

UNIVERSITY OF TARTU
DEPARTMENT OF ENGLISH STUDIES

**DESIGNING AND TESTING A DATA-DRIVEN COLLABORATIVE EFL
ACTIVITY FOR THE 8TH GRADE**

MA Thesis

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ABSTRACT

This MA thesis aims to explore how a computer-supported collaborative writing task can influence 8th-grade students' attitudes toward collaboration and how these attitudes are reflected in their behaviour during the task. The study was set in an Estonian EFL classroom and focused on supporting meaningful collaboration through a structured task design and the use of the CoTrack learning analytics platform.

The first chapter provides a literature review of collaborative learning theory, the foundations of effective group work, and the role of technology in supporting collaboration in EFL settings.

The second chapter outlines the research methodology, based on a single-cycle action research design. It presents the structure of the collaborative writing task, describes the use of CoTrack to collect participation data, and explains the combination of research tools used to assess student engagement. The chapter goes on to present and analyse the results, comparing the students' reported attitudes with their actual classroom behaviour. It offers insights into which factors supported or hindered meaningful collaboration, and how task design and digital tools impacted the quality of engagement. Based on these findings, the chapter concludes with actionable recommendations grounded in both classroom evidence and theory. This MA thesis aims to explore how a computer-supported collaborative writing task can influence 8th-grade students

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LIST OF ABBREVIATIONS

ACARS – Adaptable Collaboration Analysis Rating Scheme (Rummel et al 2011)

EFL – English as a Foreign Language

CSCCL – Computer-Supported Collaborative Learning

CSCW – Computer-Supported Collaborative Writing

ICAP – Interactive, Constructive, Active, Passive (framework for levels of engagement)

LA – Learning Analytics

LRE – Language-Related Episode

INTRODUCTION

Collaboration is widely recognized as an essential 21st-century skill (OECD, 2022), pivotal for ongoing learning in a fast-changing world. The World Economic Forum (2023) points out that collaboration is crucial for adapting to future workplace demands that prioritise interconnectedness and team-based projects. In today's job market, employers place a high value on individuals who demonstrate effective collaboration skills. In Estonia, the national curriculum also highlights collaboration as a key general competence, essential for students' personal development and participation in society (Estonian Government 2011). The importance of developing students' collaborative skills is also emphasized in the *Estonian Education Strategy 2021–2035*, which promotes a learner-centered approach focused on future skills such as collaboration, self-regulation, and critical thinking (Estonian Government 2021). Consequently, the development of collaboration skills has become one of the key educational objectives for the 21st century.

In the context of English as a Foreign Language (EFL), collaborative learning has proven to be particularly beneficial. Collaborative tasks naturally increase speaking time and provide opportunities for authentic communication as students work together to achieve shared goals (Long & Porter 1985). Through negotiation of meaning, students ensure mutual understanding, a vital component of language acquisition (Pica1994). Arnold (1999) found that group work can reduce language anxiety, creating a more comfortable environment for language learning and practice. Dobao (2012) showed that collaborative tasks promote both fluency and accuracy through meaningful language use and peer feedback. Additionally, Lai (2011) noted that such tasks require critical thinking and problem-solving, and Rubin et al. (2009) found that collaboration enhances communication and interpersonal skills.

Although Estonia performs well in international assessments, collaborative learning practices remain underexplored and inconsistently applied in everyday classrooms. A recent study found that while Estonian school leaders value collaboration and quality instruction, there is limited emphasis on systematic teacher development or collaborative pedagogical practices (Krull, Holm and Mikser 2021). This highlights the need for classroom-based research that supports teachers in designing and evaluating structured collaborative activities. This study addresses this need by investigating how a carefully designed collaborative writing task, supported by digital tools, can encourage student engagement and strengthen collaboration skills in the EFL classroom.

In this thesis, collaborative learning is interpreted in line with Roschelle and Teasley's (1995: 70) definition as a "coordinated, synchronous activity that is the result of a continued attempt to construct and maintain a shared conception of a problem." A specific form of this, collaborative writing, refers to learners co-authoring a shared text through joint planning, drafting, and revising (Storch 2013). These processes are at the heart of the present study. The aim of this thesis is to investigate how a structured collaborative writing task, that is supported by digital tools, can affect EFL students' attitudes toward collaboration and how these attitudes are reflected in their behaviour during group work.

To support the implementation and monitoring of the collaborative writing task, this study employed CoTrack (2025), a collaborative learning analytics tool developed based on research by Reet Kasepalu (2023). CoTrack is designed to help teachers facilitate student collaboration by providing real-time insights into participation and group dynamics through features such as mirroring dashboards that visualize speaking time, turn-taking, and text contributions. Unlike general-purpose tools such as Google Docs, CoTrack is grounded in pedagogical principles that emphasize mutual engagement, balanced

participation, and co-regulation. This made it a suitable choice for a study aiming to promote meaningful collaboration rather than simple task division. While the task was structured and included support strategies such as role distribution and reflection prompts, it differs from cooperative learning, which typically assigns fixed roles and divides the work among group members (Slavin 1987; Panitz 1999). Instead, this study emphasises joint authorship and shared responsibility throughout the writing process, aligning more closely with a collaborative model focused on co-construction of meaning.

Although CoTrack provides valuable data on students' participation during the collaborative learning activity, it is also important to consider students' subjective perceptions of collaborative learning. Research has shown that learners' motivation and attitude has a significant impact on the outcomes of collaborative learning (Dörnyei 1994; Storch 2002). By combining students' reflections with classroom observations and data from CoTrack, this study aims to explore how students' perceptions align with their actual participation patterns and how these insights can inform the design of more effective collaborative writing tasks.

This master's thesis, conducted as an action research study, investigates the implementation of a computer-supported collaborative writing (CSCW) activity in an 8th-grade Estonian EFL classroom. The activity is grounded in collaborative learning theory, which emphasizes mutual engagement, shared responsibility, and the co-construction of knowledge (Dillenbourg 1999; Storch 2013). The integration of technology draws on principles from computer-supported collaborative learning (CSCL), focusing on how digital tools can support and mediate collaboration in the classroom (Stahl, Koschmann, and Suthers 2006). To examine how students' attitudes toward collaboration relate to their actual participation, data were collected through pre- and post-task questionnaires and classroom observations. In addition, the learning analytics

tool CoTrack was introduced to capture students' collaboration patterns during the task and explore the potential value of such tools in supporting future pedagogical reflection.

The study was guided by the following research questions:

1. What are students' attitudes toward collaborative learning before and after participating in a computer-supported collaborative writing activity?
2. What observable patterns of participation emerge during the collaborative writing task?
3. How do these participation patterns relate to students' self-reported attitudes toward collaboration?

The thesis is structured as follows: Chapter 1 presents the theoretical framework for collaborative learning and computer-supported collaborative writing in EFL. Chapter 2 outlines the research context, task design, and action research methodology and presents the results and analysis, drawing on student questionnaires, classroom observations, and learning analytics data. Chapter two likewise presents the

1. THEORETICAL FRAMEWORK: COMPUTER-SUPPORTED COLLABORATIVE WRITING IN EFL

This chapter outlines the theoretical framework that informs the design and implementation of the collaborative writing task explored in this study. Section 1.1 introduces the core characteristics of collaborative learning, grounded in social constructivist and self-determination theories, with a focus on the cognitive, emotional, and motivational aspects of student engagement. Section 1.2 presents the key principles for effective collaboration, including group structure, interpersonal dynamics, and task design, drawing on established educational models. Section 1.3 explores the field of computer-supported collaborative learning (CSCL), highlighting how technology can enhance collaboration when combined with appropriate scaffolding and teacher support. Finally, Section 1.4 focuses on computer-supported collaborative writing (CSCW) in EFL settings, examining how digital tools and shared writing tasks can support language learning, peer interaction, and engagement. Together, these sections provide a foundation for understanding how collaborative writing tasks can be designed to promote meaningful participation and improved outcomes in EFL classrooms.

1.1 Characteristics of Collaborative Learning

Collaborative learning is rooted in social constructivism, which suggests that knowledge is actively built through interaction with others (Vygotsky 1978). According to Vygotsky, learning occurs most effectively in social settings, especially through dialogue and shared problem-solving with peers. This approach sees learning not as the passive transfer of information from teacher to student, but as a dynamic process of meaning-making through joint activity. As a result, collaborative learning supports both

cognitive development and social growth, allowing students to deepen their understanding through active engagement with others.

While this perspective highlights the social and cognitive benefits of collaboration, recent research has also drawn attention to the emotional and motivational dimensions of engagement. Efklides (2011) and Pekrun and Stephens (2012) argue that engagement in learning involves more than cognitive effort, as it is also shaped by learners' emotional experiences and motivational states. In collaborative settings, these affective factors become especially important, as students must not only focus on the task but also navigate interpersonal relationships and group dynamics. When students feel supported, competent, and connected, they are more likely to engage actively and contribute meaningfully. In contrast, feelings of frustration, anxiety, or exclusion can hinder participation, even when students are cognitively capable of completing the task.

Extending this view, Lobczowski (2020) shows that students' emotional states during collaboration are closely linked to group dynamics, such as whether they feel heard or valued by peers. If students experience social discomfort or disconnection, they may disengage, limiting the effectiveness of collaborative work. Similarly, Rogat and Adams-Wiggins (2014) emphasize the influence of past group experiences, noting that students who have previously encountered conflict or imbalance may be less motivated to participate in future group tasks. These findings reinforce the idea that emotional safety and a sense of belonging are essential for meaningful engagement in collaborative learning.

This emphasis on social-emotional well-being aligns closely with Self-Determination Theory, as described by Ryan and Deci (2000), which highlights the importance of fulfilling three basic psychological needs: autonomy, competence, and relatedness. Relatedness is especially relevant in collaborative settings, as it reflects the

human need to feel connected to and accepted by others (Niemic and Ryan 2009). When students are given meaningful roles, opportunities to support one another, and a sense of shared purpose, they are more likely to engage fully and persist through challenges. As Ryan and Deci (2018) explain, emotionally supportive learning environments promote resilience and intrinsic motivation, both of which are vital for successful collaboration.

In line with this process-oriented view, collaboration is understood as more than the division of tasks. It involves sustained dialogue, mutual responsiveness, and shared ownership of learning (Roschelle and Teasley 1995; Storch 2013). Collaborative learning environments provide space for students to articulate their thinking, respond to feedback, and co-construct knowledge through negotiation. Research by Laal and Ghodsi (2012) highlights the role of such environments in supporting the development of essential 21st-century skills, including communication, adaptability, and problem-solving, which are increasingly necessary in both academic and real-world contexts.

Building on these foundations, the ACARS framework (Rummel et al. 2011) provides a more detailed model of what effective collaboration looks like during group tasks. It outlines seven observable elements: sustaining mutual understanding, managing dialogue, bringing together what each student knows, reaching consensus, task management, maintaining a cooperative attitude, and individual accountability. These elements reflect both cognitive and interpersonal aspects of collaboration and offer a practical basis for designing and evaluating group work. For example, strategies such as assigning roles, using shared digital workspaces, and establishing group norms can help support these elements in classroom practice (Kasepalu 2023).

In summary, collaborative learning is a multifaceted process that draws on social, cognitive, emotional, and motivational dimensions. Grounded in social constructivist theory and supported by research on engagement and self-determination, it offers a

powerful framework for promoting both academic development and interpersonal growth. Understanding these underlying principles is essential for designing collaborative tasks that foster meaningful participation and support learners in developing the skills and dispositions needed for lifelong learning.

1.2 Foundations of Effective Collaborative Learning

Collaborative learning is supported by a range of cognitive, social, and pedagogical principles that shape how students interact and engage with learning tasks. This section outlines key foundations of effective collaboration, with a focus on group structure, interpersonal processes, and task design.

According to Johnson and Johnson (2002), effective collaboration requires more than simply placing students into groups. It demands clear structure and intentional design, including behaviors such as peer support, active discussion, and shared resources. Their model identifies five essential elements of successful collaboration: positive interdependence, individual accountability, promotive interaction, social skills, and group processing.

Positive interdependence means that students understand their success is tied to the success of others in the group. When students feel responsible for a shared outcome, they are more motivated to contribute (Johnson and Johnson 1999). Nam and Zellner (2010) found that encouraging this shared responsibility improves student outcomes more effectively than group processing alone. Individual accountability ensures that each student is responsible for their own contribution. Johnson and Johnson (2002) observed that participation tends to decrease when individual effort is not explicitly required. Similarly, Pérez et al. (2021) note that a sense of personal responsibility helps students focus on their learning instead of comparing themselves to others.

Promotive interaction involves students actively supporting one another by explaining ideas, asking questions, and solving problems together (Johnson and Johnson 2002). These peer interactions deepen understanding and foster trust. Peterson (2023) also found that regular, direct communication strengthens group cohesion and helps students feel a sense of belonging. However, in asynchronous learning environments, delayed responses can weaken this connection.

Emotional and motivational engagement also play a crucial role. Efklides (2011) and Pekrun and Stephens (2012) emphasize that engagement is shaped not only by cognitive effort but also by emotional experiences and motivational states. In collaborative settings, these affective factors are especially important, as students must manage both the task and their relationships within the group. When students feel confident, included, and in control, they are more likely to engage. Conversely, feelings of frustration, anxiety, or exclusion can reduce participation even for those students who are otherwise capable.

Lobczowski (2020) highlights how emotional states during collaboration are closely tied to group dynamics, such as whether students feel heard and valued by their peers. Students who experience social discomfort or disconnection may disengage, limiting the effectiveness of group work. Similarly, Rogat and Adams-Wiggins (2014) note that negative past group experiences—such as unresolved conflict or imbalance—can reduce motivation to engage in future tasks. These findings emphasize the importance of emotional safety and belonging in collaborative learning.

A further area of discussion concerns the development of social skills. While Johnson and Johnson (2002) argue that targeted individual feedback is most effective, Notari et al. (2013) found that the group's ability to regulate social dynamics has a stronger influence on collaboration success than individual skill levels alone. This suggests that both individual and group-level social competencies should be supported. Teachers can

help by rotating group roles, modeling effective communication, and facilitating peer feedback (Gillies 2007).

Preparing students for collaboration is another important factor. Esmonde (2009) recommends providing explicit training in collaboration before group tasks begin. Research confirms that when students receive preparation, feedback, and time to reflect, participation and outcomes improve (Buchs et al. 2016; Gillies and Ashman 1997; Webb and Farivar 1994). Engagement is not only a result of task design, but it is also a predictor of how successful collaboration will be.

It is also useful to consider how groups develop over time. Tuckman's (1965) model outlines the stages of forming, storming, norming, and performing. Teachers can align their support with these stages; for example, by helping students set group rules during the norming phase and guiding co-writing during the performing phase to reduce conflict and maintain progress.

In addition to clear task structure, collaboration depends on interpersonal and thinking skills such as listening, turn-taking, managing emotions, resolving conflicts, and making shared decisions (Gillies 2007; Peterson 2023). These skills can be developed through collaboration agreements, role assignments, and structured reflection activities.

Dillenbourg (1999) defines collaboration as a process in which students construct knowledge together, rather than simply dividing the work. Mattessich and Monsey (2018) similarly argue that collaboration is most effective when roles are clear, goals are shared, and communication is flexible. These perspectives suggest that successful collaboration depends not only on task completion but also on managing group processes effectively.

The ICAP framework (Chi and Wylie 2014) categorizes student engagement into four levels: passive, active, constructive, and interactive. These levels differ in the depth of cognitive processing they support. Passive engagement involves simply receiving

information, while active engagement includes basic actions such as copying or underlining. Although these forms show participation, they often lead to shallow learning. In contrast, constructive engagement involves generating new ideas or reorganizing existing knowledge. This occurs when students explain their thinking, ask questions, or integrate feedback, which helps deepen their understanding. In collaborative tasks, constructive engagement supports individual meaning-making and revision of one's ideas.

Interactive engagement represents the most advanced form, as students jointly build knowledge through reciprocal dialogue and shared decision-making. It requires learners to respond to each other, negotiate meaning, and coordinate their efforts toward a common goal. This is particularly relevant in group writing tasks, where co-construction and mutual support lead to more thoughtful and balanced outcomes. The level of engagement depends largely on task design. Open-ended activities that include peer interaction, choice, and time for reflection are more likely to foster constructive or interactive engagement. The ICAP framework (Chi and Wylie 2014) is, therefore, useful for evaluating the quality of collaboration and ensuring that tasks support deeper, more meaningful participation.

In addition, engagement is shaped not just by thinking, but also by students' motivation and emotional experience. Their perceptions of the task and the group affect how deeply they participate. When students feel supported, interested, and confident, they are more likely to contribute meaningfully. When they feel anxious, frustrated, or excluded, they may withdraw. These affective experiences significantly influence collaboration outcomes (Lobczowski 2020; Rogat and Adams-Wiggins 2014). As they are shaped by both past experiences and present group climate, ongoing teacher support is essential. Studies show that open-ended, well-scaffolded tasks lead to more productive interaction, especially when teachers help divide roles, manage time, and resolve group tensions (Esmonde 2009; Chizhik 2001; Manlove et al. 2006; Lobczowski et al. 2021a).

Lastly it is crucial to consider that students may not automatically possess the skills to collaborate productively. Esmonde (2009), therefore, recommends offering collaborative learning training before introducing group tasks. Studies have shown that collaboration training can improve both participation and task outcomes (Buchs et al. 2016; Gillies and Ashman 1997; Webb and Farivar 1994). Engagement is, therefore, not only a result of task design but also a predictor of collaborative success. Consequently, supporting engagement through thoughtful design, training, and facilitation is essential to achieving meaningful collaborative outcomes.

In conclusion, effective collaborative learning relies on a balance of structural clarity, interpersonal awareness, and emotional support. When tasks are thoughtfully designed, students are well-prepared, and teachers provide ongoing guidance, students are more likely to engage fully and work together in meaningful and productive ways.

1.3 Computer–Supported Collaborative Learning

Computer-Supported Collaborative Learning (CSCL) emerged in the 1990s as a response to the increasing isolation of students due to technological advancements (Stahl et al. 2014). While early computer-based instruction primarily focused on individual learning, studies showed that collaborative use of computers that enables students to interact and reflect together often results in better learning outcomes than individual learning (Dillenbourg and Fischer 2007). CSCL, therefore, explores how collaboration can enhance learning and how technology can facilitate this process (Stahl et al. 2014).

