced but also resolved more LREs than the non-collaborative pairs such as dominant/dominant or dominant/passive, or expert/passive (Watanabe and Swain, 2007). Our findings, on the other hand, slightly contradict those reported by Basterrechea and Gallardo-del-Puerto (Basterrechea and Gallardo-del-Puerto, 2020) who found that the expert/novice pairs, although marginally, produced and resolved correctly more LREs than the collaborative pairs. Our results seem to align more with studies of adult EFL/ESL learners (Storch and Aldosari, 2013; Watanabe and Swain, 2007) which reported that the collaborative pairs dominated over all other types of interactional patterns. Future research should explore these discrepancies, particularly in relation to L2 proficiency (intermediate vs beginner), learning context (mainstream EFL vs CLIL), and age (13–14 vs 10–12), to better understand their impact on LRE resolution outcomes.

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Finally, when analyzing LRE resolution by type, we found that both the collaborative and expert/novice pairs were more successful at resolving grammatical LREs, followed by lexical and mechanical LREs. This contrasts with Basterrechea and Gallardo-del-Puerto (2023) study, where both pair types resolved lexical LREs more successfully than grammatical LREs. The difference may be due to the learners' L2 proficiency more than the nature of pair dynamics (intermediate vs beginner L2 level). As L2 proficiency increases, so does their ability to discuss and correctly resolve grammatical issues (Basterrechea and Leeser, 2019; Kim and McDonough, 2008). The results for dominant/dominant pairs might reflect a collaboration difficulty, instead. Although speculative, dominant pairs may achieve similar correct resolution rates as other pairs in lexical discussions, as lexical issues tend to have more straightforward answers, requiring less debate or personal interpretation. However, grammatical and mechanical discussions might pose greater challenges for dominant pairs, who experience additional difficulties when coping with disagreements and when trying to solve conflicts due to their assertive stance. This difficulty, already noted in adolescents working collaboratively (Villarreal and Munarriz-Ibarrola, 2021), may be further intensified by the dominant dynamics within the pair. In these cases, conflicts are harder to resolve, and the student with more determination – not necessarily greater linguistic knowledge – often decides on the final linguistic form to move the task forward.

5.3. Influence of pair dynamics on text quality (RQ3)

Our findings show that collaborative and expert/novice pairs produced higher quality texts than dominant/dominant and dominant/passive pairs. Remarkably, collaborative pairs outperformed expert/novice pairs significantly in task achievement, coherence and cohesion, and grammar. This aligns with studies involving both young and adult ESL learners across face-to-face and computer-mediated contexts (e.g. Abrams, 2019; Jang and Cheung, 2020; Li and Zhu, 2017; Watanabe, 2019; Watanabe and Swain, 2007), which consistently highlighted that collaborative relationships lead to better text quality. Our findings indicate a strong link between collaborative behaviours and enhanced written outcomes, particularly in task achievement, coherence and cohesion, and grammar. This underscores the need for a more comprehensive analysis of student discussions. While no significant differences were found in the nature, frequency, and resolution rate of LREs between the two collaborative interaction patterns, robust statistical differences in text quality were observed. This emphasizes the importance of expanding research inquiries to explore additional aspects of pair work discussions (Lázaro-Ibarrola, 2023).

In conclusion, our study highlights the significant impact of pair dynamics on LREs and text quality among adolescent EFL learners. Collaborative pairs consistently outperformed other pair types in both LRE production and resolution, as well as in writing quality. The study's findings contribute to the growing body of research on pair dynamics in collaborative writing and have important implications for language teaching.

From a theoretical perspective, our findings along with those of previous research (Bllaca and Dalton-Puffer, 2024; Villarreal and Gil-Sarratea, 2020), support and extend Vygotsky's (1978) sociocultural theory, demonstrating that even learners of similar proficiency levels can assist one another to complete tasks beyond their individual capacity. More specifically, our study showed that adolescent EFL learners writing in pairs were able to co-construct knowledge and resolve linguistic issues together, despite having similar L2 proficiency. This was evidenced by the high number of LREs produced and correctly resolved by pairs displaying collaborative or expert/novice patterns of interaction. Importantly, these pairs also produced texts of higher quality, suggesting that peer interaction of this nature can lead to linguistic gains. Furthermore, the greater number of collaborative and expert/novice interaction patterns observed in our study suggests that CW tasks offer meaningful opportunities for peer interaction among adolescents, a group known to place high value on social connections and working with peers (Ellis, 2008; Strahan et al., 2023). In contrast to young learners,

