Universidad de Costa Rica, Sede de Occidente

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A collaborative ICT-based proposal to implement the AOA mini project in a ninth-grade class at Naranjo Bilingual High School in 2021

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Abstract

At the beginning of 2020 and up to 2021, the world underwent the acute phase of the health crisis of the Covid-19 pandemic, including widespread restrictions on mobility and gatherings. As a result, educational institutions in Costa Rica had to work entirely online, forcing teachers around the country to depend on information and communication technologies (ICTs) for their lessons. Within that context, this research examines the fulfillment of collaborative learning principles in an AOA mini project supported by ICTs and their perceived impact on the students' performance in a 9th-grade class at Naranjo Bilingual High School. The study followed a Classroom Action Research method grounded in a qualitative approach. The MEP AOA mini-project was carried out in a reading and writing class. In small groups, students created a blog on Edublogs, consisting of four written entries about environmental issues. The results showed that implementing ICT-based collaborative projects with the AOA mini-project structure allowed students to develop 21st century skills such as problem-solving, digital literacy, creativity, and collaboration. This research serves as a reference for English teachers in Costa Rica to enrich and improve the development of the AOA mini project. As a limitation, the students reported a need for further training on the ICT platforms used for the study since several supplementary ICT tools were involved. Furthermore, the population involved in the study was small, which does not allow for generalizable results.

Key words: ICTs, Collaboration, Mini-project, AOA, Edublog, EFL.

Resumen

A inicios del 2020 y hasta 2021, Costa Rica y el mundo enfrentaron la fase aguda de la crisis sanitaria causada por la pandemia del Covid-19, incluyendo restricciones generalizadas de movilidad y reuniones sociales. Como resultado, las instituciones educativas en Costa Rica se vieron forzadas a trabajar completamente virtual, lo que obligó a los docentes del país a depender de las tecnologías de la información y la comunicación (TIC). En ese contexto, este estudio examina el cumplimiento de los principios de aprendizaje colaborativo en el mini proyecto propuesto por el Ministerio de Educación Pública apoyado en el uso de las TIC y su impacto percibido en el desempeño de los estudiantes en una clase de 9º grado en el Colegio Bilingüe de Naranjo. El estudio siguió un método de investigación de acción con un enfoque cualitativo. El mini proyecto se desarrolló en subgrupos en una clase de lectura y escritura en inglés. Los estudiantes crearon un blog en Edublogs, el cual consta de cuatro posts sobre temas ambientales. Los resultados mostraron que la implementación de proyectos colaborativos apoyado por las TIC y basados el mini proyecto del MEP permitió a los estudiantes desarrollar habilidades necesarias para un ciudadano del siglo XXI, tales como: resolución de problemas, conocimiento tecnológico, creatividad, colaboración, habilidades sociales y de desarrollo personal. Este estudio sirve de referencia para los docentes de inglés en Costa Rica con el fin de enriquecer y mejorar el desarrollo del mini proyecto. En cuanto a las limitaciones, el periodo establecido para desarrollar el blog interfirió con el tiempo asignado para aprender sobre cada plataforma utilizada, por lo que es necesario capacitar a los estudiantes en el uso de las plataformas TIC, ya que el proceso puede resultar abrumador si se utilizan varias aplicaciones al mismo tiempo. Además, debido a la pequeña población involucrada en el estudio los resultados no pueden ser generalizados.

Palabras Claves: TIC, Colaboración, Mini proyecto, AOA, Edublogs. EFL

PROYECTO DE GRADUACION PARA OPTAR POR EL GRADO DE LICENCIATURA EN ENSEÑANZA DEL INGLES

TFG A collaborative ICT-based proposal to implement the AOA mini project in a ninth-grade class at Naranjo Bilingual High School in 2021

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List of Abbreviations	
Complete Name	***Abbreviation***
Action Oriented Approach	AOA
Ministry of Public Education (Ministerio de Educación Pública)	MEP
Collaborative Learning	CL
Constructivist Learning Environment	CLE
Information Communication Technology	ICT

A collaborative ICT-based proposal to implement the AOA mini project

1. Introduction

Collaboration is one of the most desired skills in the 21st century and, as such, one of the pillars of the Action-Oriented Approach, the official method for foreign language education at the Ministry of Education in Costa Rica. Although references to collaboration can be found in several places in the National English Syllabus, probably the most important collaborative element is the mini-project, a mandatory task that students of all grades must complete. In the 2017 version of the English syllabus, project-based learning, upon which the mini-project task rests, "is an important element in a task-based or action-oriented approach because it is a learner-centered, process-oriented, and collaborative task" (p. 34). Before 2020, the mini-project was carried out in person in English classrooms, following a process approach. However, between 2020 and 2021, the period where the present study took place, the project had to be developed online as a result of the national health crisis due to the COVID-19 pandemic. This forced educational institutions to move to online learning and to depend almost exclusively on ICTs for the construction of knowledge, communication, and collaboration processes.