Effective collaboration in CSCL depends on fostering engaged participation through cognitive and emotional involvement. Research has highlighted the importance of knowledge-generating interactions in productive collaboration, including explaining concepts, engaging in argumentation, negotiating meaning, resolving conflicts, and

regulating learning mutually (Dillenbourg and Fischer 2007). However, these interactions do not emerge naturally and, therefore, structured support is necessary. One way of facilitating CSCL is through collaboration scripts that guide students by assigning roles, structuring tasks and providing speaking prompts (Dillenbourg and Fischer 2007). Studies have shown that using these scripts improves knowledge acquisition and the quality of collaboration (Weinberger et al. 2005). However, Strauß et al. (2024) found that reflection scaffolds, which encourage students to reflect on their collaborative processes, were more effective in improving their understanding of collaboration. This suggests that in CSCL ongoing scaffolding and reflective opportunities are key to optimizing collaboration.

Moreover, learning analytics (LA) tools like CoTrack play an important role in enhancing engagement by tracking participation and offering real-time feedback to both students and instructors. These tools help identify engagement levels, group dynamics and task progress (Martinez-Maldonado et al. 2022). The personalized feedback provided by AI-driven learning analytics helps both instructors and learners stay connected and adjust their actions to ensure continuous engagement and collaboration (Ouyang and Zhang 2024).

CSCL has several advantages over traditional collaborative learning, particularly in fostering independence and initiative among students by helping them visualize their collaborative processes more clearly (Zeng and Takatsuka 2009). Studies indicate that CSCL can increase communication skills (Ozyurt and Ozyurt 2016), improve problem-solving abilities (Lazakidou and Retalis 2010) and enhance overall engagement (Shaw 2013). Moreover, integrating technology into collaborative learning has been shown to reduce anxiety, boost motivation and enhance the quality of interactions (Golonka et al. 2014; Kurt and Bensen 2017). This flexibility allows for real-time feedback and participation tracking which further enhances engagement by offering students immediate

insights into their contributions (Zeng and Takatsuka 2009; Martinez-Maldonado et al. 2022).

Engagement in computer-supported collaborative learning (CSCL), as in traditional collaborative learning, is influenced by both cognitive and emotional factors. However, CSCL also involves additional demands that stem from the use of technology. These include managing online communication, interpreting limited social cues, and navigating digital platforms, all of which can affect students' emotional and cognitive engagement. As Efklides (2011) and Pekrun and Stephens (2012) explain, emotional and motivational engagement plays a central role in students' active participation in collaborative tasks. Students must not only think critically but also regulate their emotions, sustain motivation, and manage social interactions within the group. When they feel confident and supported, they are more likely to engage deeply with the task. In contrast, negative emotions such as anxiety or frustration can hinder engagement and reduce the quality of participation (Lobczowski 2020; Rogat and Adams-Wiggins 2014). These findings point to the need to support students' emotional engagement alongside their cognitive development, particularly in digital environments where new forms of stress or disengagement may emerge.

However, effective collaboration does not solely depend on the tools themselves but on how they are integrated into the classroom context (Dillenbourg and Fischer 2007; Tchounikine et al. 2010). Technology can introduce new challenges such as limited mobility, unfamiliar interfaces or communication bottlenecks that can hinder spontaneous interaction and reduce task authenticity (Tchounikine et al. 2010; Ouyang and Zhang 2024). Aligning technological setups with pedagogical goals is essential to ensure that the tools enhance rather than restrict collaboration.

In summary, CSCL presents a unique opportunity to enhance student engagement by leveraging structured tasks, collaborative tools and learning analytics to provide real-time personalized feedback. These elements, when carefully designed and implemented, can improve both the quality of collaboration and the depth of student learning. However, challenges such as unequal participation and social loafing still exist, underscoring the need for thoughtful task design, group composition and continuous instructor support to maximize the benefits of technology-enhanced collaboration.

1.4 Computer-supported collaborative writing in EFL

Research has shown that Computer-Supported Collaborative Learning (CSCL) enhances various foreign language skills, particularly in writing (Su and Zou 2020). One area where CSCL has gained attention is Computer-Supported Collaborative Writing (CSCW), which fosters active engagement, peer interaction, and co-construction of knowledge in language learning contexts (Storch 2013). This process not only promotes collaboration but also helps students reflect on linguistic choices and improve grammatical accuracy (Swain 2006). Additionally, integrating technology into collaborative language learning can reduce learner anxiety, increase motivation, and improve interaction quality (Golonka et al. 2014; Kurt & Bensen 2017).

However, for CSCL to be successful, both task design and students' technological competence play crucial roles (Su and Zou 2020). Teachers should design tasks that activate prior knowledge (Ting et al. 2017) and facilitate structured learning experiences (Chu et al. 2019). Despite these efforts, challenges such as unequal participation and social loafing can hinder engagement, much like in traditional collaborative settings (Tchounikine et al. 2010; Kennedy & Miceli 2013). Therefore, it is vital for teachers to encourage equal

participation, provide corrective feedback, and monitor group progress (Zeng & Takatsuka 2009).

Collaborative writing requires all co-authors to contribute to each stage of writing, including planning and revision (Storch 2013). Unlike cooperative writing, where tasks are divided, CW emphasizes shared responsibility (Storch 2013). In Computer-Supported Collaborative Writing (CSCW), this process is facilitated through online platforms, allowing real-time negotiation of meaning and feedback within a shared digital space (Swain 2006). Studies show that this type of interaction promotes deeper language learning, as students engage in the negotiation of meaning and improve their writing accuracy (Swain and Lapkin 1998).

CSCW also supports a process-oriented approach to writing, emphasizing stages such as planning, drafting, and revision rather than focusing solely on the final product (Wang 2015). By allowing continuous interaction and editing, digital tools enable real-time feedback and co-construction of text. This peer collaboration in a shared writing space leads to greater awareness of writing conventions and expectations (Wang 2015).

In designing CSCW activities, it is essential to consider the technology's capabilities and the contextual factors such as class size, student demographics, and resource availability (Bikowski & Vithanage 2016; Cho 2017). Additionally, differences in students' language proficiency, computer literacy, and prior exposure to collaborative learning environments can influence engagement in CSCW tasks (Benson 2019).

Peer feedback also plays a critical role in CSCW. It allows students to identify weaknesses in their writing, promotes self-reflection, and encourages learners to critically assess their writing (Sotillo 2013; Zhang et al. 2014). To maximize these benefits, it is essential to consider the quality of peer feedback, particularly in relation to language proficiency (Jiang & Zohreh 2021).

The structure of collaborative dyads also affects outcomes. Studies suggest that convergent tasks (e.g., jointly writing a story) foster more negotiation of meaning, while divergent tasks (e.g., writing separate sections) promote autonomy but may reduce interaction (Swain 2000; Fernández Dobao 2012). Finally, blended CW activities, which integrate face-to-face discussions with online writing, have been shown to enhance both linguistic output and collaboration (Yim & Warschauer 2017).

In summary, CSCW offers significant benefits in language learning by fostering active engagement, peer interaction, and co-construction of knowledge. While technology alone does not ensure effective collaboration, it can enhance interaction quality when combined with thoughtful task design, supportive scaffolding, and active teacher facilitation.

The studies reviewed in this section emphasize that collaborative learning is shaped by a combination of cognitive, emotional, and social factors. A key finding is that students are more likely to engage meaningfully when they feel included, supported, and respected within their group. Emotional discomfort, such as anxiety or social disconnection, can hinder participation regardless of a student's ability. This insight is particularly relevant in collaborative writing, where sustained interaction and shared authorship are central to success. While technology can support collaboration through structured platforms and real-time feedback, its impact depends on how well it is integrated into the learning environment. Effective collaboration requires more than access to tools. It relies on thoughtful task design, teacher facilitation, and preparation that supports both group processes and individual participation. Taken together, the four sub-sections of this chapter show that successful collaborative writing in EFL classrooms depends on aligning task structure, group interaction, and digital support in ways that encourage active, reflective, and inclusive participation.

2. IMPLEMENTING A COMPUTER–SUPPORTED COLLABORATIVE WRITING TASK

This chapter presents the methodology, research design and implementation of the classroom–based action research study. An action research approach was considered the most suitable framework as it enabled the author to apply theoretical insights in a specific teaching context, engage in systematic reflection and make informed decisions to improve pedagogical practices. This aligns with Mertler’s (2014:13) observation that traditional research findings tend to be too abstract for direct classroom implementation, whereas Stringer (2014) recognises that action research allows educators to examine and develop their own teaching practices in context.

This study follows the Kemmis and McTaggart (2014) model of action research, which emphasizes a cyclical process of planning, acting, observing, and reflecting, with the purpose of enhancing both understanding and practice within specific educational settings. Rather than highlighting causal relationships, this model focuses on understanding teaching and learning processes and identifying opportunities for improvement in pedagogical practices. Mertler (2021:16) has emphasized that this reflective approach is especially valuable in educational environments where adaptability and responsiveness to student needs are essential for ensuring continued learning.

Although action research typically involves repeating the cycle to refine practice, this study was implemented as a single cycle due to time constraints and a fixed curriculum schedule. However, as Kemmis et al (2014) and Mertler (2021:16) emphasize, even one cycle of plan–act–observe–reflect can provide valuable insights into practice and support

professional development. The reflective structure of the cycle was preserved throughout this study, ensuring a systematic inquiry process.

Mertler (2021:7) points out that, just as with any other systematic research, a standard of quality in action research design and implementation is influenced by multiple factors. For this study, limitations included the one-time application of the cycle and the researcher's status as a novice in the field. As per Mertler's (2021:8) recommendations for enhancing the rigor of the research, data triangulation was employed by collecting evidence from multiple sources: student questionnaires (pre- and post-intervention); structured classroom observations and CoTrack analytics (capturing participation and interaction data).

In line with the reflective goals of action research, both quantitative and qualitative data were collected and combined to offer a more comprehensive view of collaborative engagement. According to Creswell and Plano Clark (2018), mixed-methods research is characterized by the rigorous collection and analysis of both quantitative and qualitative data, their integration, and the theoretical framing of these procedures within a relevant research design.

In the planning stage, a collaborative writing task was designed, based on collaborative learning theory and computer-supported collaborative writing (CSCW) frameworks. Likewise, the attitude questionnaire (Appendix 1) was developed by the author of this study to explore students' perceptions of collaboration, and observation tools were selected and created to monitor collaboration indicators.

During the action stage, the intervention was implemented over four 45-minute lessons, designed according to the process-based writing approach (Badger and White 2000), the ICAP framework (Chi and Wylie 2014), collaborative learning theory (Storch 2013; Johnson and Johnson 2002), and research on computer-supported collaborative

writing (Bikowski and Vithanage 2016; Wang 2015). Students first completed the pre-questionnaire, then participated in a structured collaborative writing task using the CoTrack platform, and finally responded to the post-questionnaire upon completion. The lessons were structured to support data collection through multiple instruments. Student engagement and collaborative behaviors were monitored using structured observation protocols, while CoTrack provided logged interaction data and real-time documentation of each group's contributions, offering further evidence of participation and collaboration patterns.

In addition to facilitating the task, the researcher also took the role of a participant observer. While facilitating and instructing the groups, the teacher observed the process and recorded notes about collaboration, role use, and how students negotiated meaning. Since both the implementation and observation phases occurred simultaneously, the teacher was involved in guiding the task and collecting data throughout. Concurrently, CoTrack recorded interaction data, including writing logs, voice activity, and speaking turns, with the intention of capturing how students interacted during the task.

In the final, reflection phase, the data collected from the questionnaires, teacher observations and CoTrack logs were analyzed and triangulated to ensure the rigor of the study. Likert-scale questionnaire responses were descriptively analyzed and compared pre- and post-intervention, while open-ended responses were thematically coded to capture students' perceptions of their collaborative experiences and how these evolved throughout the process. Observation notes and CoTrack analytics contextualized these findings, revealing patterns of interaction, participation equity, and task engagement.

Taken together, these data sources provided a multi-dimensional understanding of how students engaged with the collaborative writing task. The findings helped to highlight the factors that facilitated or hindered collaboration and offered insights into how task

design and implementation might be refined. Although the study employed a questionnaire to compare the students' attitudes before and after the intervention, the main focus remained on the reflective improvement of pedagogical practices and skills, rather than on establishing causal claims.

2.1 The Learning Environment, Students Profiles, and Ethical Considerations

This action research was carried out in response to the English as a Foreign Language (EFL) students' classroom behaviours, as observed by their teacher (the author of this study), which revealed a need to better support the development of collaborative attitudes. The study took place in an EFL classroom and involved two Year 8 language groups. Class A consisted of 10 students and Class B of 11 students. These groups had been formed through a random division of students and did not reflect their language proficiency levels.

The students had been studying in their current language groups for just over a year, having been reorganized in Year 7 from three classes into two language groups. By Year 8, they were using materials aligned with the B1 level of the Common European Framework of Reference for Languages (CEFR), having started learning English in Year 1. At the time of the study, the teacher conducting the research had been teaching these groups for less than a year.

The aim of the action research was to design and implement a computer-assisted learning activity that would support students' attitudes toward collaboration. To carry out this task, a newly developed collaborative technology called CoTrack was used. This platform enabled the teacher to collect data for analyzing student behaviour during group work. It is important to note that CoTrack was still in its developmental phase, and little information was available regarding its implementation in real classroom settings.

Similarly, the teacher had no prior experience facilitating structured collaborative learning or using CoTrack.

Due to the requirements of the technology, the lessons took place in the school's computer lab. Students were seated in rows and each worked on an individual computer using wired headphones with a built-in microphone, which were necessary for CoTrack to register their participation. However, this setup restricted movement during the collaborative task, as the wired equipment physically limited students from moving freely around the classroom.

This study was conducted in accordance with the school's ethical guidelines for educational research. Both students and their parents were informed about the purpose and structure of the action research, including the use of the CoTrack platform for collecting data on collaborative behaviour. Participation in the study was voluntary, and students were assured that all data would be used solely for research purposes and anonymised in reporting. The research design was reviewed and approved by the school administration. To ensure that students did not fall behind in their regular studies, the collaborative writing task was carefully aligned with the existing English curriculum and work plan for Year 8.

2.2 The Design of the Computer-Supported Collaborative Writing task

This study utilizes a collaborative writing task grounded in theoretical frameworks on collaborative learning, learner engagement, and computer-supported language instruction. The task is designed on the principle that language learning is optimized when learners actively participate in the construction and negotiation of meaning (Storch 2013; Swain and Lapkin 1998; Benson 2019).

To support such collaborative interactions, the task integrates principles from the ICAP framework (Chi and Wylie 2014), which categorizes engagement into passive,

active, constructive, and interactive modes. Deeper understanding and learning is considered to be more characteristic for constructive and interactive modes, which are signalled by generative thinking, responsive dialogue, and co-construction of meaning. The aforementioned features are also highlighted in Storch's (2013) conception of successful collaboration.

Furthermore, insights from Computer-Supported Collaborative Writing (CSCW) research inform the task's structure, emphasizing the benefits of real-time co-authoring, peer feedback, and shared responsibility facilitated through digital platforms (Swain 2006; Wang 2015; Bikowski and Vithanage 2016). To optimize the collaborative process, the task draws on Badger and White's (2000) process-based writing approach, which assigns group roles such as Idea Leader, Writer, Language Checker, Reader, and Structure Helper to ensure distributed participation and accountability at each stage.

In addition, the design is informed by theoretical insights into individual and group accountability (Johnson and Johnson 2002; Notari et al. 2013) and promotive interaction (Peterson 2023), ensuring that students are supported both structurally and interpersonally throughout the task.

Role theory (Biddle 1986) also highlights the role design, promoting clarity and balanced participation. The task integrates guidance on metacognitive reflection (Azevedo et al. 2006), learner autonomy and motivation (Dörnyei 1994; Reeve 2012), and heterogeneous group formation (Kennedy and Miceli 2013; Cohen 1994). These principles support the development of both linguistic competence and collaborative skills, helping students not only to produce text but to critically engage with both the language and the collaborative process.

To ensure the practical implementation of these theoretical principles, a design checklist (Table 1) was created. This checklist outlines how each principle is considered

within the task design and offers concrete instructional strategies to support high-quality interaction, peer scaffolding, and content-focused engagement.

Table 1. Checklist for Designing Computer-Supported Collaborative Writing Tasks Aligned with Theoretical Principles

Principle	Theoretical Source(s)	How to Implement in Design
1. Get Learners to Generate and Revise Ideas (Constructive Engagement)	Chi et al. 1989; Azevedo et al. 2006	Ask students to rephrase, explain, evaluate, or expand on content—not just copy or highlight.
2. Encourage Ongoing Group Dialogue (Interactive Engagement)	Damon 1984; Roscoe and Chi 2007; Storch 2013; Peterson 2023	Use prompts that require turn-taking and shared decisions (e.g., “Which version sounds best?”). Encourage peer feedback and clarifying questions to sustain promotive interaction.
3. Mix Student Abilities in Groups (Heterogeneous Grouping)	Kennedy and Miceli 2013; Cohen 1994; Tsai 2019	Form groups using tools or teacher judgment to ensure a mix of language level, personality, and social confidence.
4. Support Both Individual and Group Accountability	Johnson and Johnson 2002; Notari et al. 2013; Pérez et al. 2021	Use shared rubrics and tracking tools (e.g., CoTrack). Combine group goals with personal feedback and role-responsibilities.
5. Foster Promotive Interaction	Johnson and Johnson 2002; Peterson 2023	Design tasks that promote mutual support: explaining, questioning, helping revise. Use sentence starters and prompts.
6. Develop Social and Metacognitive Skills (Collaborative Competencies)	Gillies 2007; Peterson 2023	Use activities like collaboration agreements and reflection/speaking prompts to promote listening, negotiation, and self-monitoring.
7. Align Activities with Group Development Stages	Tuckman 1965	Design initial tasks for forming/norming (e.g., team-building, agreements), followed by writing during the performing stage.
8. Use Defined Collaborative Roles to Promote Structure	Biddle 1986; Storch 2013; Badger and White 2000	Assign or rotate specific roles (e.g., Writer, Idea Leader,

		Language Checker) to reduce ambiguity and increase equity in task contribution.
9. Include Time for Reflection (Metacognition & Regulation)	Azevedo et al. 2006; Niemiec and Ryan 2009	Include both individual and group reflection using guiding questions (e.g., “What helped us most?” “How did we manage disagreements?”).
10. Let Students Make Meaningful Choices (Ownership & Autonomy)	Benson 2019; Dörnyei 1994; Reeve 2012	Let students choose phrasing, structure, or roles. Allow open-ended solutions and creativity in expression.
11. Use Digital Tools That Enable Real-Time Interaction	Erkens et al. 2004; Stahl et al. 2014	Use platforms that support shared text creation, commenting, and revision history.
12. Include Time for Face-to-Face Talk.	Swain and Lapkin 1998; Storch 2013; Yim and Warschauer 2017	Blend online tools with classroom discussion and planning time to support deeper understanding and trust.