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who may require more structured support, and adult learners, who tend to be more autonomous, adolescents are navigating a stage marked by emerging independence alongside heightened sensitivity to peer perception. This is often accompanied by feelings of insecurity or fear of judgment, especially in public speaking contexts (Bishop and Harrison, 2021; Erlam et al., 2021). In this light, the private, peer-focused nature of CW tasks appears particularly well suited to this age group, as reflected in the high number of LREs generated and successfully resolved during pair work. These findings suggest that CW can create a lower-anxiety environment that fosters both social engagement and language development in adolescent learners.

Additionally, this study offers several pedagogical recommendations for L2 language teachers. First, when assigning adolescent learners to write in pairs language teachers should recognize that not all pair members work in a collaborative manner. Teachers can then support collaborative work by monitoring pair dynamics. If necessary, teachers may intervene by adjusting pairings or providing additional guidance on task completion to foster collaboration. Second, teachers can teach students effective strategies for collaborative writing, such as modelling successful pair interaction and demonstrating how to approach tasks together (e.g. Chen and Ren, 2021; Kim and McDonough, 2011). Finally, allowing students to self-select their partners or assigning them based on proficiency could minimize non-collaborative behaviours, although self-selected partners might engage more often in off-task behaviour than teacher assigned or proficiency matched pairs (García Mayo and Imaz Agirre, 2019; Mozaffari, 2017).

While this study makes a valuable contribution, it also has several limitations that warrant attention in future research. Firstly, the study's small sample size of Kosovar adolescent EFL learners may restrict generalizability. Future research should involve larger, cross-country samples to explore contextual effects further (see, for instance, Azkarai and Oliver, 2016; Sato and Storch, 2020; Storch and Sato, 2020; Vold, 2025). Secondly, the imbalance in participant numbers across pair types may affect the comparability of interaction patterns, potentially influencing the robustness of the analysis. However, this imbalance is ecologically valid, reflecting the challenges teachers face in real classroom settings, where such disparities in pair types can occur. We included all participants to maintain the authenticity of the data. Future research could explore ways to address this imbalance for more reliable comparisons. Thirdly, our study examined pair dynamics of adolescent learners performing only one single task which limits insights into long-term effects and changes in pair dynamics and text quality over time and across different tasks. Hence, future studies could benefit by exploring the pair dynamics of learners completing a number of CW tasks to establish whether interactional patterns are influenced by task type (Storch, 2002a, 2002b). Finally, as one anonymous reviewer rightly pointed out, we did not use an interview to get deeper insights into why some learners exhibited non-collaborative behaviours during their task completion. Therefore, future studies could contribute to our understanding by taking a broader perspective of analyzing pair interaction and the potential factors that lead to specific pair dynamics when completing CW tasks.

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Appendix A. LREs, L2 proficiency, patterns of interaction, and writing scores