A series of international and national studies were examined to decide which online tools and applications were suitable for the collaborative work at the heart of the mini-project, particularly as this was a new experience for teachers and students, which required fast and intense learning on the part of both. The studies reviewed were based on the use of blogs, Google tools, and other tools for educational purposes. Most studies suggest that blogs are educational tools that can promote interaction, sharing of ideas, teamwork skills, and a sense of belonging and community (Pifarre, Guijosa & Argelagós, 2014; Kuo, Belland, & Kuo, 2017), which shows that

blogging aligns well with several collaborative principles and as such can become a practical tool for online learning. To assure effective results, the authors highlight the need to provide users with clear guidelines before creating online collaborative spaces. Other studies, such as those conducted by Jackling, Natoli, Siddique, and Sciulli (2015) and Domalewska (2014), also address group size, language proficiency level, and constant assessment and monitoring as aspects to be considered in order to achieve positive results when implementing blogs.

Additionally, Peacock and Grande (2016), Andrew (2019), and Jeong (2016), claim that Google tools can complement group work online well as users can work on the same platforms simultaneously and remotely. As can be seen, collaboration online can be enhanced if a variety of tools are integrated into the learning process. Another example is the study conducted by Beltrán (2019), who looked into using Padlet to foster work in small and large groups. The author found that Padlet encourages students' reflection about their own learning through real-time contributions and facilitates student-student and student-teacher communication.

When it comes to research in Costa Rica, only six studies were found. These projects have addressed the use of ICTs in education from a different lens than the previously discussed studies. The areas that have been investigated in the last decade include the role and use of ICTs in language teaching in schools and high schools in Costa Rica (Charpentier, 2013), teachers' integration of ICTs in their teaching practices (Pizarro & Cordero, 2014), the effectiveness of incorporating ICTs in the EFL classroom through the R2D2 model (Olivares, Brenes, & Valverde, 2020), the use of an online WebQuest project implementing a blended learning approach for analyzing short stories (Arias, Bejarano, Fernandez, Hernandez, & Sanchez, 2018), the factors that influence teachers' progress in terms of ICT use in their teaching (Brenes, Fernández, Pérez, & Carrión, 2020), and a needs analysis of the use of ICTs in fully online classes (Rabb & Vargas, 2021). Nonetheless, the

outcomes of the studies are grounded on the perspectives of teachers and students about the implementation of ICTs in the classroom, but not on classroom experiences with ICTs, and particularly on their use to promote collaborative learning. Overall, it can also be seen that very limited work is being conducted at high school level given that the context of most of the studies is higher education. Even fewer or no studies can be found on exploring classroom experiences with the mini-project in an online environment or the Action Oriented Approach supported by technology.

For these reasons, the present study seeks to help MEP and English teachers who develop the AOA mini-projects in collaborative learning environments online. The current investigation made changes in the process that MEP follows to develop AOA mini-projects to enrich the project's development and include ICTs to carry out these types of projects. The overall research wants to embrace MEP's purpose as it aims to have students learn about respect, values, collaboration, social and individual responsibilities, technology, and critical thinking (MEP syllabus, p.8). Based on the analysis, this research aims to integrate ICTs within a class environment by creating a blog platform to promote collaborative work to learn and improve English skills in a bilingual high school.

2. Objectives

2.1 General Objective

- To assess the fulfillment of collaborative learning principles supported by ICTs and their perceived impact on the development of an AOA mini project in a 9th-grade class at Naranjo Bilingual High School in 2021.

2.2 Specific Objectives

- To evaluate students' performance in terms of project completion, ICT integration, personal involvement, language use, and collaboration in the AOA mini project.
- To analyze the fulfillment of collaborative learning principles in the mini projects according to the students' insights through a self-assessment and a peer assessment instrument.
- To assess the effectiveness of the ICT-based collaboration used in the mini project to identify benefits and drawbacks for the fulfillment of the mini project.