The designed collaborative writing task required students to work in small groups to produce a for-and-against opinion article on the topic “*Are Young People the Key to Saving the Planet?*” Each student took on a specific research role, focusing on a different aspect of the issue, such as youth-led action, emotional responses to climate change, or the responsibilities of governments and adults. Students read role-specific texts, answered guiding questions, and shared their findings with the group. After group discussions, they organized their arguments using a planning chart and co-wrote the article using the CoTrack platform.

2.3.1 The Grouping and pre-task activities

To prepare students for effective engagement in the collaborative writing task, a 45-minute introductory lesson was designed to prime learners for interactive collaboration. The lesson began with a reflective questionnaire (see Appendix 1) focused on students’ attitudes toward group work, prompting them to critically consider their past experiences

and preferences. Following this, the teacher introduced key principles of effective collaboration through a slide presentation and guided discussion. Students were then assigned to heterogeneous groups and asked to co-construct a group agreement using a structured template (see Appendix 4), which encouraged them to set shared expectations and clarify responsibilities. At the end of the lesson, students were introduced to CoTrack, the digital platform used for collaborative writing and interaction tracking.

A web-based tool “Grouper” (Grouper Education 2025) was used to form groups. Grouper enables teachers to create well-balanced student groups based on various criteria such as skills, preferences, or personality traits. It streamlines the grouping process and reduces bias by using algorithms to ensure diversity and compatibility within groups. Therefore, Grouper enabled me to form heterogeneous groups based on three learner characteristics: language proficiency, leadership potential, and personality type (introvert/extrovert). Each class was divided into three groups, with 3 to 4 members in each. To account for possible absences, the group roles were also designed to function in situations where only two students were present. Language proficiency was assessed based on in-class performance and teacher observation, ensuring each group included a mix of more and less proficient learners to promote peer scaffolding and negotiation of meaning (Roscoe and Chi 2007). Personality types and leadership strength were inferred from participation patterns and communication preferences observed during previous lessons and group assignments.

It is important to note that while groups were formed using the same general criteria in both classes, contextual factors influenced the final group compositions. In Class A, several student absences on different days of the task resulted in groups being formed more flexibly, often aligning with pre-existing comfort zones and communication

preferences. In contrast, Class B had full attendance, which allowed for more intentional mixing of students who did not typically collaborate.

Following the questionnaire, a whole-class discussion and brief interactive input session introduced the concept of collaboration, its benefits and common challenges. Students were encouraged to share personal experiences and discuss strategies for overcoming setbacks in group settings. This activity aimed to establish a shared understanding of productive collaboration, which is considered an essential condition for interactive learning and the co-construction of meaning (Damon 1984; Hogan, Nastasi and Pressley 1999).

Once groups were formed, students collaboratively developed a short collaboration agreement, outlining shared norms for participation, communication, and accountability. This activity fostered early co-construction and promoted collaborative attitude. By establishing expectations for polite communication and active participation, the agreements helped create conditions needed for sustained interactive engagement (Roscoe and Chi 2007). Finally, the collaborative writing task was introduced, including an explanation of the writing topic, expected outcomes, and evaluation criteria.

Overall, the preparatory lesson aimed to prime students towards a more collaborative disposition and to establish mutually agreed-upon group norms.

2.3.2 Materials and Implementation Overview

The collaborative writing task was implemented across four lessons, each designed to target specific stages in the collaborative writing process: preparation, idea generation, text construction, revision, and reflection. The materials used throughout the intervention were based on the theoretical principles described in Section 2.3. Detailed lesson plans are included in Appendix 3.

Lesson 1 focused on pre-task preparation and is described in detail in Section 2.3.1.

Lesson 2 introduced the writing topic (“*Are Young People the Key to Saving the Planet?*”) and research-based roles. Students revised their collaboration agreements, received task instructions, and read short authentic texts while answering role-specific reading questions (Appendix 5). Findings were shared within groups, and students collaboratively filled out a FOR/AGAINST planning chart.

Lesson 3 centered on group writing. Students revisited their group agreements and were reminded of their assigned collaborative roles, such as Idea Leader, Writer, or Language/Structure Checker (Appendix 6). Each student used a role card with sentence starters and speaking prompts. Groups then used CoTrack to co-write their article. A handout with useful linking words and structure tips (Appendix 7) supported language use. The lesson concluded with brief group and individual reflection tasks.

Lesson 4 focused on revision and final reflection. Students revised their articles using a collaborative writing checklist and read their drafts aloud to assess clarity and flow. Groups had time to complete any unfinished sections and polish the final version. At the end of the lesson, students completed the same reflective questionnaire they had completed in Lesson 1 to allow comparison of pre- and post-task attitudes. In addition to the questions regarding general collaborative attitudes (Appendix 1), the students were also asked to reflect on their collaborative writing during the tasks (Appendix 2)

Throughout the unit, the teacher used structured observation sheets (Appendix 8) during key interaction phases to monitor group dynamics, role use, and engagement. These sheets were based on theoretical principles discussed earlier and supported data triangulation in combination with learner reflections and CoTrack analytics.

2.3.3 The Questionnaire

The aim of the reflective questionnaire (Appendix 1) was twofold: first, to investigate the students’ attitudes toward collaborative learning before and after the

intervention as a contextual measure for deeper reflection of the implementation phase and, second, to assess changes in their self-awareness regarding effective group participation. After the designed task was implemented, the students were also asked to reflect on their collaborative–writing experience (Appendix 2). The tool was designed to align with the theoretical principles underpinning the learning task, particularly those related to interactive engagement (Chi and Wylie 2014), positive interdependence and individual accountability (Johnson and Johnson 2002), and the development of collaborative competencies (Gillies 2007; Peterson 2023).

The questionnaire consists of two parts:

- A Likert-scale section (Q1-Q10) in which students rate their agreement with statements about collaboration, peer interaction, and group writing.
- A set of open-ended questions(Q11-Q13) inviting students to elaborate on what they find helpful or challenging about working in groups, how they define effective teamwork, and how they view the role of digital tools in collaborative writing.

This dual structure is grounded in recommendations from classroom-based research in collaborative learning, which emphasize the value of combining structured and open-ended responses to capture both attitudinal tendencies and personal interpretations (Miles & Huberman 1994; Dornyei 2007).

The Likert items are designed to capture attitudes linked to key dimensions of successful collaboration, including perceived value (Vytasek et al. 2020), sense of contribution (Johnson & Johnson 2002), willingness to share ideas (Roscoe & Chi 2007), and responsiveness to peer input (Swain & Lapkin 1998). The open-ended questions offer richer insight into how students interpret their experiences, supporting a more nuanced analysis of attitudinal change over time (Guba & Lincoln 1989).

To ensure anonymity while enabling pre- and post-task comparison, students created self-generated ID codes based on neutral personal information (Teddlie & Tashakkori 2009). The post-questionnaire reused the same items, allowing for direct comparison and reflection. Responses were later compared to classroom observations and interaction patterns in CoTrack to explore consistencies, gaps, or tensions between perceived and actual engagement.

2.3 Analysis of the Results of the pre- and post-intervention Questionnaires

The questionnaire data was analysed using descriptive statistics for the Likert-scale items and inductive thematic coding for the open-ended responses, providing both quantitative and qualitative insights into students' attitudes toward collaboration. The Likert-scale items offered an explicit and measurable overview of general patterns before and after the collaborative writing task, helping to identify potential shifts in perception. In contrast, the open-ended responses were analysed inductively, following the principles of thematic coding outlined by Miles, Huberman, and Saldaña (2014), allowing themes to emerge from the data itself. The example of the implemented coding process is included in Appendix 9. The analysis focused on the overall meaning conveyed in the responses rather than on isolated keywords, taking into account the classroom context. This approach enabled the identification of both context-specific and individual perspectives, offering a more nuanced view of how students experienced and interpreted collaboration

2.3.1 Student Attitudes Toward Collaboration in Class A

The average scores before and after the collaborative writing activity in class A are shown in Figure 1. The biggest improvements were in *Peer Feedback Value* (+0.625) and *Feedback Comfort* (+0.625), which suggests that students felt more comfortable giving and

receiving feedback after the task. Notably, *Feedback Comfort* also showed a considerable drop in standard deviation (1.19 → 0.74), as shown in Figure 2, indicating greater

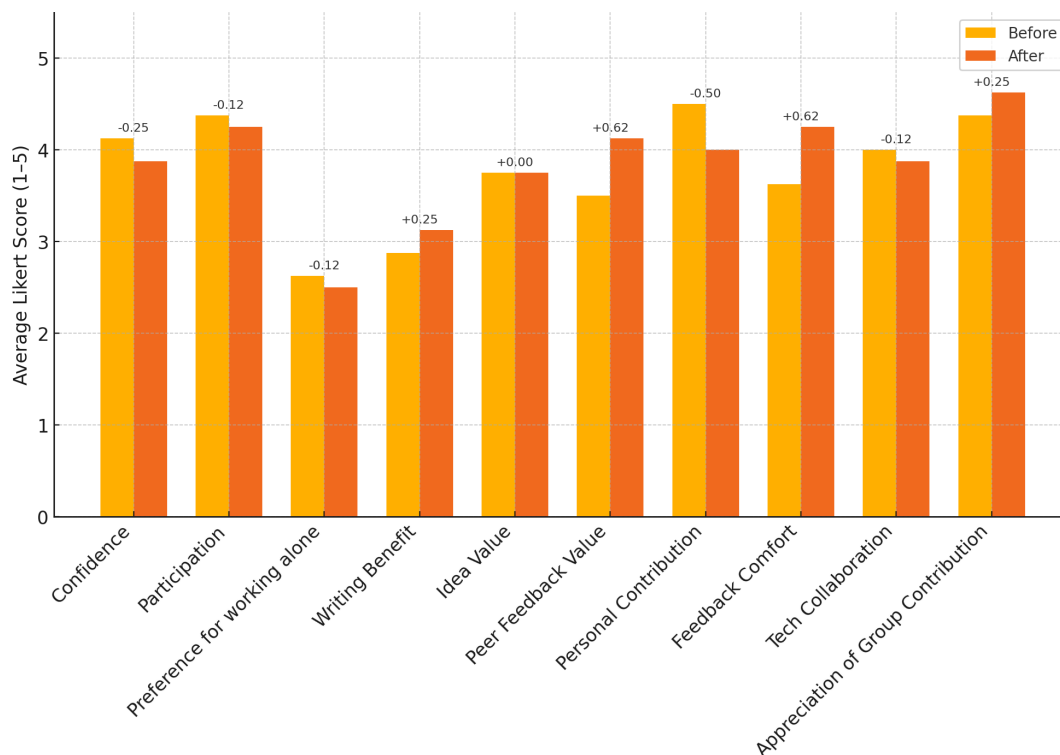


Figure 1. Changes in average Likert scores (1 = strongly disagree, 5 = strongly agree) before and after the collaborative writing module. Class A

These quantitative improvements are reflected in students' open-ended clarifications, particularly in their responses to the statements "Peer feedback during collaborative writing is useful for me" and "I feel comfortable giving feedback to my peers." Before the task, several students expressed uncertainty, discomfort, or passive attitudes. For instance, SA01 remarked, "*I don't know, can't really say,*" and SA05 added, "*I can't say.*" SA01 also shared, "*I don't really want to bother with it,*" while SA08 admitted, "*I usually fear giving feedback, I start stuttering and can't fully express my thoughts.*" One student (SA07) described a clear gender-based difference in comfort: "*Quite often I've been afraid to give feedback... If I'm with boys, I just do the work so it gets done.*" These comments suggest limited prior engagement with peer feedback, social anxiety, or discomfort based on group dynamics.

After the collaborative writing task, however, responses became more specific, reflective, and positive. SA04, who had initially written “*Sometimes it is, sometimes it isn’t,*” later wrote, “*When others give feedback, I know what I need to improve, and that helps me a lot.*” SA07 noted that feedback “*gives ideas on how and what to improve,*” while SA08 reflected that “*it helps others learn and improve their writing too.*” Regarding giving feedback, SA09 stated, “*If I give someone feedback, it means I’m engaged and contributing to the work.*” Even more hesitant students expressed increased awareness; for example, SA06 commented, “*Usually I dare to give honest feedback, but sometimes I hesitate, because I’m afraid or shy.*”

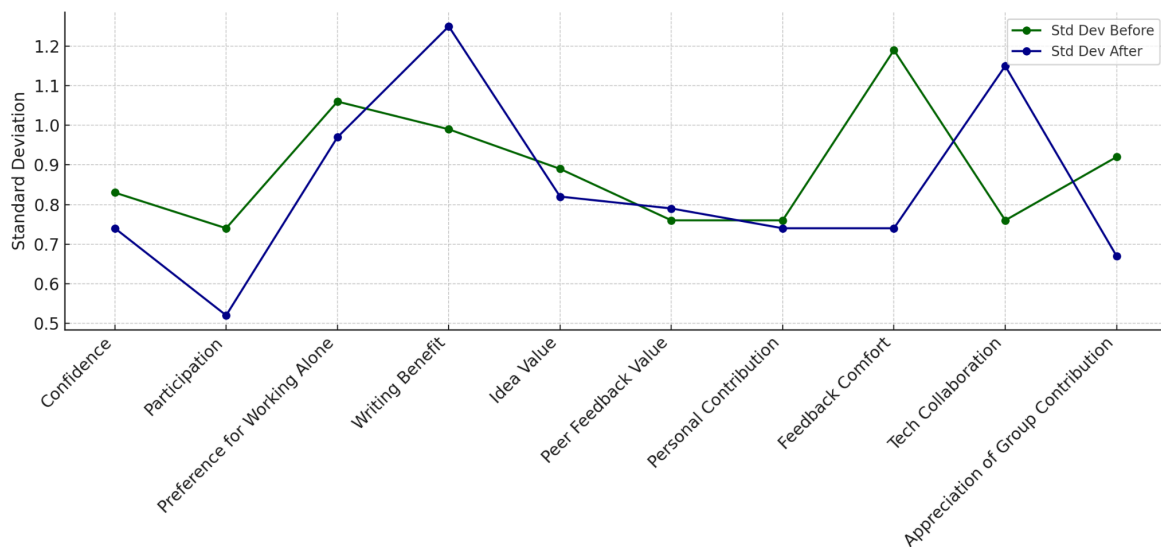


Figure 2. Standard Deviation of Student Responses Before and After the Task (Class A).

These examples suggest that students started to see feedback not just as a task requirement but as a meaningful part of collaborative writing. This shift aligns with the ICAP framework (Chi and Wylie 2014), indicating a move from passive or active modes of engagement toward interactive engagement, where the students co-construct understanding through dialogue and mutual feedback. While comfort levels still varied depending on the group, the students generally showed a stronger sense of both the value of peer feedback and their responsibility in contributing to it.

The slight decline in average confidence (-0.25) observed in the Likert-scale results (Figure 1) may reflect a more nuanced and context-dependent view of self-efficacy after the collaborative task. For instance, SA05 initially stated, “*If I’m in a group, I share my opinion,*” which suggests general confidence. However, after the task, their response became more conditional: “*I feel confident in a group when I know the topic and help out.*” Similarly, SA06 shifted from “*I participate a lot*” to “*I feel confident in a group when I know the topic and help out.*” These reflections suggest that while the students may have still felt capable, they became more aware of the factors that influence their confidence, such as topic familiarity and the ability to contribute meaningfully. At the same time, the students who had already expressed awareness of group composition affecting their confidence, continued to highlight this post-task. For example, SA04 maintained that working with friends or same-gender peers made them feel more at ease. This persistence indicates that while the task may have encouraged greater reflection, it did not manage to overcome existing social dynamics. This consequently highlights the need to support students' confidence across varied group settings, not just among preferred peers.

Student reflections on the statement “*I believe I do my part in group work honestly*” revealed a subtle but telling shift. Pre-task responses often conveyed a strong sense of task compliance, with statements such as “*I always do my part*” and “*I never leave anything undone.*” For example, SA03 stated, “*I always do my part and even more if needed,*” suggesting a confident belief in their own input. However, post-task answers became more nuanced and self-reflective. SA02, who had earlier written “*Mostly yes, I don’t leave anything undone,*” later noted, “*Sometimes I don’t really have ideas to add,*” acknowledging limits in contribution. Similarly, SA05 shifted from “*Because I do my work and never leave anything undone*” to “*Most of the time I do my part, but sometimes I fall behind.*” Some students, like SA07, started to critically assess group dynamics, noting,

“Only when I’m with people who actually contribute. If I’m with people who don’t, I feel like I end up doing too much alone.” These examples align with the observed drop in the average score for Personal Contribution (from 4.5 to 4.0, see Figure 1), suggesting that the collaborative writing task encouraged students to evaluate their role more critically and acknowledge how group dynamics can influence their level of engagement.

This shift reflects *individual accountability* as one of the five key elements of successful collaboration identified by Johnson and Johnson (2002), as well as emerging awareness of positive interdependence, where the quality of one’s own contribution is linked to that of others. These findings also resonate with Storch (2002), who found that learners in collaborative writing settings often renegotiate roles and engagement levels depending on peer input and group dynamics.

The small increase in Writing Benefit (+0.25, Figure 1) and the more varied responses in Figure 2 suggest that students had mixed views on whether collaboration improved their writing. While some, like SA06, noted benefits such as learning new vocabulary, others like SA03 remained unconvinced. This indicates the need to better design tasks that clearly demonstrate the value of collaborative writing. These responses, along with the increased standard deviation (Figure 2), indicates that the collaborative writing task did not strongly engage all learners in a way that would build their writing confidence.