L2 Proficiency				LREs					Pattern	Writing Scores			
Pair	S1	S2	AS	Lexis	Form	Mech	LREs	√	Pattern	TA	CC	GRAM	Voc
1	4.50	4.50	4.50	8	5	4	17	94%	C	7	6	7	6
2	4.50	4.00	4.25	11	8	7	26	77%	C	6	3	7	5
3	5.00	5.00	5.00	14	8	7	29	93%	C	5	6	6	5
4	3.50	3.50	3.50	5	0	1	6	33%	E/N	3	2	3	3
5	5.00	4.50	4.75	10	2	2	14	100%	C	5	5	5	7
6	4.00	4.00	4.00	5	4	4	13	100%	C	7	7	6	7
7	4.00	3.50	3.75	7	7	7	21	90%	C	3	4	5	7
8	4.00	3.00	3.50	7	6	1	14	57%	D/D	2	1	1	1
9	3.00	3.00	3.00	5	2	4	11	64%	D/D	2	1	1	2
10	3.00	3.00	3.00	7	0	1	8	75%	E/N	3	1	3	2
11	4.00	4.50	4.25	4	2	1	7	100%	C	5	3	4	6
12	4.50	4.00	4.25	8	5	11	24	75%	C	5	5	7	**5**
13	3.00	3.00	3.00	16	13	1	30	53%	C	3	2	1	3
14	3.00	3.00	3.00	3	2	4	9	100%	C	4	3	3	5
15	4.50	4.00	4.25	3	2	6	11	73%	E/N	3	3	3	6
16	4.00	4.00	4.00	5	4	0	9	44%	C	5	4	4	6
17	4.00	4.00	4.00	6	3	1	10	70%	C	7	6	7	4
18	4.00	3.50	3.75	0	0	1	1	100%	D/P	5	4	4	4
19	4.50	4.00	4.25	2	5	10	17	82%	E/N	4	3	6	7
20	5.00	4.50	4.75	5	6	3	14	100%	C	5	6	6	5
21	5.00	5.00	5.00	6	9	4	19	68%	D/D	3	3	5	6
22	4.00	3.50	3.75	5	2	1	8	63%	D/D	1	1	1	1
23	4.50	4.00	4.25	19	13	7	39	85%	E/N	5	4	4	7
24	4.00	4.00	4.00	3	1	4	8	63%	E/N	4	5	5	7
25	3.00	3.00	3.00	6	0	1	7	57%	E/N	3	2	2	2
26	4.00	4.00	4.00	6	12	0	18	83%	E/N	3	2	4	5
27	3.00	3.00	3.00	10	5	2	17	65%	E/N	3	1	2	4
28	4.50	4.50	4.50	13	4	5	22	100%	C	7	6	7	**7**
29	4.50	4.50	4.50	10	10	1	21	95%	C	6	4	5	2
30	4.50	4.50	4.50	6	4	7	17	88%	C	6	3	7	6

Note: S1 = Student 1; S2 = Student 2; AS = average score; √ = proportion (%) of correctly resolved LREs.

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Appendix B. Holistic rubric

Holistic rubric adapted from Gassner et al. (2019)

	Task Achievement	Coherence and Cohesion	Grammar	Vocabulary
7	Complete TA ■ all four content points mentioned and one or more elaborated ■ all six content points mentioned and three or more elaborated	■ clear and coherent text ■ cohesive devices used successfully to produce a fairly cohesive text. ■ cohesion on both sentence and paragraph level	■ good range of structures ■ relatively high degree of control, with few inaccuracies which do not impair communication	■ good range of vocabulary ■ generally accurate vocabulary ■ formulations sometimes varied to avoid repetition
6				
5	Good TA ■ all four content points mentioned and one or more weakly elaborated ■ five content points mentioned and two or three elaborated OR ■ all six content points mentioned and one or two elaborated	■ mostly clear and coherent text ■ good sentence level cohesion as a linear sequence on a simple level ■ some paragraph level coherence and cohesion	■ sufficient range of structures ■ occasional inaccuracies which do not impair communication	■ sufficient range of vocabulary ■ occasionally inaccurate vocabulary ■ major errors possible when expressing more complex ideas
4				
3	Sufficient TA ■ three content points mentioned and no elaboration OR ■ two content points mentioned and one elaborated OR ■ all four content points mentioned and one or two elaborated OR ■ six content points mentioned and no elaboration	■ text often lacks clarity and/or coherence ■ some simple sentence level cohesion using simple connectors like 'and', 'but', and 'because' ■ frequent lack of coherence and cohesion on paragraph level	■ limited range of simple structures ■ some inaccuracies which can impair communication	■ limited range of vocabulary ■ some inaccurate vocabulary, generally without causing break down of communication ■ tendencies to use phrases from the prompt
2				
1	Some TA ■ two content points mentioned and no elaboration ■ three content points mentioned and no elaboration	■ text not coherent ■ basic linear connectors ('and', 'then') on word or word group level	■ extremely limited range of simple structures ■ limited control, with frequent inaccuracies sometimes causing break down of communication	■ extremely limited range of vocabulary ■ mostly inaccurate vocabulary, causing frequent break down of communication ■ several chunks lifted from the prompt
1				

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