3. Theoretical framework

3.1 Collaborative learning in Costa Rican education: An overview of the national English syllabus by MEP

Action Oriented Approach, also known as AOA, is the official language learning curriculum followed by MEP since 2016 and englobes a series of policies for collaboration and development of 21st century skills. AOA combines different teaching methods in order to achieve an integrated learning outcome with a clear tendency toward task-based instruction. In AOA, learners are meant to develop different competencies through the performance of real-life scenarios which involve personal, public, educational, or occupational tasks (Piccardo & North, 2019). Additionally, AOA allows learners to engage in a learning environment that integrates 21st century skills for teaching English: collaboration and communication, creativity and imagination, critical thinking and problem solving, citizenship, digital literacy, and student leadership and personal development (Norris, 2019). According to MEP, as members of a new citizenship[1], learners are encouraged to develop essential skills in order to become autonomous, creative, and critical thinking individuals who are able to communicate their ideas effectively while working together in different educational and professional areas.

The 2016 national curriculum promotes interaction and collaborative work with other members of the learning community. Collaborative learning (CL) is an approach that recognizes learners' active and significant role in their own learning process, not only when constructing knowledge throughout individual processes, but also in collaboration with their peers. Salmons (2019) describes CL further as an approach that entails "constructing knowledge, negotiating

[1] According to MEP (2016) "Education for a new citizenship envisions learners as active agents of change able to use knowledge, express their points of view, reflect and think critically, be aware of the world and be compassionate national and global citizens" (p. 15).

meanings, and/or solving problems through mutual engagement of two or more learners in a coordinated effort" (p. 5). Students work together, brainstorm ideas, assign roles, and make decisions in order to successfully accomplish a pre-established shared goal. Along the same lines, Valtonen (2011) states that collaborative methodologies allow for cognitive conflicts and interchange of ideas for problem solving to take part in the learning environment (p. 10). From this perspective, collaboration is also understood as a process that provides learning opportunities for students to discuss related or contrasting beliefs about a problem to shape or create their knowledge structures.

Additionally, CL favors learners' participation in the assessment process. As learners work collaboratively, they engage in different non-traditional, learner-centered assessment activities that allow them to give and receive feedback from their peers, thereby strengthening the opportunities to learn and grow together. Students can accomplish a common educational goal as they also prepare themselves to face future life and professional trails. In order to ensure the optimum creation of a collaborative environment in the classroom, several features must be fulfilled. Probably, the best-known features of CL are proposed by Johnson, Johnson, Bertucci, and Conte (1990), which are presented next:

- **Positive interdependence:** Learners need to support and trust each other in order to reach a common objective. The role and contribution of each member is necessary to obtain successful results as a team.
- **Considerable interaction:** Learning with and from others is highly important and encouraged. By interacting, team members are able to share insights, offer and receive feedback, negotiate meaning, and support their ideas.

- **Individual accountability and personal responsibility:** Tasks are distributed among all members of a team, making them responsible for their share of the work in order to reach a collective goal.
- **Social skills:** Soft skills such as trust-building, leadership, decision-making, communication, and conflict management are promoted and exercised among team members.
- **Group self-evaluating:** Group assessment is done to identify the strengths and areas of improvement of the group (as cited in Laal and Laal, 2011, p. 493).

As can be seen, CL emphasizes working independently from an instructor with a team to complete a task, helping learners to develop specific skills. In this regard, Contreras and Chapetón (2017) assert that CL allows students to develop necessary soft and group skills (e.g., self-control, participation, leadership skills) as they engage in tasks that require sharing of ideas, negotiation of meaning, distribution of responsibilities and collaboration. To enact those skills, good communication skills such as tolerance, deliberation and consensus are needed (p. 137). In school, one of the subjects in which students would have a similar experience developing these soft skills in order to achieve a goal is the study of a foreign language. Learning a new language requires constant interaction, dialogue and other social skills expanded through CL. Applying CL techniques since early school stages, learners have the opportunity to fully develop these skills by the time they graduate.