As shown in Figure 1, *Appreciation of Group Contribution* improved slightly (+0.25), but the open-ended answers show a more meaningful change. Whereas some students initially expressed conditional views (e.g. SA01: “*Depends on who’s in the group*”), post-task answers highlighted the value of diverse input and shared effort. SA04 noted, “*Everyone’s contribution matters. That’s how you get the best ideas.*” These

comments reflect a broader understanding of collaboration as a process of combining everyone's strengths rather than just dividing tasks equally.

Similarly, the students' open-ended responses to the question "Why do you think it is useful to work together with others?" illustrate a growing awareness of the interpersonal and cognitive benefits of collaboration. Before the task, students tended to focus on surface-level aspects such as "*You get to talk with others*" (SB01) or "*It's easier that way*" (SB06), with limited elaboration on how collaboration supports learning. However, post-task answers became more reflective and specific. SB02 wrote, "*It develops social skills and cooperation,*" while SB05 explained, "*When working with others, everyone does their part equally and no one has to do more than their share.*" Several students also pointed out how collaboration supports idea generation—SB04 noted, "*Then you can get more ideas, and the work is done faster and better,*" and SB08 added, "*Listening to others creates better ideas and possibly the best work.*" These responses suggest that, in addition to appreciating fairness, students began to recognize the deeper cognitive and social value of group work, including communication practice, shared responsibility, and idea development. This supports the improvement seen in how students valued group contribution and shows that their views on collaboration widened to include not just aspects of fairness, but also benefits of learning from others and working together more effectively.

Interestingly, there was no major shift in how students described a good collaboration partner. Both pre- and post-task responses consistently mentioned qualities such as listening, active participation, and staying focused. This stability suggests that students already had a clear sense of what makes a peer easy to work with, even if they did not always apply those same standards to themselves. In other words, they seemed able to

recognize effective collaboration in others, which may be a useful standpoint for developing their own collaborative skills further..

2.3.2 Student Attitudes Toward Collaboration in Class B

In Class B, one of the most noteworthy attitude shifts occurred in increased preference for working alone, as seen in the decline in average score for the Preference For Working Alone (see Figure 3). The open-ended responses suggest an explanation for this. For one, upon direct reflection to the collaborative task, several students expressed dissatisfaction with their group dynamics during the task. For example, SB02 wrote, “*No, one did nothing, another helped a little, and I did the rest,*” and SB06 noted, “*Some should be more brave to say what they think and that they’re doing it themselves.*” These responses indicate that unequal participation may have negatively influenced some students' attitudes toward group work. Moreover, the standard deviation for this item decreased (from 1.48 to 1.15, see Figure 4), signalling a greater consensus among students in their preference for individual learning rather than collaborative engagement. Consequently, this shift may reflect shared frustration with collaboration and a clearer but more critical stance toward group work following the collaborative–writing experience.

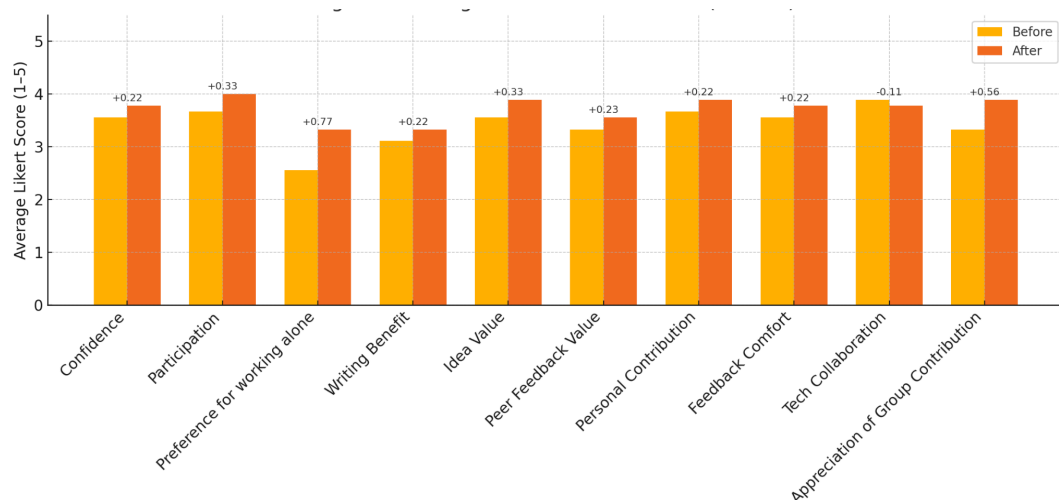


Figure 3. Changes in average Likert scores (1 = strongly disagree, 5 = strongly agree) before and after the collaborative writing module. Class B.

Moreover, in their post-task attitude reflections, some students linked their preference for working alone to a sense of control and independence. SB01 explained, “*Then I can manage everything myself,*” and SB02 remarked, “*Alone, you don’t have to consider others.*” Others provided more balanced views, suggesting that their preference depends on group composition or task type. For instance, SB04 wrote, “*Depends who else is in the group,*” while SB06 stated, “*Depends on the task – if it’s a big task, it’s better to do it in a group.*”

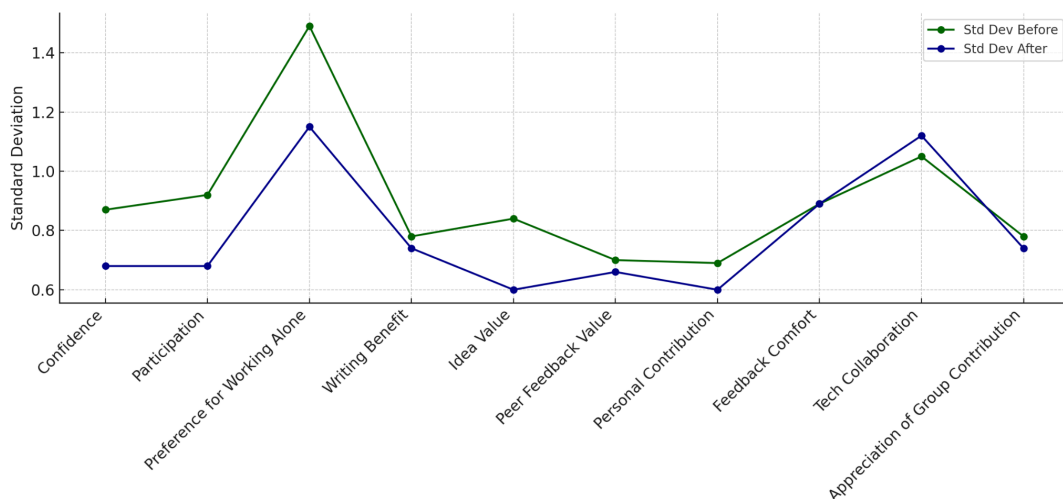


Figure 4. Standard Deviation of Student Responses. (Class B)

Unlike in Class A, the students’ views about doing their part in group work stayed about the same in Class B, with no change in the average score (see Figure 3). Many students already had clear opinions about their responsibility before the task. For example, SB04 wrote, “*I always do everything I’m supposed to,*” and later repeated, “*I’ve always done my part honestly.*” SB08 also said, “*Totally agree, because I think it’s important that everyone does their part.*” While a few students still mentioned some challenges—like SB03, who shared, “*Sometimes I can’t keep up thinking and don’t know what to add*”—most students continued to believe they were responsible group members. This

suggests that the task did not change their attitude much because they already had strong beliefs in this aspect.

These responses suggest that the students became more analytical about the conditions needed for resultful collaboration. The shift does not necessarily reflect a rejection of group work but rather highlights the importance of fair task division and supportive group structures. This finding reinforces the need for clearer role assignments and stronger group coordination, as recommended by Johnson and Johnson (2002) and Storch (2002).

Similarly, to Class A, the students in Class B maintained a generally positive view of collaborative contribution, but their reasoning became more pragmatic after the task. As shown in Figure 3, the average score for *Appreciation of Group Contribution* increased by +0.55 in Class B, compared to a smaller shift of +0.25 in Class A. The pre-task responses often reflected general ideals. For instance, SB06 stated, “*Equal contribution is one of the most important parts of collaboration,*” while SB08 affirmed, “*Everyone should contribute to group work.*” At the same time, some responses revealed limited engagement or even dismissiveness, such as SB02’s “*Not for dumb people*” and SB03’s “*Don’t know.*” After the task, reflections shifted toward more *task-oriented reasoning*. For example, SB03 wrote, “*If everyone contributes, it goes faster,*” and SB06 noted, “*It’s good when everyone contributes, because then the work turns out better.*” SB05 emphasized fairness: “*One person can’t do all the group work alone,*” and SB07 reflected, “*Every person has a role in the group.*”

While both Class A and Class B affirmed the importance of contribution, Class A’s post-task comments highlighted individual strengths and diversity of input (“*everyone does what they’re best at*”), whereas Class B emphasized efficiency and shared responsibility. These differences may also be explained by how the groups were formed in each class.

While both classes were intended to follow the same grouping principle that was aiming for heterogeneous groups in terms of ability and social background, unforeseen circumstances affected this process. In Class A, several students were absent on the day of grouping and in later lessons, which led to some groups being formed based more on existing friendships or convenience. As a result, the group dynamics may have reflected more familiar social patterns, potentially influencing how collaboration was experienced and enacted. In contrast, Class B had almost full attendance, and the groups more closely reflected the intended heterogeneity. This may have created a more neutral and task-focused environment but also required students to navigate less familiar interpersonal dynamics. Therefore, the observed differences in collaborative behavior and norms could be partially attributed to these contextual variations in group formation.

2.4 The Analysis of the In-Class Observations and the Data from Co-Track

While the questionnaires provided insight into how the students' personal attitudes and knowledge regarding collaboration shifted, the classroom observations allowed for an analysis of the extent to which those attitudes were enacted during the lessons.

One recurring issue observed in both classes was the students' limited knowledge of argumentation. During the lessons on 24 April (see Appendix 8), nearly all groups struggled to construct arguments. Although additional guidance was included in the task instructions and explained by the teacher beforehand, many students found it difficult to understand what constitutes an argument and how to formulate one. While the extra scaffolding eventually helped the students grasp the basic concept, it also noticeably interrupted the flow of group discussions. As noted in the observation records from 24 April (Lesson 2, Class A, Group 2; see Appendix 8): *“The process of forming arguments was disrupted because the group did not understand what to base their arguments on and*

needed additional scaffolding by the teacher.” This observation aligns with Dillenbourg and Fischer’s (2007) view that effective collaboration depends on learners’ ability to engage in argumentative dialogue.

Another recurring tendency observed in both classes was the gap between the collaborative attitudes expressed in the questionnaires and the behaviours demonstrated in class. While both classes showed some positive shifts in self-reported attitudes, the observational data revealed notable differences in how those attitudes translated into action. In Class A, collaborative behaviours were more consistently observed. For instance, the observation notes from 28 April (Group 1; see Appendix 8) mention: *“One of the students is quiet (like always), however I catch a few moments when one of the other group members checks in to see what he is working on and how he is doing.”* Similarly, in Group 3, it was noted that: *“One of the students, who has a stutter, communicates their ideas or suggestions first to the classmates next to her (who she is more comfortable talking with), and then this classmate shares some of the notions with the rest of the group. All of the group members are friendly and supportive in their communication.”* These instances reflect at least minimal efforts to include the quieter students by either approaching them directly or helping convey their input to the wider group, as reflected in most of the collaboration agreements written by the groups in the first lesson (see Appendix 8, 22 April)

In contrast, observation notes from Class B reflect less inclusive behaviour. In several cases, less active students were not addressed or acknowledged. Off-task behaviour was reported on more than one occasion—particularly in Group 2 during the lessons on 22 and 28 April (see Appendix 8). Interestingly, this group had included in their collaboration agreement a clear intention to address off-task behaviour among group members (see Appendix 8, 22 April, Class B, Group 2), but no such efforts were observed in practice.

More generally, the observations from Class A suggest a greater task focus. For example, on 28 April, Group 1 was described as “*focused on getting the task done and not showing signs of off-task behaviour*” (Appendix 8). Likewise, Group 2 was noted to have a “*mutually respectful dynamic: one is leading the discussion and the other one adding ideas or clarifying politely.*” The general observation notes from 24 April (Class A) further reinforce this impression: “*Although two members from different groups are less thorough in their approach to reading and analysing the assigned articles, the overall class climate is busy and everyone is focused on the task.*”

One particularly notable moment occurred on 28 April in Class A, Group 3, when students were observed “*actively discussing what to write and how best to write it*” (see Appendix 8). This was one of the few instances of meaningful dialogue about language use, aligning with what Swain and Lapkin (1998) define as *language-related episodes* (LREs) which are defined as moments when learners collaboratively focus on grammar, vocabulary, or meaning to co-construct text. However, such interactions were rare during the implementation.

Kuiken and Vedder (2002) argue that cognitively demanding tasks that involve joint product construction are more likely to prompt LREs. Although the collaborative writing task in this study met those conditions, several observations suggest that the topic and task may have been too challenging for some students, limiting their ability or willingness to engage deeply with the language. For example, on 30 April, a student in Group 1 commented that they found the task “*quite difficult and also slightly pointless in their opinion*” (see Appendix 8). Ting et al. (2017) highlight the importance of designing tasks that activate students’ prior knowledge. The topic of this collaborative writing activity was perceived by several students as too difficult. Moreover, students had trouble understanding what should be included in each section of the text (see Appendix 8; 30

April; Class A, Groups 1 and 3; Class B, Groups 1 and 3), and, as previously mentioned, many lacked sufficient knowledge of argumentation. One telling moment occurred during the third lesson on 30 April, when a student from Class B sincerely asked, “*Are the climate activists worried because the sun will explode in 500 billion years?*” This suggests that the task may have exceeded the students’ readiness level. Rather than collaboratively working through these difficulties, many groups disengaged or relied on individual problem-solving, which may have further limited the emergence of LREs.

Despite these challenges, one consistently positive aspect observed across both classes was the effect of the assigned roles in supporting student engagement and participation. The students regularly used printed role descriptions along with supporting information to guide their contributions (see Appendix 8). The presence and use of these materials is a promising indicator in light of Weinberger et al. (2005), who found that students using social scripts in computer-mediated environments acquire more knowledge than those without such support. However, while the students were frequently seen reading the role descriptions, it remains unclear to what extent they actively used this information to construct shared knowledge. This suggests that although roles helped provide structure and accountability, their deeper potential to enhance collaborative learning may not have been fully realised.

Another noteworthy observation involved a student in Class A, Group 3, who left her computer to walk over to the writer, offering suggestions and moving between group members to point at their screens or add comments. This physical mobility appeared to support her engagement and allowed her to interact more directly and confidently with peers, suggesting that she found physical movement helpful in facilitating peer communication. Peterson (2023) emphasizes that real-time, face-to-face interaction strengthens trust and communication, while delays or disconnection can weaken these

dynamics and reduce students' sense of belonging. In this classroom context, the freedom to move and interact may have enhanced the sense of collaboration and shared focus among certain students.

Finally, an important point of analysis concerns the role of the CoTrack platform itself. One factor that appeared to influence the flow of collaboration was the use of microphones. CoTrack required microphone input to register whether a group member was actively participating, so technical issues often required teacher intervention. The only option available was a wired headset with a built-in microphone, which had to be physically connected to the computer. Unfortunately, several technical difficulties were observed during the lessons (see Appendix 8; 23 and 28 April). In addition, the previously mentioned student who moved around the classroom had been absent from the earlier sessions and appeared unaware of the role of the microphone in data collection. Ironically, her behaviour resulted in one of the most effective collaborative interactions observed during the project, sparking both a language-related episode and meaningful peer discussion. This raises a critical question: did the technology in this case facilitate or inadvertently hinder the emergence of authentic collaborative behaviours?

CoTrack's primary facilitative function was its ability to provide the teacher with insight into each group's collaborative activity. For example, the data collected for Group 3 in Class A on 30 April is illustrated in Figures 5, 6, and 7.

Group dynamics



Speaking time

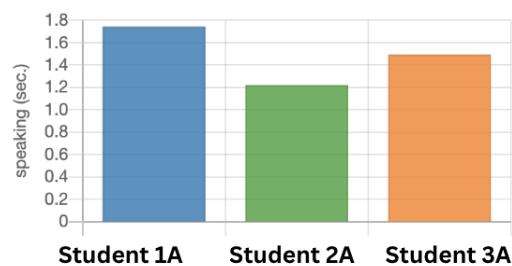


Figure 5. Speaking analytics for group 3 (class A). Data from CoTrack. 28.04.2025

Figure 5 presents data on each student's speaking contribution and the direction of interactions within Group 3. As shown in the figure, all visible group members contributed relatively equally to the discussion, and interactions occurred among all members. However, as with all the data figures, the analytics only reflect contributions from three students. Observation notes (see Appendix 8, 28 April, Class A, Group 3) indicate that four students were actively participating in the task. One student, who moved closer to her groupmates for face-to-face interaction, is not represented in the data because she was not connected to a microphone, as noted in the observations. For example, regarding promotive interaction, it is observed that "The students are actively discussing what to write and how best to write it. I notice them discussing the best way to form a sentence on many occasions" (Appendix 8, 28 April, Class A). This on-topic engagement is also reflected in Figure 6, where the most frequently mentioned words appear to align with the task objectives and topic.

dynamics are not captured in the figures. Although the CoTrack patterns may correspond with teacher observations, they do not provide sufficient insight for a meaningful analysis of collaboration quality. Notably, in Class B on 28 April, it was observed that Group 3 deliberately distorted the word cloud by using inappropriate vocabulary and then attempted to compensate by repeating relevant words (“environment,” “nature,” “think,” “teacher”) into the microphone. They admitted to doing this intentionally and began shifting blame among themselves. This raises important concerns about the reliability of the data and its effectiveness in supporting collaborative learning.

In sum, the combination of classroom observations and CoTrack analytics provided complementary insights into how the students engaged with the collaborative writing task. Observational data illuminated important contextual and interpersonal dynamics, such as role negotiation, peer support, and on-task behaviour, that were invisible in the analysed digital trace data. CoTrack, while useful for offering a structured overview of participation patterns, fell short in capturing the full complexity of group collaboration, particularly when technical issues or strategic manipulation occurred. These findings highlight the importance of triangulating digital and qualitative data sources when evaluating collaborative learning, and they suggest that technology-supported tools must be used with careful pedagogical framing to ensure they enhance, rather than constrain, authentic student interaction.

2.5 Pedagogical Implications

The findings of this study highlight several important implications for designing and facilitating collaborative writing tasks in EFL classrooms. While the students were provided with scaffolds such as role descriptions, structured tasks, and digital tools, the effectiveness of these supports varied significantly across groups and contexts.

Observations and post-task reflections revealed that structural design alone is not sufficient to ensure meaningful peer interaction, particularly when students lack prior experience with collaboration, argumentation, or feedback. Student engagement was shaped not only by the quality of task design, but also by group dynamics, attitudes toward collaboration, and their understanding of the learning purpose. This section outlines the key pedagogical takeaways from the study and offers practical recommendations grounded in both classroom evidence and relevant theoretical frameworks.

While the students in Class A reported greater comfort with giving and receiving peer feedback, this increased confidence did not consistently translate into observable behavior during the collaborative writing sessions. In particular, as reflected in both Likert-scale gains and more thoughtful post-task reflections, such behaviours were rarely observed in practice. This gap suggests that improved attitudes alone are insufficient for fostering meaningful peer interaction. According to the ICAP framework (Chi & Wylie 2014), interactive engagement like peer feedback requires structured opportunities for co-construction, not just passive exposure.

Despite the presence of clear roles and scaffolding, students often prioritized task completion over dialogue, echoing Storch's (2002) finding that peer interaction depends on mutual investment and willingness to negotiate meaning. In contrast, Class B showed minimal feedback engagement and growing dissatisfaction with group dynamics, underscoring that without internalized norms of collaboration and trust, structured tasks may still fail to elicit meaningful dialogue.

To embed peer feedback effectively, it must be practiced regularly, modeled consistently, and framed as an essential part of the writing process. As Chi and Wylie (2014) explain, for students to truly engage with each other, the task needs to be designed in a way that encourages them to think deeply and work together meaningfully. This

includes not only scheduling feedback at the right moment in the task cycle but also ensuring that assigned roles actually support meaningful interaction. For example, as noted in the observation sheets, many students found the “language checker” role confusing or unhelpful. This likely reflects a mismatch between the role and the stage of writing: while the students were still working on their first draft and focusing on getting ideas down, being interrupted to correct language may have felt premature and even disruptive. Therefore, when designing collaborative tasks, it is crucial to consider *when* each role becomes useful and whether it genuinely enables productive feedback. Feedback tasks should be carefully timed and structured to match the natural flow of writing, such as placing revision and feedback steps *after* the main content is developed, not during initial idea generation.

In both Class A and Class B, the students reported more positive attitudes toward collaboration and peer feedback in their post-task reflections and Likert-scale responses. For example, Class A students expressed increased comfort with giving and receiving feedback, and Class B students showed a clearer appreciation of group contribution. However, these attitudinal gains were rarely mirrored in classroom behaviour. Although the students were provided with clear role descriptions, feedback prompts, and task scaffolds, peer feedback was rarely observed in practice. This suggests that the issue was not the absence of structural support, but rather a lack of prior experience and routine in applying peer feedback meaningfully. According to Chi and Wylie (2014), sustained interactive engagement, such as giving feedback, requires not only opportunity but practice and familiarity with the social and cognitive processes involved. Similarly, Weinberger et al. (2005) argue that scripts are only effective when students understand their function and have experience using them within collaborative frameworks. From a sociocultural

perspective (Vygotsky 1978), this points to the need for gradual internalization through repeated, supported practice over time.

To embed peer feedback effectively into collaborative writing, it must, therefore, be introduced early, modeled consistently, and practiced regularly across tasks, rather than relied on within a single intervention. Feedback should become a regular part of classroom practice, supported by clear teacher examples, opportunities to reflect, and tasks that gradually build students' confidence and skill in giving feedback. Without this ongoing support and practice, even well-planned materials may not be used effectively.

The students in both classes demonstrated a shift from viewing group work purely as task division toward a more nuanced understanding of collaboration. While the Class A students increasingly highlighted the cognitive benefits of teamwork, like combining ideas and offering feedback, the Class B students focused more on fairness, efficiency, and the challenges of unequal participation. This emerging awareness suggests that explicit metacognitive reflection can help students internalize collaboration not only as a means of completing tasks but as a valuable learning process. To support this development, teachers should incorporate post-task reflection prompts or brief group debriefs that encourage the students to consider how collaboration contributes to both cognitive growth and social learning, in line with the interactive engagement principles of the ICAP framework (Chi & Wylie 2014).

Despite providing structured roles, clear task assignments, and regular teacher check-ins, group dynamics remained a significant barrier to collaboration, particularly in Class B, where group composition was deliberately varied. While Class A groups, which aligned more closely with the students' existing communication patterns, showed stronger engagement and peer support, Class B groups often struggled with participation, trust, and feedback. This contrast suggests that structural supports alone are insufficient when

emotional safety and group familiarity are lacking. As Storch (2002) notes, collaborative interaction depends not only on task design but also on the degree of mutuality between peers. Similarly, Johnson and Johnson (2002) emphasize the role of social cohesion and trust in fostering positive interdependence. Teachers should therefore consider not only *how* tasks are structured but also *who* is grouped together, introducing more varied groupings gradually and coupling them with explicit training in communication, conflict management, and inclusive collaboration.

Although the collaborative writing task included scaffolds such as role descriptions and graphic organizers to support argument construction, the students in both classes frequently struggled to formulate clear arguments. This suggests that argumentation cannot be developed through scaffolding alone, especially if students lack sufficient prior knowledge or have had limited experience engaging in reasoned dialogue. As Dillenbourg and Fischer (2007) emphasize, argumentation is a key mechanism for deep collaboration and knowledge co-construction, but it must be built up gradually through repeated, contextualized practice. In this case, students may not have had enough prior exposure to argumentation in classroom settings to draw on during the task. This implies that teachers should explicitly teach and regularly integrate argumentation into everyday classroom activities, and not only in writing, but also in speaking tasks, discussions, and debates, so that students develop the fluency and confidence to use it meaningfully when working with peers.

The use of CoTrack provided valuable data on the student participation but also introduced barriers to natural collaboration, particularly due to technical constraints (e.g. required microphone use) and limited student understanding of the tool's purpose. Despite assigning roles and monitoring group work, the teacher had to frequently intervene due to technology issues, and some highly engaged student behaviours (like moving freely

between peers) were not captured by the system. This highlights the importance of using technology as a support tool rather than a controlling mechanism, in collaborative learning. Teachers considering platforms like CoTrack should ensure students are clearly informed about how and why data is being collected, and be prepared to adapt technology use when it interferes with authentic interaction. Before adopting new tools, teachers should evaluate whether the technology aligns with the natural dynamics of classroom communication. If digital tools are used, they should be introduced gradually, tested for reliability, and accompanied by flexible protocols that accommodate diverse communication styles (e.g. allowing mobility or group flexibility without penalizing it in data tracking). In sum, technology should enhance, not restrict the social and cognitive processes that make collaboration effective.

It is also noteworthy that the implementation of CoTrack in this study did not appear to significantly influence the students' engagement in the collaborative writing activity. The students did not indicate that they cared much about how their collaboration was recorded, and in one instance, a group even found a way to manipulate the data by triggering activity without actual interaction. This suggests that technological monitoring alone is insufficient to promote meaningful collaboration. As the tool does not inherently motivate students to engage, it becomes even more important for the teacher to actively foster promotive interaction by encouraging behaviours such as mutual support, shared responsibility, and co-construction of meaning. Ultimately, collaborative engagement must be internalised, not externally enforced. To support this, teachers should work to develop positive attitudes and norms around collaboration over time, using reflective activities, explicit modeling, and classroom dialogue to build a genuine sense of purpose and shared investment in group work.

Moreover, the aforementioned findings suggest that skills like peer feedback, argumentation, and mutual engagement, cannot be effectively developed through isolated, one-off interventions. Instead, they require long-term integration across multiple tasks and subject areas, giving students repeated opportunities to internalize the language, norms, and strategies of productive group work. In addition, while teacher modeling and facilitation are essential in the early stages to ensure the building of sustainable classroom routines, such as regular peer reflection, self-assessment check-ins, and structured but flexible group roles, this can gradually shift responsibility to students. This reduces the need for constant teacher intervention while fostering greater learner autonomy and ownership of the collaborative process.

Taken together, these findings point to a central pedagogical challenge: designing collaborative tasks is not enough. For collaboration to be meaningful, students do not only need scaffolding but also a sense of shared and individual ownership, internalized norms, and a shared understanding of why collaboration matters. This requires continuity, trust, and time. When peer feedback, argumentation, and digital tools are embedded thoughtfully and revisited consistently, collaborative writing can move beyond surface cooperation to become a process of genuine co-construction and deeper learning.

CONCLUSION

This thesis set out to explore how a structured computer supported collaborative writing task, implemented through the CoTrack platform, could influence 8th-grade students' attitudes toward collaboration in the EFL classroom and how these attitudes would be reflected in their behaviour during the task. The intervention was based on collaborative learning theory, computer supported collaborative learning principles, and the ICAP framework discussed in Chapter One, with the aim of creating opportunities for meaningful peer interaction, shared responsibility, and sustained engagement.

The study was conducted as a small-scale action research project in one Estonian basic school, involving two parallel 8th-grade groups (Class A and Class B) with a total of 21 students. The intervention and data collection were carried out by the teacher-researcher over four lessons, combining structured observations, student reflections, and digital learning analytics to investigate both attitudes and observed behaviours. As part of the task, students worked in small heterogeneous groups to write a for-and-against opinion article on the topic "*Are Young People the Key to Saving the Planet?*" Each student was assigned a specific research role, contributed relevant information to their group, and participated in the joint construction of the final written text using the CoTrack platform. Groups were initially formed with 3 to 4 students, but due to occasional absences, some groups operated as pairs during the task.

The findings indicated that many students developed a clearer understanding of what makes collaboration effective. Positive changes were seen in how the students reflected on feedback, division of roles, and the value of group input. In Class A, some students demonstrated more inclusive attitudes and behaviours following the task. In Class B, however, several students expressed frustration due to imbalances in participation and difficulties working as a group. Across both classes, the students were able to reflect

critically on their own role and their group's functioning, even when their behaviour did not always align with their stated attitudes.

One important insight from the study is that while digital tools like CoTrack have the potential to support collaborative writing, their effectiveness depends on how well they are integrated into the learning process. In this study, CoTrack provided a shared writing space and recorded participation data, but it also introduced challenges. For instance, the platform occasionally caused delays or technical issues that disrupted the writing flow. In addition, the tool's features did not always help the students stay organized or reflect deeply on their work. These difficulties showed that technology alone cannot guarantee meaningful collaboration. The students still needed clear task instructions, emotional support, and active guidance from the teacher to remain engaged. When they felt confident, heard, and well prepared, participation improved. When the topic was too difficult or group dynamics were unbalanced, engagement declined. These findings suggest that collaboration does not happen automatically and must be supported through thoughtful task design, strong teacher facilitation, and careful selection of digital tools.

The findings of this study suggest that effective collaborative writing tasks depend on a combination of clear task guidance, a supportive learning environment, and opportunities for student reflection. Learning analytics tools can offer helpful insights for teachers and students, but they work best when combined with other strategies such as role assignment, collaboration training, and ongoing feedback. Even though this study included only one cycle of action research, it helped the teacher researcher make informed decisions, adjust practices, and understand more about how students engage with collaborative tasks.

As a classroom-based action research study, this inquiry was designed to examine a specific intervention in a real-world EFL classroom. The study was conducted by a novice

teacher-researcher over a single implementation cycle, which limited the opportunity to revisit, adjust, and deepen the intervention over time. While multiple data sources were used to strengthen the analysis, the limited number of participants and the short duration of the task mean that the findings reflect a specific teaching and learning context. Furthermore, the teacher-researcher's dual role in designing, delivering, and observing the lessons may have introduced bias or influenced student behaviour, even though structured observation protocols were used to support consistency.

These limitations point to several directions for future research. It would be valuable to examine how collaborative writing tasks function over a longer period or across multiple cycles, allowing students to gradually internalise collaborative norms and giving teachers the chance to refine the design based on observation. Given the observed gap between students' expressed attitudes and their observed behaviour during the task, future studies could explore how different forms of support, such as teacher scaffolding, peer monitoring, or guided reflection, might help strengthen the connection between collaborative values and actions over time. In addition, since some students reported that the assigned roles were not always helpful or did not match the stage of the writing process, further research could investigate how to design more flexible or context-sensitive roles that support collaboration without disrupting the writing flow. Lastly, further research could examine how digital tools like CoTrack might be used not only to record participation data but also to provide timely, learner-friendly feedback that supports awareness, self-regulation, and peer accountability during collaborative writing. These areas of inquiry could help clarify how task design, group dynamics, and technological mediation interact to shape meaningful collaboration.

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APPENDIX 1

Collaborative Writing Reflection Questionnaire

Translated version. The original was administered in Estonian.

To keep responses anonymous while allowing for comparison, students were asked to create a personal code consisting of:

- the first letter of their first name,
- the first letter of their surname,
- the day of birth (e.g. 06, 14, 28), and
- the first letter of the birth month.

Example: A student named Sandra Kalda born on April 14 would use the code SK14A.

Please write your code here: _____

Students were asked to respond honestly to the following statements using a 5-point Likert scale. They were also invited to briefly explain their responses or provide examples.

Scale: 1 = Strongly disagree, 5 = Strongly agree

Statement	1-5	Explanation / example
1. I feel confident when working in a group.		
2. I usually participate actively in group work.		
3. I prefer working alone rather than in a group.		
4. Writing in groups helps me become a better writer		
5. When working in a group, I feel that my ideas matter.		
6. Feedback from peers during collaborative writing is useful to me.		
7. I feel that I honestly do my part in group work.		
8. I feel comfortable giving feedback to my peers..		
9. Writing together using a computer is better than writing alone.		

10. I feel that in collaboration, everyone's contribution is important.		
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Open-ended Questions

Students were also asked to respond to the following reflective prompts:

11. In your opinion, what is useful about working together with others?

12. What kind of person do you think makes a good collaborator? What are their qualities or behaviours?

13. What does fair division of work in a group mean to you?

APPENDIX 2

Post-Task Reflection on the Collaborative Writing Activity

Translated from Estonian. The original was administered in students' native language.

Instructions:

Now please think specifically about the collaborative writing task your group completed. For each statement, choose how much you agree (1–5) and briefly explain your answer.

Scale:

1 – Strongly disagree 2 – Disagree 3 – Not sure 4 – Agree 5 – Strongly agree

Statement	1–5	Explanation / example
1. I believe my contribution was important during this group task.		
2. The work in our group was divided fairly.		
3. Every group member gave their best to make the task successful.		
4. I felt that my ideas were listened to and considered.		
5. If I had a suggestion or idea, I felt comfortable sharing it.		
6. We discussed and improved each other's ideas together.		
7. I did not have to think very much during the task.		

APPENDIX 3

Lesson 1

Objective: Raise student awareness about collaboration, activate prior experiences, and prepare them for upcoming group work.

Materials:

- Anonymous reflective questionnaire (Appendix 1)
- Collaboration slides:
https://docs.google.com/presentation/d/1era5RGDAtgoOg331HICSBao4QmZ8L_WL_Vp95y5bkKY/edit?usp=sharing
- Group formation list (based on teacher observation and previous performance).
- Collaboration agreement template (Appendix 4)

Time Breakdown and Activities:

Time	Activity	Details
0–10 min	Reflective Questionnaire	A short, anonymous questionnaire is completed about students' past group work experiences.
10–17 min	Class Discussion: What is Collaboration?	Guiding questions and slides are used. Students participate in Think–Pair–Share to discuss what helps or hinders group work.
17–25 min	Teacher Input: Features of Effective Collaboration	Key features such as shared goals, active participation, and problem-solving are explained using slides.
25–26 min	Group Formation	Pre-formed heterogeneous groups are announced.

26–33 min	Introduction to CoTrack	A brief overview of CoTrack is presented. The teacher explains its purpose and how it will be used in the writing project. Students register their accounts and log in.
33–41 min	Collaboration Agreement	Students complete a short group agreement based on a structured template. They discuss and agree on group norms.
41–45 min	Wrap-up	The teacher shows the analytics that CoTrack registers (speaking time, interactions, writing contribution) The teacher wraps up the lesson and reminds the students of what will happen in the next lesson.

Lesson 2

Objectives:

- Revisit and update collaboration agreements in CoTrack
- Review principles of effective group work
- Guide students in exploring their writing topic and reading role
- Support students in building shared understanding through group discussion
- Encourage reflection on teamwork through group and individual reflection
- Prepare students for planning and writing in Lesson 3.

Needed materials:

- Student reading texts (assigned by research role) (Appendix 5)
- Students' CoTrack group document on group agreements.
- Collaboration principle slides (for brief review, group discussion prompts on slides
https://docs.google.com/presentation/d/17p4X-uX-dFp8dfJ5_9c2WH65aYZDNZSDdbBeZDpstpM/edit?usp=sharing)
- Quiz for individual self-reflection: <https://forms.gle/Rgd3ubV2Mc9ytRjP9>

Time	Activity	Details
0–1 min	Welcome & Lesson Goals	Teacher briefly recaps the writing project, what was done in Lesson 1, and what will happen next.
1–3 min	Review: Principles of Good Collaboration	Slides are used to review key collaboration skills such as listening, taking turns, encouraging peers, and solving problems together.
3–5 min	Revisit Collaboration Agreement	Groups revise their agreements.
5–8 min	CoTrack Log in	Students log into their existing CoTrack accounts and navigate to their group’s writing space.
8–11 min	Task Introduction	Teacher introduces the writing topic: 'Are young people the key to saving the planet?' Group research roles are explained.
11–28 min	Reading & Note-taking (Individual)	Each student reads their assigned article and answers two role-specific questions using bullet points.
28–38 min	Group Sharing & FOR/AGAINST Table	Students share their research in groups and complete a for/against planning chart together.
38–41 min	Individual reflection	Students answer a short quiz to reflect on their individual teamwork performance.