Similarly, Suárez and Rodríguez (2018) explain that students' participation, language interaction, confidence, and involvement in making decisions increase through the development of collaborative tasks, directly improving group dynamics and students' involvement in the

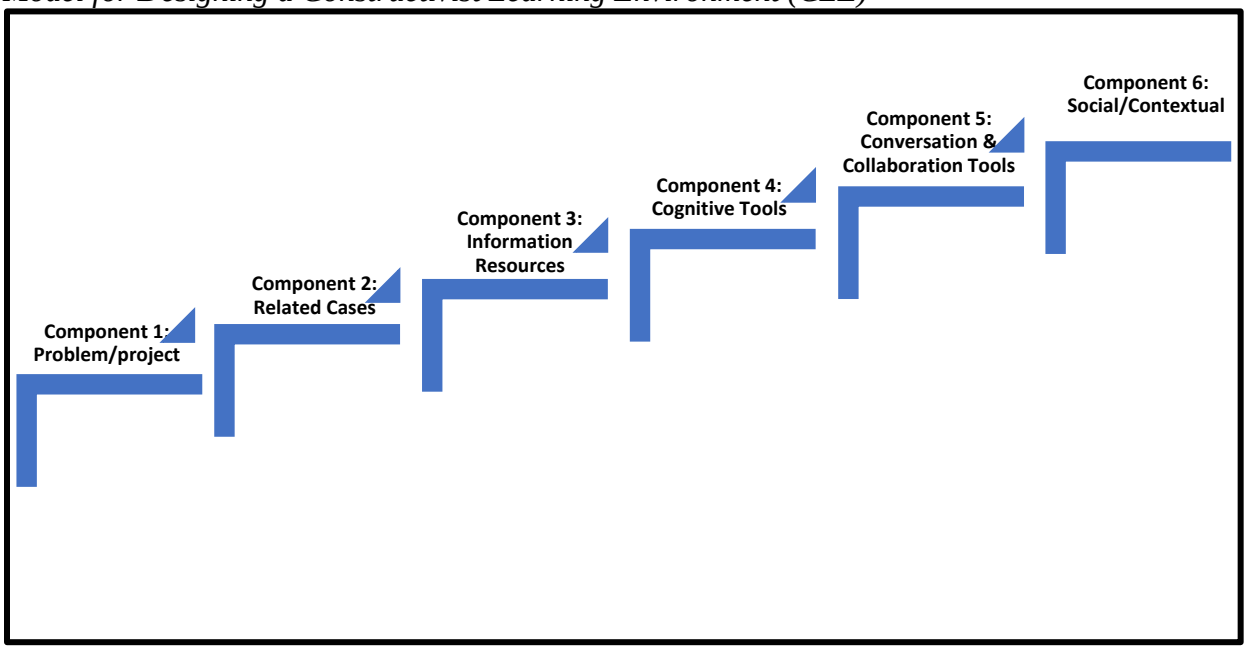
classroom. Hence, motivational, and emotional factors are also influential in the learning experience. Through motivation and emotional learning, students develop a sense of belonging where they feel part of a community in which they can support each other in solving problems. The feeling of trust in a community has positive results in the students as it promotes courage to participate and interact actively during the class (Valtonen, 2011, p. 14).

3.2 Fostering collaboration in the classroom: A model for a constructivist learning environment

In the classroom setting, collaboration is better achieved through scaffolded processes that allow learners to expand their communicative skills as they become aware of their responsibilities while working with peers. Since collaboration is a complex process, it is necessary to integrate a model that guides the teaching and learning act. Jonassen (1999) proposes the Constructivist Learning Environment (CLE), which seeks the engagement of learners to interpret, solve and complete a project and expands the features proposed by Johnson, Johnson, Bertucci, and Conte (1990). This model opens a space for negotiation among students to deliberate on a solution to complete a problem/project in order to achieve a meaningful learning outcome. The main components of this model are presented below.

Figure 1

Model for Designing a Constructivist Learning Environment (CLE)



Source. Adapted from Jonassen, D. (1999). Designing constructivist learning environments.

Component 1. Problem/project. The first component consists of a description of the context in which the problem takes place. CLE must describe the problem and all the context around. It must take into consideration the physical, socio-cultural, and organization that surrounds the problem as well as the values, customs, and expectations of the population involved in the problem/project. The representation of the problem must be engaging, authentic, and it must include features that the learner can manipulate (construct, manipulate parameters, make decisions) so that it generates interest for being resolved.

Component 2. Related cases. CLEs must provide learners with similar cases to the problem to be solved in order to guide students and enhance the construction of mental models for resolving the assigned problem. Thus, learners can use these related cases as a reference to start working on the task.