41–44 min	Group Reflection	In groups, students answer: 'What went well in our teamwork today?' and 'How did we support each other?'
44–45 min	Wrap-up	The teacher wraps up the lesson and reminds the students of what will happen in the next lesson.

Lesson 3

Objectives

- Review and finalize ideas from their planning table
- Assign group roles and understand their responsibilities
- Structure their article with paragraph-level planning
- Begin writing the first draft collaboratively in CoTrack
- Reflect on their group collaboration

Materials needed:

- Printed Role Cards (Appendix 6)
- Completed FOR/AGAINST arguments from Lesson 2
- Useful Language & Linking Words Handout (Appendix 7)
- Slide presentation (for task guidance & timing cues):
<https://docs.google.com/presentation/d/169rQgGCCipcMQJpx-Bgol-ZePtY967PpbbwcKIJ7wd4/edit?usp=sharing>
- Reflection questions on Google Form (on slides)

Time	Activity	Details
0–2 min	Welcome & Recap	Quick recap of project so far and today's goals
2–4 min	Revise Group Agreements (if needed)	Optional: groups update agreements based on how collaboration is going
4–5 min	Review Collaboration Principles	Slide prompts: working together, staying respectful, using roles actively

5–10 min	Assign Writing Roles	Students receive or pick roles (Writer, Idea Leader, Language/Structure Checker / Supporter for pairs)
10–15 min	Plan Article Structure	Students organize their points into intro, body, and conclusion
15–40 min	Write in CoTrack	Students write collaboratively using roles and support materials.
40–43 min	Group Reflection	Students discuss: What worked well? What could we improve?
43–45 min	Wrap-up & What's Next	Teacher explains what will happen in the next lesson (revision and finalizing)

Lesson 4

Objectives

- Complete and polish the collaborative article in CoTrack
- Revise for content, clarity, and organization
- Use linking words and useful expressions appropriately
- Reflect on the group writing process and final product

Materials Needed

- Role cards (Appendix 10)
- Useful Language & Linking Words Handout (Appendix 11)
- Peer-Review Checklist
- Slide presentation for task guidance

<https://docs.google.com/presentation/d/1YIY3vnLt8hXLB94hI51wNywDtF-1QMoSGIKAsFjTTD/edit?usp=sharing>

- Group Reflection Prompts (on the slides)

Time	Activity	Details
0–3 min	Welcome & Today’s Focus	Brief reminder of goals: complete + revise writing
3–6 min	Review Collaboration principles	The teacher guides the discussion on collaboration principles.
6–20 min	Continue Writing & Final Revisions	Students add missing parts, revise, and polish
20–30 min	Self-Review Checklist (or Peer Check)	Use checklist: clarity, linking words, spelling, structure.
30–35 min	Final Group Reflection	What did we do well? What did we learn as a team?
35–43 min	Final Self-Reflection Quiz	Students complete the same quiz from Lesson 1 to reflect on how their attitudes toward collaboration may have changed.
43 –45 min	Wrap-up & Thank You!	Teacher thanks students, reminds them of assessment or next steps

APPENDIX 4

Collaboration agreement template

1. Participation (How will we make sure everyone takes part?)

If someone is quiet, we will .

To hear all ideas, we will...

2. Respect & Feedback (How will we treat each other while we work?)

We will treat each other kindly by

When we give feedback, we...

3. Solving Problems (What will we do if there's a problem or someone disagrees?)

If we have a disagreement, we will

If someone is off task (doing something else), we will..

4. Writing Together (How will we build on each other's ideas?)

If we don't understand an idea, we will ...

APPENDIX 5

Topic: "Are young people are the key to saving the planet."

**Each of you will become an expert on one part of the topic:
"Are young people the key to saving the planet?"**

You will read one article and answer two specific questions. Later, you'll bring your ideas to your group to help plan your essay.

1. Choose your research role in the group (1 student per role):

- Team Member 1: *Youth Taking Action*
- Team Member 2: *Youth Creating Change*
- Team Member 3: *The Emotional Side of Activism*
- Team Member 4: *The Role of Governments and Adults*

2. Read your assigned article.

- Use the link.
- Take notes as you read.

3. Answer the three questions for your role.

- Write your answers in bullet points.
- Be ready to share examples, facts, or quotes from the article.

4. Check:

- Did you find at least 2 examples or points for each question?
- Can you explain what your article says in your own words?

Team Member 1 – *Youth Taking Action*

SOURCE:

<https://www.unicef.org/stories/young-climate-activists-demand-action-inspire-hope>

1. Find two young activists in the article.

➤ Write their names, where they are from, and what they are doing to help the planet.

2. Why is this problem important to them?

➤ How has this problem affected their life, family, or community? (Write 1–2 sentences for each activist.)

3. Think and write:

➤ Why do you think young people care so much about these problems? Why do

they want to take action?
(Write 2–3 sentences with your ideas.)

Team Member 2 – Youth Creating Change:

SOURCE: <https://www.plt.org/story/young-environmentalists-examples/>

1. **Find two actions or campaigns started by young people.**
➤ Write what they did, who they are, and how this helps the planet (for example: cleaning up pollution, planting trees, making laws).
2. **What difference did their actions make?**
➤ Write about the biggest change that happened because of their work (like a new law, more people helping, or something getting better in their town or country).
3. **Think and write:**
➤ What skills, ideas, or qualities do young people have that help them make a difference like this?
(Think about: Why are they able to make their campaigns so popular; how do they get others to listen and join their cause? Write 2–3 sentences with your ideas.)

Team Member 3 – The Emotional Side of Activism:

SOURCE: <https://www.unicef.org/parenting/mental-health/climate-anxiety>

1. **What is eco-anxiety (or climate anxiety)?**
➤ Write 1–2 sentences in your own words about what this means.
2. **What are two ways that climate anxiety can affect young people?**
➤ Think about how it can affect their feelings, thoughts, sleep, and daily life. Write one sentence for each.
3. **Think and write:**
Why do you think some young people feel so strongly about climate change?
➤ Think about: how does knowing what might happen in the future make them feel? Why might they care so much? (Write 2–3 sentences with your ideas.)

Team Member 4 –

SOURCE:

<https://www.theguardian.com/commentisfree/2019/jul/10/individuals-climate-crisis-government-planet-priority>

1. **Why can't young people or other people fix climate change on their own?**
➤ Write 1–2 reasons why doing small things like walking more or eating less meat isn't enough.

2. **What should governments and big organizations do to help stop climate change?**

➤ *Write 1–2 sentences about what the article says they need to do..*

3. **Think and Write: What happens if we only talk about what people should do, and not what governments should do?**

➤ *Could it stop people from noticing what governments and companies should be doing?*

STEP 3: Share your research: Take turns sharing the information you found in your article.

STEP 4: Work together to complete the "Are Young People the Key to Saving the Planet?" arguments.

How to form an argument:

1. **Start with your opinion** or a clear point of view.
2. **Give a reason** why you believe it.
3. **Add an example** to support your point.

➡ Example:

Argument: Plastic pollutes the oceans and harms wildlife.

Example: For example, sea turtles often mistake plastic bags for jellyfish and eat them, which can kill them.

FOR (Young people ARE the key to saving the planet):

- **Argument 1:**
- *Example:*
- **Argument 2:**
- *Example:*

AGAINST (Young people ARE NOT the key to saving the planet)

- **Argument 1:**
- *Example:*
- **Argument 2:**
- *Example:*

STEP 5: Now that you've heard different views, answer this question together:

**Do we agree that young people are the key to saving the planet?
Why or why not?**

You'll use this answer to shape your **essay's conclusion**.

APPENDIX 6

Collaborative Writing Roles- Role Cards for Groups of 4.

Role: Idea Leader

You help your group stay focused and include everyone's ideas.

What you do:

1.) Ask questions like:

- “What do you think?”
- “Should we explain that more?”
- “Do we all agree on this idea?”
- “Is this a strong reason?”

2.) Make sure all ideas are heard

What's your opinion?”

“Should we include that idea too?”

3.) Invite quiet team members to share:

“Do you want to add something?”

“What do you think about this part?”

4.) Help your group stay on-topic

“Let's come back to our main point.”

“Should we save that idea for later?”

5.) Remind the group to move forward if stuck

“Let's just try writing something down.”

“Let's pick one idea and go with it.”

“We can always change it later — let's keep going.”

6.) Support respectful talk and turn-taking:

“Let's go one at a time.”

“Let's listen first, then decide.”

“Let's hear from everyone before we move on.”

Role: Writer

You are responsible for typing the first draft in CoTrack.

What you do:

1.) Write what the group decides together

- Listen to your group and type their ideas clearly.
- Ask: “Is this what you meant?”

- 2.) Ask: “Is this clear?” or “Should I write it like this?”
 3.) Make small corrections if your group decides so

4.) Focus on keeping the writing moving

- “What should come next?”
- “Let’s just try it — we can change it later.”
- “Let’s write something first, then improve it.”
- “Let’s move on and come back to this part.”

Role: Language and Structure Checker

You make sure the text is clear, correct, and organized.

NB! Tip: Use the linking words, structure, and useful language handout to help you suggest how to make the text easier to read.

What you do:

1.) Watch for grammar, spelling, and vocabulary

- “Do we need past or present tense here?”
- “Is this word spelled right?”
- “Let’s fix the spelling of this word — it looks wrong.”
- “This sentence sounds a bit confusing — should we rewrite it?”

2.) Suggest better words or expressions

- “This word is too basic — how about ‘solution’ instead of ‘fix’?”
- “This sounds too casual — maybe we can use ‘support’ instead of ‘help out’.”

3.) Use linking words to connect ideas

- “We should add a connector to show contrast — how about ‘However’?”
- “Let’s use ‘For example’ before this part.”
- “Can we start this sentence with ‘Therefore’ to show the result?”

4.) Help organize ideas in logical order

- “Let’s move this reason up — it’s more important.”
- “This example fits better after the second argument.”
- “I think this paragraph should come last — it’s like the conclusion.”

Role: Task Manager

You help your group stay on track, follow the plan, and finish on time.

What you do:

1. **Make sure the group follows the correct structure:**
 - Introduction → Arguments FOR and AGAINST → Conclusion
 - “Let’s check the order — do we have all four parts?”
2. **Help your group answer the main question clearly:**
 - “Did we say if young people are the key to saving the planet?”
 - “What’s our final opinion — do we all agree?”
3. **Remind the group to use the FOR/AGAINST arguments:**
 - “Let’s check the arguments— which examples should we include?”
4. **Check that each argument has an example:**
 - “Do we have a strong example for this point?”
 - “Should we add a quote or fact here?”
5. **Keep an eye on time and help move forward:**
 - “We have 10 minutes left — what’s still missing?”
 - “Let’s finish this paragraph so we have time to check it.”

Collaborative Writing Roles- Role Cards for Groups of 3.**Idea Leader**

You help your group stay focused and include everyone’s ideas.

What you do:

- 1.) **Ask questions like:**
 - “What do you think?”
 - “Should we explain that more?”
 - “Do we all agree on this idea?”
 - “Is this a strong reason?”
- 2.) **Make sure all ideas are heard**
 - What’s your opinion?”
 - “Should we include that idea too?”
- 3.) **Invite quiet team members to share:**
 - “Do you want to add something?”
 - “What do you think about this part?”
- 4.) **Help your group stay on-topic**
 - “Let’s come back to our main point. ”
 - “Should we save that idea for later?”
- 5.) **Remind the group to move forward if stuck**
 - “Let’s just try writing something down. ”
 - “Let’s pick one idea and go with it. ”
 - “We can always change it later — let’s keep going.

6.) Support respectful talk and turn-taking:

- *“Let’s go one at a time.”*
- *“Let’s listen first, then decide.”*
- *“Let’s hear from everyone before we move on.”*

Writer

You are responsible for typing the first draft in CoTrack.

What you do:

1.) Write what the group decides together

- Listen to your group and type their ideas clearly.
- Ask: “Is this what you meant?”

2.) Ask: “Is this clear?” or “Should I write it like this?”

3.) Make small corrections if your group decides so

4.) Focus on keeping the writing moving

- *“What should come next?”*
- *“Let’s just try it — we can change it later.”*
- *“Let’s write something first, then improve it.”*
- *“Let’s move on and come back to this part.”*

Language and Structure Checker

You make sure the text is clear, correct, and organized.

NB! Tip: Use the linking words, structure, and useful language handout to help you suggest improvements.

What you do:

1.) Watch for grammar, spelling, and vocabulary

- “Do we need past or present tense here?”
- “Is this word spelled right?”
- “Let’s fix the spelling of this word — it looks wrong.”
- “This sentence sounds a bit confusing — should we rewrite it?”

2.) Suggest better words or expressions

- *“This word is too basic — how about ‘solution’ instead of ‘fix’?”*
- *“This sounds too casual — maybe we can use ‘support’ instead of ‘help out’.”*

3.) Use linking words to connect ideas

- *“We should add a connector to show contrast — how about ‘However’?”*
- *“Let’s use ‘For example’ before this part.”*
- *“Can we start this sentence with ‘Therefore’ to show the result?”*

4.) Help organize ideas in logical order

- *“Let’s move this reason up — it’s more important.”*
- *“This example fits better after the second argument.”*
- *“I think this paragraph should come last — it’s like the conclusion.”*

Collaborative Writing Roles – Groups of 2.

Writer

You are the one typing in CoTrack — but not working alone! Your job is to type the group’s ideas, keep writing moving, and help with sentence flow.

What you do:

1. Write what you both decide together:

- “Should I write this now?”
- “Is this what you meant?”
- “Can I add that sentence?”

2. Help improve sentence flow:

- “Does that sound natural?”
- “Should I change the order?”
- “What word can connect these better?”

3. Ask for feedback as you type:

- “Should I write it like this?”
- “Is this sentence too long?”
- “Do you think it’s clear?”

4. Fix small errors:

- “I think this word needs a capital letter.”
- “I’ll fix the spelling here, okay?”

5. Keep the writing moving:

- “What should come next?”
- “Let’s just try it — we can fix it later.”
- “Let’s move on and come back to this part.”

Supporter

You help your partner build a strong, clear text — and check how the writing flows.

What you do:

1. Help plan and guide content:

- “What’s the next reason we should include?”
- “Do we have a good example here?”
- “Is this idea clear enough?”

- “What’s the best way to start our argument?”

2. Organize structure and check flow:

- “Should this point go earlier?”
- “Let’s move this sentence to the end.”
- “This paragraph needs a clearer topic sentence.”
- “I think this paragraph order makes more sense.”

3. Check grammar, spelling, and vocabulary:

- “Is this the right verb tense?”
- “Let’s fix this spelling.”
- “This word is too simple — can we try something stronger?”
- “I think this sentence is too long. Let’s split it.”

4. Watch for linking words and phrases:

- “Let’s use a connector like ‘however’ or ‘for example’ here.”
- “Do we need ‘because’ or ‘so’ to explain this?”
- “We should use a conclusion phrase like ‘This shows that...’”

Tip: Use the linking words/structure handout to help you!

5. Support the teamwork:

- “Let’s check it together before writing.”
- “I’ll help you improve it as you type.”

APPENDIX 7

Collaborative Writing Support Handout

Structure of a For-and-Against Opinion Article

Your article should have 4 clear paragraphs:

1. Introduction

- Introduce the topic
- Explain why it's important or interesting
- Don't give your opinion yet

2. Arguments FOR

- Give 2–3 reasons why people might agree with the topic
- Support with examples, facts, or quotes

3. Arguments AGAINST

- Give 2–3 reasons why people might disagree
- Support with examples, facts, or emotional reasons

4. Conclusion

- Give your own opinion
- Briefly summarize the strongest points
- End with a sentence that clearly answers the question

Useful Linking Words and Phrases

To Add Ideas:

- also • and • in addition • furthermore • another reason is

To Show Contrast/ opposing view:

- but • however • on the other hand • although • even though

To Give Examples:

- for example • for instance • such as • one example is

To Show Cause and Effect:

• because • so • that's why • as a result • therefore

To Conclude:

• in conclusion • to sum up • in our opinion • We believe that

APPENDIX 8

Lesson 1 – Introducing Collaboration (writing the collaboration agreement (22 April, 2025)

Class A

Group 1 Time: 9: 24 - 10:10.

Focus Area	Observed? (✓ / ✗)	Notes / Examples
<u>Student Engagement</u> 1. Are students attentive during discussion? 2. Are they responding to prompts and participating?	 ✓ ✓	Students are attentive, however, the discussion is more focused on writing something down that would satisfy the principles discussed during the presentation. All students participate in the discussion, however the discussion lacks contextual depth- the students are not focused on establishing the agreements that would help with collaboration.
<u>Discussion Quality</u> Are students expressing opinions, listening, and responding respectfully?	✗	The students are more focused on writing down something that “makes sense”. None of the group members are responding to what has been said or building on others’ ideas.
<u>Collaboration Agreement Process</u> Are all group members contributing to the agreement-making?	✓	All the members are focused on the agreements (they are looking at them) and all are likewise writing something. One of the students is writing more, and the other is actively sharing what should be written down.
<u>Teacher Input Impact</u> Are students referencing or using principles from the slides/discussion?	✓	The students are emphasizing polite interactions, inviting quieter members to speaking by approaching the directly and communicating throughout the process (reflected in their set agreements)

Group 2 Time: **9:25–10:10**

Focus Area	Observed? (✓/✗)	Notes / Examples
<u>Student Engagement</u> 1. Are students attentive during discussion? 2. Are they responding to prompts and participating?	✓ ✗	The members are focused on the task, however only one is thinking out aloud and commenting on the way they understand the prompts and asks questions from other group members if something is unclear. The other group member is clarifying and adding ideas. The group members are actively discussing what to write down (but does not expect others to respond/reply). One of them is writing all ideas down.
<u>Discussion Quality</u> Are students expressing opinions, listening, and responding respectfully?	✓	The group members are focused on establishing the agreements but the one who is actually writing them down does not respond to what has been proposed by other members and writes everything as dictated. The group members are not discussing the topic in depth, but it rather looks like they are trying to get the task done as efficiently as possible.
<u>Collaboration Agreement Process</u> Are all group members contributing to the agreement-making?	✓	Everyone is writing something down in the document, but no revisions/comments are done about what other members have written down.
<u>Teacher Input Impact</u> Are students referencing or using principles from the slides/discussion?	✓	The students are referencing the topics discussed during the previous presentation and discussion by emphasising polite feedback and listening to each of the members' ideas. However, for the prompts regarding what to do when someone is quiet, one of the students writes "they will be removed from the team", which is the

		opposite of what had been discussed earlier in class. The others do not object to this rule.
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Group 3 Time: 9: 25 - 10:10.

Focus Area	Observed? (✓/✗)	Notes / Examples
<u>Student Engagement</u> 1. Are students attentive during discussion? 2. Are they responding to prompts and participating?	 ✓ ✓	Students are sharing their ideas and reflecting on their past experience. All members are writing something down and proposing ways to edit or clarify ideas. The students are discussing each prompt, and are included in the writing process.
<u>Discussion Quality</u> Are students expressing opinions, listening, and responding respectfully?	 ✓	Two of the students are more active during the discussion. One is more thoughtful, however on a few occasions says something to reflect on what has been said.
<u>Collaboration Agreement Process</u> Are all group members contributing to the agreement-making?	 ✓	Everyone is contributing to the writing process . One is actively writing ideas down, one is asking questions and clarifying and the third member is replying to the previous group members' questions more.
<u>Teacher Input Impact</u> Are students referencing or using principles from the slides/discussion?	 ✓	The students are very focused on the ideas discussed during the lesson and suggest ways to implement them to write the collaboration agreement

General observations during the lesson

Almost half of the students are attentive during the discussion and share their past experiences and opinions.

The main issues mentioned by the students are unfair workload distribution and some members' inability to contribute meaningfully (because they do not understand the topic or are lazy). The students also said that sometimes it is difficult for the teachers to understand how fair the distribution of work has been. However, the students pointed out that the teachers do ask about each members' contribution and do not give everyone in the group the same grade. At the same time, one student pointed out that some students do not even care about the grade and in the end get away with doing less.

During the group work, there are no students who are obviously left out from the group's effort. The 2 of the 3 groups are more focused on overall efficiency, however they are continually helping each other in order to get the task done.

Class B

Group 1 Time: 13:25–14:10.

Focus Area	Observed? (✓/✗)	Notes / Examples
<u>Student Engagement</u> 1. Are students attentive during discussion? 2. Are they responding to prompts and participating?	<p style="text-align: center;">✓</p> <p style="text-align: center;">✓</p>	<p>All students are focused on the task and writing something down. One student is obviously writing less than others, because his pace of writing is much slower. However he is still focused on the task, but seems a bit insecure.</p> <p>They are looking at the prompts and are indicating active participation by writing their ideas to the shared group document.</p>
<u>Discussion Quality</u> Are students expressing opinions, listening, and responding respectfully?	<p style="text-align: center;">✗</p>	<p>There is very little talking amongst the group members. While I am observing them, they are focused on the task, but only one student is commenting on what should be written. One student is very quiet, but is actively writing something in the document. After I encourage them to discuss together, which agreement would help them to work better together, they reply verbally to the given prompts but do not do it to elicit a discussion within the group, but rather to show their teacher that they are doing their part.</p>
<u>Collaboration Agreement Process</u> Are all group members contributing to the agreement-making?	<p style="text-align: center;">so-so</p>	<p>The group members are writing their ideas down but are not really concerned with reaching the consensus in that regard within the group.</p>
<u>Teacher Input Impact</u> Are students referencing or using principles from the slides/discussion?	<p style="text-align: center;">✓</p>	<p>The agreements that the students write down reflect the collaboration principles discussed in class.</p>

Group 2 Time: 13:25–14:10

Focus Area	Observed? (✓/✗)	Notes / Examples
<p><u>Student Engagement</u></p> <p>1. Are students attentive during discussion?</p> <p>2. Are they responding to prompts and participating?</p>	<p>so-so (one person is not participating)</p> <p>so-so one person is not participating)</p>	<p>Three of the students are very active during the discussion, but one is not focused on the task and caught by other students while playing a computer game. While I observe the team he is focused on the group document but does not contribute his ideas.</p> <p>All except for one are focused on trying to establish agreements that reflect what had been discussed in class earlier (during the teacher’s presentation).</p>
<p><u>Discussion Quality</u></p> <p>Are students expressing opinions, listening, and responding respectfully?</p>	<p>so-so one person is not participating)</p>	<p>All except for one are involved in the discussion: proposing ideas, responding to what has been said and writing them down to the cowriting space. The communication is respectful.</p> <p>However, while one of the agreements was to “approach quiet members directly” and “ask members who are off-task to focus on the group work, none of this was observed.</p>
<p><u>Collaboration Agreement Process</u></p> <p>Are all group members contributing to the agreement-making?</p>	<p>so-so one person is not participating)</p>	<p>All except for one.</p>
<p><u>Teacher Input Impact</u></p> <p>Are students referencing or using principles from the slides/discussion?</p>	<p>so-so</p>	<p>The students are referencing the ideas presented in class but only in their written agreements. In practice, they do not implement them to deal with the less active group member.</p>

General observations during the lesson

Some of the students are especially thorough and active during the lesson. They listen attentively, ask questions and reflect on their experience. However, there are noticeably some students who are not active during the group work and one expresses that he would like to be in another group. The collaboration agreements are very thorough and reflect the principles I talked about during the presentation. However, while some members are very focused on the task and obviously trying to do their best to write the agreements in a way that reflects the discussed theory, the groups are less coherent than in class A. The focus seems to be more on the output of the task (written agreements) than their function in facilitating effective collaboration.

Lesson 2 – Task Preparation & Role Awareness (23 April, 2025)

Class A

Group 1 Time: 14:20 – 15:05

Focus Area	Observed? (✓ / X)	Notes / Examples
<u>Agreement Revisions</u> Do students reflect on and adjust their group norms meaningfully?	X	One of the students read the agreements to others. There was no mutual discussion. The rest of the members seemed to be listening but passively.
<u>Understanding the Task</u> Do students understand their writing task and research role?	✓	The student understood their role and worked on it independently. When they had questions, they would ask me. However, it seemed like they did not quite understand how to use the information from the articles to form ideas for their article. One member said that the text he had to read was too difficult to understand.

<p><u>Reading Focus</u></p> <p>Are students reading carefully and answering their questions with detail?</p>	✓	<p>One group member found the task very challenging and asked me if he could only focus on one of the examples presented in the text. I explained that his research findings would be necessary to write the article and provide meaningful input. He was not very motivated by that and just asked from the rest of the group: <i>“One would be okay, right? -Ok, no one has any objections so it's fine”</i> The rest of the group members stayed silent.</p>
<p><u>Information Sharing</u></p> <p>Are they listening to groupmates' findings and building shared understanding?</p>	✓	<p>They used the information from their articles to come up with the arguments and provide examples: However, they needed a lot of scaffolding with regards to forming arguments and giving examples (they did not understand how to reference the information from the text).</p>

Group 2 Time: 14:20 – 15:05

Focus Area	Observed? (✓/✗)	Notes / Examples
<p><u>Agreement Revisions</u></p> <p>Do students reflect on and adjust their group norms meaningfully?</p>	✗	<p>They only read the agreements and did not adjust or discuss anything further.</p>
<p><u>Understanding the Task</u></p> <p>Do students understand their writing task and research role?</p>	✗	<p>The students understood that they needed to write an article and the research role was based on a specific topic. However, they were focused on getting their individual reading task done as quickly as possible and later, when forming the arguments, did not consider the information gained from reading the articles. After additional</p>

		scaffolding, they managed to integrate the information from the articles.
<u>Reading Focus</u> Are students reading carefully and answering their questions with detail?	✓	The students were focused on answering the questions and asked for help (from me), if needed. They did not express that the articles were too difficult to read.
<u>Information Sharing</u> Are they listening to groupmates' findings and building shared understanding?	✗	The findings were not properly implemented or discussed while forming the arguments with the group. They were very brief in giving the overview of their assigned article and did not think to mention it while writing the for and against arguments. The process of forming arguments was disrupted, because the group did not understand what to base their arguments on and needed additional scaffolding by the teacher. The students did not seem to understand what an argument is and needed additional instructions for that.

Group 3 Time: 14:20 – 15:05

Focus Area	Observed? (✓ / ✗)	Notes / Examples
<u>Agreement Revisions</u> Do students reflect on and adjust their group norms meaningfully?	✗	The students just read the agreements and did not discuss them further.
<u>Understanding the Task</u> Do students understand their writing task and research role?	✓	Everyone is working on their assigned article. Two of the students are asking each other for clarifications if needed.

<u>Reading Focus</u> Are students reading carefully and answering their questions with detail?	✓	This group stands out with the most detailed answers.
<u>Information Sharing</u> Are they listening to groupmates' findings and building shared understanding?	✓	Each member of the group shares their findings. They do not have enough time to form the arguments though,

General observations during the lesson

Although two members from different groups are less thorough in their approach to reading and analysing the assigned articles, the overall class climate is busy and everyone is focused on the task. Some of the students express that they are tired and show some signs of lower motivation.

There were technical issues with some of the students' microphones. If the microphone is not connected, then CoTrack does not view the group member as being active.

The students are also shown the data from CoTrack to support their collaboration reflection. The word cloud (indicating the most often uttered words) elicits the most excitement. Some students protest the data and say that they did not say the words depicted in the word cloud.

Class B

Group 1 Time: 9:25–10:10

Focus Area	Observed? (✓/✗)	Notes / Examples
<u>Agreement Revisions</u> Do students reflect on and adjust their group norms meaningfully?	✗	One of the group members read the text and the rest listened passively.

<p><u>Understanding the Task</u></p> <p>Do students understand their writing task and research role?</p>	✓	<p>The students understand their role but do not seem to comprehend or consider the way in which it will contribute to the final writing effort.</p> <p>One of the students is very slow in writing down their answers for the article. However, the way in which the articles are divided among the group members reflects their language proficiency level.</p>
<p><u>Reading Focus</u></p> <p>Are students reading carefully and answering their questions with detail?</p>	✓	<p>All of the students are reading and answering the questions. Like mentioned, one student struggles to write down their ideas as quickly as the rest of the group members. The difference is noticeable in the shared cowriting space and the student says they are doing their best when the deskmate comments on their slow progress.</p>
<p><u>Information Sharing</u></p> <p>Are they listening to groupmates' findings and building shared understanding?</p>	✗	<p>The group members are even less talkative than in the previous lesson. Everyone is focused on getting the task done and writes the answers down in their shared document.</p>

Group 2 Time: 9:25–10:10

Focus Area	Observed? (✓ / ✗)	Notes / Examples
<p><u>Agreement Revisions</u></p> <p>Do students reflect on and adjust their group norms meaningfully?</p>	✗	<p>The students glance at the agreements, there is no meaningful discussion or revisions.</p>

<p><u>Understanding the Task</u></p> <p>Do students understand their writing task and research role?</p>	✓	<p>The group members understand their individual task and read the article with care. Everyone is focused on their article.</p> <p>However, they do not implement the individually gained information to later discuss the best arguments or try to reach a group consensus.</p>
<p><u>Reading Focus</u></p> <p>Are students reading carefully and answering their questions with detail?</p>	✓	<p>Most of the students are focused on reading and answering their questions. One member is caught (by different groups) surfing other web-pages and less engaged with the reading.</p>
<p><u>Information Sharing</u></p> <p>Are they listening to groupmates' findings and building shared understanding?</p>	✓	<p>Thanks to one member, who led the discussion and asked clarifying questions, the group was able to implement individual group members' findings in forming arguments. The same member, who took the lead, also read the other group members answers in the shared document and commented on the findings or asked for clarifications. The aforementioned member likewise seemed to have a good grasp on what an argument is and synthesize the information accordingly. It is also important to note, that this group member is usually less social with classmates, however has exhibited signs of advanced analysis skills. It was quite a positive surprise for me to see that student so involved in the discussion.</p>

Group 3 Time: 9:25–10:10

Focus Area	Observed? (✓ / X)	Notes / Examples
<p><u>Agreement Revisions</u></p> <p>Do students reflect on and adjust their group norms meaningfully?</p>	X	<p>One of the group member read the agreements, others listened passively (one seemed to be thinking of something else)</p>

<u>Understanding the Task</u> Do students understand their writing task and research role?	so-so	The students understood their individual task, but just like the rest of the groups, had trouble implementing the individual findings in forming arguments with the group or coming up with relevant ideas.
<u>Reading Focus</u> Are students reading carefully and answering their questions with detail?	✓	Two of the students were focused on the task. One was often distracted (same as in previous lesson), and one found the text and task too challenging.
<u>Information Sharing</u> Are they listening to groupmates' findings and building shared understanding?	✓	Two of the students listened to each other's findings and used them to form arguments. They did not include the passive members' findings and did not try to motivate them to share their findings.

General observations during the lesson

Just like in the previous lesson, class B showed less signs of cooperative orientation. There was less talking in groups and less active members were not invited to participate. Moreover, in this group, there were a few students who found the research task too difficult and were struggling to contribute meaningfully.

Technical issues with the connectivity of microphones appeared for 2 students.

Similarly to class A, the students are excited about the data gathered from CoTrack and especially amused by the word cloud.

Lesson 3 – Collaborative Writing (28 April, 2025)

Class A

Group 1 Time: 9:25-10:10

Focus Area	Observed? (✓/✗)	Notes / Examples
<p><u>Promotive Interaction</u></p> <p>Are students asking questions, supporting each other, and staying on-topic?</p>	✓	<p>The students are actively discussing what they should write down and finalizing their arguments. One of the students is quiet (like always), however I catch a few moments when one of the other group members checks in to see what he is working on and how he is doing. The group is focused on getting the task done and does not show signs of off-task behaviour.</p>
<p><u>Use of Roles</u></p> <p>Are roles like writer, idea leader, and checker actively used?</p>	✓	<p>The roles are assigned by the group members and aim to reflect each member's individual strengths. The idea leader is very active and directs the process. The writer is also actively working and adding their own ideas. However, the language checker is one of the more quiet students and seems to be struggling to contribute meaningfully (since it is difficult to make language revisions at this stage of the writing process).</p>
<p><u>Participation & Turn-Taking</u></p> <p>Is there equal participation and respectful turn-taking?</p>	✓	<p>The students seem to be doing their best to abide by their assigned roles. However, like mentioned, the language checker is less active in suggesting revisions.</p>
<p><u>CoTrack Use</u></p> <p>Is CoTrack used collaboratively and efficiently (checking ideas before typing)?</p>	✗	<p>CoTrack is used as a shared writing platform: one student is writing the ideas down and the other one is leading the discussion. Both the writer and idea leader are confident and extroverted students and therefore it seems as if the verbal communication as well as reflecting on what has been written and should be added comes naturally for them (they haven't been afraid to speak up in other lessons either)</p>

Group 2 Time: **9:25-10:10**

Focus Area	Observed? (✓/✗)	Notes / Examples
<u>Promotive Interaction</u> Are students asking questions, supporting each other, and staying on-topic?	✓	One of the group members is absent. The other two work hard to finalise the structure for their article and write the ideas down. One of the members is a writer and the other one suggests the content and ideas. Both members are contributing in the writing process. I catch one instance when they discuss the best wording for their sentence.
<u>Use of Roles</u> Are roles like writer, idea leader, and checker actively used?	✓	Both members are trying to fulfil their assigned role. I notice the idea leader checking the prompts and role description on two occasions.
<u>Participation & Turn-Taking</u> Is there equal participation and respectful turn-taking?	✓	The group members have a mutually respectful dynamic: one is leading the discussion and the other one adding ideas or clarifying politely.
<u>CoTrack Use</u> Is CoTrack used collaboratively and efficiently (checking ideas before typing)?	✓	Only one person is typing and the other member is not editing the text unless clarifying it first with the other student.

Group 3 Time: **9:25-10:10**

Focus Area	Observed? (✓/✗)	Notes / Examples
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<p><u>Promotive Interaction</u></p> <p>Are students asking questions, supporting each other, and staying on-topic?</p>	✓	<p>The students are actively discussing what to write and how best to write it. I notice them discussing the best way to form a sentence on many occasions.</p> <p>I also notice that one of the students, who has a stutter, communicates their ideas or suggestions first to the classmates next to her (who she is more comfortable talking with) and then this classmate shares some of the notions with the rest of the group. All of the group members are friendly and supportive in their communication.</p> <p>Another interesting observation: at one point one of the students left their computer and walked to the writer to make suggestions on how to revise the text. She stayed put there and seemed more comfortable with the mobility this offered (moving from one group mate to another to add something or point at something on their screen).</p>
<p><u>Use of Roles</u></p> <p>Are roles like writer, idea leader, and checker actively used?</p>	✓	<p>The students are minding their roles (occasionally glancing at the role descriptions) and the idea leader as well as the writer are constantly doing their part.</p> <p>The language checker is keeping an eye on what is written and occasionally makes a few suggestions but seems struggling a bit with finding enough instances to fulfil her role.</p>
<p><u>Participation & Turn-Taking</u></p> <p>Is there equal participation and respectful turn-taking?</p>	✓	<p>The members are very considerate of each other's ideas and input.</p> <p>One of the members is quieter, but communicated via her deskmate (like described earlier)</p>

<p><u>CoTrack Use</u></p> <p>Is CoTrack used collaboratively and efficiently (checking ideas before typing)?</p>	✓	<p>They use the platform collaboratively by discussing the ideas before writing them down. However, on more than one occasion, I saw the group members looking at their group members screen or pointing at something to suggest revisions. This suggested that the cowriting space did not support the collaborative behaviour on its own and the physical proximity of the group members was also needed to collaboratively lead the writing process.</p>
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General observations during the lesson

There were issues with getting the CoTrack to function properly. I needed to call our educational technologist to help fix the issue.

Class B

Group 1 Time: 14:20-15:05

Focus Area	Observed? (✓ / X)	Notes / Examples
<p><u>Promotive Interaction</u></p> <p>Are students asking questions, supporting each other, and staying on-topic?</p>	X	<p>There is very little interaction amongst the group members. Two of the students are sometimes talking but not about the topic. There is no initiation by the students to elicit any discussion.</p>

<p><u>Use of Roles</u></p> <p>Are roles like writer, idea leader, and checker actively used?</p>	<p>X</p>	<p>The students are working on the task, but there is little verbal discussion on the topic. Two of the students are actively writing the finalised structure for the essay and on a few occasions ask me to clarify what each paragraph should be focusing on. I have given the less active member a written overview of the article structure as well as verbal prompts to use when making suggestions regarding the article structure, but he does not use it to fulfil his role. The other two are quietly writing down their ideas in the shared document and editing what has already been written without any verbal interaction.</p>
<p><u>Participation & Turn-Taking</u></p> <p>Is there equal participation and respectful turn-taking?</p>	<p>X</p>	<p>The students are not interacting or talking with each other.</p>
<p><u>CoTrack Use</u></p> <p>Is CoTrack used collaboratively and efficiently (checking ideas before typing)?</p>	<p>X</p>	<p>CoTrack is used as a shared cowriting space and ideas are added simultaneously by all group members.</p>

Group 2 Time: 14:20-15:05

Focus Area	Observed? (✓/X)	Notes / Examples
<p><u>Promotive Interaction</u></p> <p>Are students asking questions, supporting each other, and staying on-topic?</p>	<p>✓</p>	<p>3 out of 4 in a group are supportive of each other and at times ask questions from the group members to move forward. One of the group members is sometimes showing signs of off-task behaviour and some of the other students (from different groups) are calling him out on it. He is given the role of the language checker and claims that he does not have anything to do at this time. I</p>

		explain that he still needs to participate in the writing process by suggesting ideas and thinking about how to write them down. He then seems to focus on the task more.
<u>Use of Roles</u> Are roles like writer, idea leader, and checker actively used?	✓	Like mentioned previously, all but one member are actively working on the writing task and often looking at their role descriptions.
<u>Participation & Turn-Taking</u> Is there equal participation and respectful turn-taking?	✓	The students that are participating in the discussions constantly respond to what other members suggest. The interaction is polite and respectful (everyone takes turns to speak and no one speaks over anyone)
<u>CoTrack Use</u> Is CoTrack used collaboratively and efficiently (checking ideas before typing)?	✓	The students are actively sharing the ideas and suggesting revisions. The writer listens to everyone's input and formalises the text according to the other members' instructions.

Group 3 Time: 14:20-15:05

Focus Area	Observed? (✓ / X)	Notes / Examples
<u>Promotive Interaction</u> Are students asking questions, supporting each other, and staying on-topic?	X	Only two of the group members are present in class. They are good friends and not very motivated to stay on task. As a result, they showcase off-task behavior often (opening unrelated websites, talking on unrelated topics)

<u>Use of Roles</u> Are roles like writer, idea leader, and checker actively used?	✗	The writer manages to write down only a few sentences. I do not observe the idea leader contributing meaningfully to the writing task. However, near the end of the lesson, one of the students asks me if the climate activists are worried because “the sun will explode in 500 billion years”. This signals that the student is not well informed on the topic.
<u>Participation & Turn-Taking</u> Is there equal participation and respectful turn-taking?	✓	There is very little focus on the writing task overall.
<u>CoTrack Use</u> Is CoTrack used collaboratively and efficiently (checking ideas before typing)?	✓	CoTrack is used minimally for its intended purposes. However, the students are very excited about its word cloud function and start focusing on intentionally saying words that would elicit a reaction from their classmates.

General observations during the lesson

At the end of the lesson, I ask the groups to reflect on their collaboration and while doing that also view the analytical data from CoTrack. For the third group, the word cloud is filled with inappropriate vocabulary. I also catch them repeating the more relevant words (“environment, nature, think, teacher”) into the microphone to try to make up for the words they used. They admit that this was done on purpose and start shifting the blame to each other.

Again, there is an issue with the microphone for one student.

Lesson 4 – Revision & Final Reflection (30 April, 2025)

Class A

Group 1 Time: 14:20–15:15

Focus Area	Observed? (✓/✗)	Notes / Examples
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<p><u>Final Revisions</u></p> <p>Are students actively reading and refining their article?</p>	✓	<p>The students are reading and refining the article according to the given prompts. They have an option to assign the roles again, however they stick with the same roles as the last time</p>
<p><u>Use of Checklist</u></p> <p>Do they refer to the checklist to evaluate and improve their writing?</p>	✓	<p>The idea leader holds the checklist handout and actively gives suggestions to the writer on how to improve the text. The writer is also actively discussing but the language checker is quiet and seldom participates. Nevertheless, all students are focused on the task and do not show any signs of off-task behaviours.</p>
<p><u>Group Reflection</u></p> <p>Do students reflect on their teamwork and learning during discussion?</p>	✓	<p>The reflection is superficial. One of the members simply says: “Everything worked out as intended and all members contributed.” However, the members also point out one of the members has had issues at first but got them fixed (technical issues with logging in to CoTrack).</p>
<p><u>Student Confidence</u></p> <p>Do students demonstrate increased awareness of what makes good collaboration?</p>	✓	<p>The students showcase their ability to work according to their assigned roles and actively discuss what to write down. The students are minding their assigned writing roles (looking at the handout with the role description) as well as the handout with useful expressions and article structure. The students have very specific questions regarding different sections of the article. For instance, one of the students finds it difficult to understand what should be included in the introduction.</p>

Group 2 Time: 14:20–15:15

Focus Area	Observed ? (✓/✗)	Notes / Examples
<u>Final Revisions</u> Are students actively reading and refining their article?	✓	Two of the group members are focused on the essay and trying to add more ideas and refine what has been written. The third member has been absent for most of the study module and probably for that reason feels a bit lost with this task. The other members do not make an effort to include him in the discussion.
<u>Use of Checklist</u> Do they refer to the checklist to evaluate and improve their writing?	✓	One of the students is actively minding the additional handouts and checking if the article could be improved. The other one is writing and a bit more quiet during the discussions, but likewise focused on the writing. The members sometimes edit the text without checking with others first.
<u>Group Reflection</u> Do students reflect on their teamwork and learning during discussion?	✗	The reflection was superficial and it seemed like the students hadn't reflected on their group work experience like this before. They did not refer to the collaboration principles discussed in class and were more focused on the fact that everything got done. The group also mentioned, however, that this study module was a pleasant variation from the usual worksheets and student book.
<u>Student Confidence</u> Do students demonstrate increased awareness of what makes good collaboration?	✓	The students did not focus on these aspects while reflecting on the group work, but when I asked them some more questions, it still showed that their view of good collaboration had shifted. For instance, one student said that it is important to divide roles so that everyone knows what to focus on. Another one mentioned that it is important to stay polite and friendly towards their group mates.

Group 3 Time: 14:20–15:15

Focus Area	Observed? (✓/✗)	Notes / Examples
<u>Final Revisions</u> Are students actively reading and refining their article?	✓	The group is working together to refine the article. They are not only discussing how to make the article more on point, but also how to improve the grammar and word-choice.
<u>Use of Checklist</u> Do they refer to the checklist to evaluate and improve their writing?	✓	Everyone is looking at the checklist and asking me a few questions (“What should be mentioned in the conclusion”→ I explain and refer them to the handout that explains/provides useful language to use. I also notice that one of the members reads some sentences out loud to better reflect on the clarity.
<u>Group Reflection</u> Do students reflect on their teamwork and learning during discussion?	✓	Their reflections are more detailed and deep. When I asked them what the main challenges with group work were, they said that at times some students (e.g the one who was “language checker”) did not have much to do and felt as if their role was quite pointless. I asked them if they thought the task perhaps too difficult and they replied that it was easier than they expected.
<u>Student Confidence</u> Do students demonstrate increased awareness of what makes good collaboration?	✓	<p>The students said that they quite enjoyed the collaborative writing task, because it helped them to come up with better ideas on what to write and how to make their articles easier to read.</p> <p>They also emphasized that it is important to let everyone contribute according to their abilities and invite quieter members to share their opinion by approaching them directly.</p>

General observations during the lesson

Overall, I notice that the groups seem more willing to work together and actually discuss the language with each other. However, it is also evident that the students do not find this topic or assignment particularly motivating but nevertheless work together to get the assignment done.

Class B**Group 1**

Time: 9:25–10:10

Focus Area	Observed? (✓/✗)	Notes / Examples
<p><u>Final Revisions</u></p> <p>Are students actively reading and refining their article?</p>	✓	<p>They are reading and making revisions. At times they ask me to clarify how the paragraphs should be structured and what should be mentioned in the introduction.</p> <p>NB! The students are working completely separately. One of them is very hard at work and adding sentences to improve the writing. The second member is struggling to contribute and trying to add something to the document but seems unsure of himself and says that he does not know what to add. The third member is actively minding the handout with linking words and useful expressions.</p> <p>Another observation: in the beginning of the lesson, the two group members were fighting over the window seat (the three seats were side-by-side because of the way the computer class is organised). It looked like none of them wanted to sit next to the third member of the group. There was obvious tension amongst the group members, however they did not admit to having any conflict and just explained that they both prefer the window seat because it is more comfortable. Nevertheless, I noticed during the lesson that the group members did not communicate verbally almost at all.</p>
<p><u>Use of Checklist</u></p> <p>Do they refer to the checklist to evaluate and improve their writing?</p>	✓	<p>they did mind the checklist, however as mentioned previously, they did not discuss possible revisions with the group– everyone was just editing the document separately.</p>

<p><u>Group Reflection</u></p> <p>Do students reflect on their teamwork and learning during discussion?</p>	<p><i>x</i></p>	<p>They did not reflect on the group work . When I asked them directly, how was it, then one of the members (the one who the other members were reluctant to sit next to), just shook her head.</p>
<p><u>Student Confidence</u></p> <p>Do students demonstrate increased awareness of what makes good collaboration?</p>	<p><i>x</i></p>	<p>They did not demonstrate much awareness in that regard. However, one of the members said that the topic of writing was quite difficult and also slightly pointless in their opinion.</p>

Group 2 Time: 9:25–10:10

Focus Area	Observed? (✓/✗)	Notes / Examples
<p><u>Final Revisions</u></p> <p>Are students actively reading and refining their article?</p>	<p>✓</p>	<p>The students were reading the article quietly, however I saw three out of four members on a few occasions discussing possible revisions for the article. Everyone seemed focused on the task.</p>
<p><u>Use of Checklist</u></p> <p>Do they refer to the checklist to evaluate and improve their writing?</p>	<p>✓</p>	<p>They were looking at the checklist as well as useful language handouts. One of the students was quite often making suggestions on how to improve spelling and grammar. I noticed that he did not just fix the mistakes himself, but asked the writer to do so.</p>
<p><u>Group Reflection</u></p> <p>Do students reflect on their teamwork and</p>	<p><i>x</i></p>	<p>The prompts for reflection did not elicit immediate discussion. The group was still on the quiet side. Even when I asked what worked well and what didn't during their group work, only one person replied and said that some people had a more difficult task (writing) and others were less involved.</p>

learning during discussion?		
<u>Student Confidence</u> Do students demonstrate increased awareness of what makes good collaboration?	X	Although the group seemed polite towards each other, there was little active communication between the members. There was no effort to invite less active members to contribute. Moreover, one group member was again caught doing something not related to their task on their computer. This is quite a significant observation, because this group's collaboration agreement stood out with its toughness with regards to considering the principles of effective collaboration that I had talked about and explained in class.

Group 3 Time: 9:25–10:10

Focus Area	Observed? (✓/X)	Notes / Examples
<u>Final Revisions</u> Are students actively reading and refining their article?	✓	The students were hard at work. Before the lesson, two members came to me and apologised for their disruptive behaviour in the previous lesson (they had said many profanities to elicit a relevant word cloud in CoTrack). Perhaps for this reason, all members of the group were focused on the task and tried to improve their writing.
<u>Use of Checklist</u> Do they refer to the checklist to evaluate and improve their writing?	✓	They asked questions about one of the items in the check-list (“What should we say in the conclusion”, “What do you mean by <i>our opinion</i> ”)?
<u>Group Reflection</u> Do students reflect on their teamwork and	X	The students were more focused on their behaviour during the previous lesson and did not really reflect on what could have been different in their group work.

learning during discussion?		
<u>Student Confidence</u> Do students demonstrate increased awareness of what makes good collaboration?	x	In this group, many different students were absent throughout the collaborative writing activity. Therefore, there was minimal consistency on the group dynamics that the members could have reflected on.

General observations during the lesson

I notice that the groups are less motivated to work together towards a common goal. More conscientious students were focused on the task and contributing to the end result. However, all in all, there were less visible discussions amongst the group members. The group members who were friends with each other talked a lot, but mostly on irrelevant topics and disrupted the group work as a result. The students who I had not noticed actively communicating with each other before, were surprisingly reserved. This was somewhat unexpected, because I had been of the impression that as a language group, class B was more talkative and social than class A. However, this collaborative learning activity showed that their interactions are perhaps more context dependent than I had expected.

APPENDIX 9

This appendix presents an example of how student responses to the open-ended questionnaire items were coded. The responses were first translated from Estonian into English as literally as possible to preserve meaning. The data was then analysed using inductive thematic coding to identify recurring patterns and categories.

Q12: What kind of person do you think is a good collaboration partner? What are their qualities or behavior like?				
SB01	Many people can be good, for example if they understand the subject or just think well.	subject knowledge, cognitive skills	Someone who joins in and wants to work with others.	collaborative attitude,
SB02	Someone who does their part and knows the topic.	responsibility, subject knowledge,	Someone who contributes and speaks politely with others.	responsibility, respectful communication
SB03	Should be someone who knows what they're talking about, lets others express themselves and listens.	subject knowledge, cognitive skills, respectful communication, active_listening,	They should be patient and helpful.	patience, helpfulness
SB04	Considerate, patient, helpful, listens to my answers and I listen to theirs — equal exchange.	empathy, patience, mutual_listening, social skills,	Listens and respects opinions even if skills differ, still tries to share the work fairly.	active listening, fair distribution
SB05	Someone explains things to you and helps.	peer support, helpfulness	Someone like that knows how to talk and help when needed.	communication skills,, helpfulness
SB06	A good partner is someone who understands the topic and participates.	subject knowledge, active participation,	A good partner knows the topic and is polite and listens to others.	subject knowledge, respectful communication, active listening
SB07	When a person works along and focuses on the topic. Also I think the person should stay on topic and ask questions when needed. Also I think when someone deals with unrelated things during group work, it's very impolite to others in the group.	focus on task behavior, politeness,	A good partner is someone who is always involved in the work and doesn't do unrelated things during group work.	focus on task behavior

SB08	A good collaborator is someone who stays on task and doesn't do other things. Some deal with other topics, for example on the phone.	focus, on task behavior, collaborative	A good partner should always participate in work and give their best.	active participation, full effort
SB09			They are active during the work process. They help find solutions and listen to everyone's opinions.	engagement, problem solving, active listening,
SB10			Shares ideas. Dares to speak.	idea contribution, confidence.

RESÜMEE

TARTU ÜLIKOOL

ANGLISTIKA OSAKOND

Jane Eskla

Designing and Testing a data-driven Collaborative EFL Activity for 8th Grade

8. klassi õpilastele suunatud andmepõhise koostöise inglise keele tegevuse kavandamine ja katsetamine

Magistritöö

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Annotatsioon:

Töö eesmärgiks oli uurida, kuidas struktureeritud arvutipõhine koostöine kirjutamisülesanne mõjutab 8. klassi õpilaste hoiakuid koostöö suhtes ning kuidas need hoiakud kajastuvad vaadeldud käitumises ülesande sooritamise ajal. Uurimus viidi läbi Eesti üldhariduskooli 8. klassi inglise keele ning keskendus tähendusliku koostöö toetamisele struktureeritud ülesande ja CoTracki õppimisanalüütika platvormi abil.

Töö esimeses peatükis antakse ülevaade teoreetilisest raamistikust, mis käsitleb koostööpõhise õppimise põhimõtteid ja eeliseid, tõhusa koostöö elemente, arvutipõhise koostööõppe ning koostööpõhise kirjutamise võimalusi ja piiranguid keeleõppes. Lisaks tutvustatakse ICAP-mudelit, mis võimaldab hinnata õpilaste kaasatuse taset (passiivne, aktiivne, konstruktiivne, interaktiivne) ning käsitletakse emotsionaalse ja sotsiaalse kaasatuse tähtsust koostöös.

Teises peatükis kirjeldatakse uurimuse metoodikat, mis põhineb tegevusuuringul. Uuring viidi läbi kahes 8. klassi keelerühmas ning hõlmas nelja õppetundi. Töö kirjeldab ülesande kavandamist, ettevalmistavaid tegevusi, rollide jagamist, tundide ülesehitust ja kasutatud digivahendit CoTrack, mis võimaldas koguda andmeid õpilaste osaluse ja koostöömuustrite kohta. Samuti tutvustatakse küsitluste ülesehitust ning vaatlus- ja refleksioonipõhiseid andmekogumismeetodeid.

Kolmandas peatükis analüüsitakse kogutud andmeid: õpilaste koostööalaseid hoiakuid enne ja pärast ülesannet, vaatluspõhiseid tähelepanekuid klassist ning CoTracki interaktsioonilogisid. Eraldi käsitletakse juhtumeid, kus õpilased demonstreerisid sisulist koostööd, näiteks keeleliste valikute ühist kaalumist ning olukordi, kus ilmnesid takistused,

näiteks tehnilised probleemid või rühmadünaamika häired. Analüüsi eesmärk on tuua esile, millised tegurid toetasid või takistasid tähenduslikku koostööd.

Uurimistöö tulemused näitavad, et kuigi mitmete õpilaste koostööalased hoiakud paranesid, ei väljendunud need alati otseselt käitumises klassiruumis. Töö toob esile, et sisukas koostöö eeldab rohkem kui tehnoloogiat või struktureeritud ülesannet: see nõuab ka õpetaja teadlikku suunamist, korduvat praktiseerimist ning koostööoskuste järjepidevat arendamist. CoTracki kasutamine aitas küll koguda asjakohast andmestikku, kuid selle piirangud (nt liikumispääs, tehnilised tõrked) osutusid mõnel juhul takistuseks loomuliku suhtluse loomulikult tekkimisel ja tagamisel.

Märksõnad:

koostöö, koostöine kirjutamine, arvutipõhine koostöine kirjutamine, inglise keele didaktika

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