Component 3. Information resources. Learners need to do research to construct their mental models to create hypotheses that help them solve the problem. CLEs must regulate the kind of sources the learners need for them to understand the problem, and must assure the information provided to solve the problem is selectable. The information may be text documents, graphs, sound resources, videos or animations which are accurate for supporting learners' understanding of the problem.

Component 4. Cognitive tools. Instructors must identify the structures that are essential to solve the problem. For those structures that are not fully processed by the learners, cognitive tools that let students have a scaffolding process to perform the assigned task must be provided. These tools may be presented through problem/task representation tools, performance support tools and information gathering tools.

Component 5. Conversation and collaboration tools. CLEs provide learners with tools that let them collaboratively construct social-shared knowledge and help them have conversations to discuss the solution of a problem and create a *knowledge-building community*. Tools such as blogs, wikis, video conferencing platforms, VoiceThread, WebQuest, BitMoji, word processors, among others may be useful for learners to communicate and work collaboratively.

Component 6. Social/contextual support. When applying CLEs in the classroom, it is of great relevance to consider any contextual, physical, organizational, and cultural aspect of the learning environment. Instructors and students' awareness regarding the social and contextual component, as well as their roles in learning, is key for a successful implementation of CLEs. The role of the instructor is that of a guide who models the activities for learners to have a clearer idea of the task. Furthermore, as Jonassen (1999) states, the instructor... "motivates learners, analyzes their performances, provides feedback and advice on the performances …" (p. 232). The author

also adds that reflecting upon what was learned is part of the process in the constructivist environment.

All of the above components contribute to the creation of constructivist learning environments. According to Jonassen (1999) "learning most naturally occurs not in isolation but by teams of people working together to solve problems. CLEs should provide access to shared information and shared knowledge-building tools to help learners to collaboratively construct socially shared knowledge" (p. 228). Considering this, Jonassen's model provides the teacher with guidance on how to engage in a constructivist learning environment where students can build knowledge and work collaboratively while fostering interpretation and problem-solving skills.

3.3 Transforming language education through AOA mini projects

The implementation of AOA has resulted in an increased attention from MEP authorities to collaboration in the learning setting from MEP authorities. The curriculum contains changes in the structure of the lesson plan and an integrated mini project oriented to the creation of a product allowing students to integrate 21st century skills as they engage in a CL sequence. One of the main characteristics according to Krajcik and Blumenfeld (2006) is that projects are a form of situated learning[2] that promote learners gaining a deeper understanding of material by actively engaging in the construction of their own understanding. This is done by working together on sharing and using their own ideas as a group. In the official 2017 English program, it is stated that project-based learning "is an important element in a task-based or action-oriented approach because it is a learner-centered, process-oriented, and collaborative task" (p. 34).

[2] Norainna (2018) states that situated learning theory holds that knowledge should be delivered in an authentic context. (p. 49)

In the English curriculum, MEP authorities suggest a learning model in which students work collaboratively to develop a project. Projects allow students to work together and explore their creativity while learning and applying concepts and theory reviewed in class, which gives them the opportunity to reflect on their previous learning experiences. Hedge (1993, as cited in Du and Han, 2016), a senior lecturer from Oxford University, states that a project "is an extended task which usually integrates language skills through a number of activities" (p. 1080). Projects involve features such as: the use of authentic English language materials, student-centered activities, and different skills in addition to critical thinking skills, self-study abilities and strategies to work in groups. As can be seen, all these characteristics are conducive to collaborative work.

As included in the Teacher's Guide of the English Syllabus (2016), the integrated mini project is a more complex "learn to do" classroom task in which learners act as social agents to integrate knowledge, skills and abilities within the domain, scenario, themes, the enduring understanding, and essential questions of the corresponding unit in the syllabus that the students are currently studying. The main characteristics of these tasks are that they are collaborative, formative, and focused on a skill-integrated performance by the learners. Projects also promote democratic citizenship and encourage learners to be proactive in their communities which are aspects that must be envisioned within a 21st century skills framework. During the different stages of the process, students are required to apply and complete collaborative assessment strategies such as self and peer assessment in order to ensure meaningful feedback for their learning development.

Regarding the implementation of the mini-project, as stated in the 7th Grade Scope and Sequence (2016), there are six weeks for students to work on their designated projects. Instructors have the freedom to apply the mini-project depending on their needs and available time. For

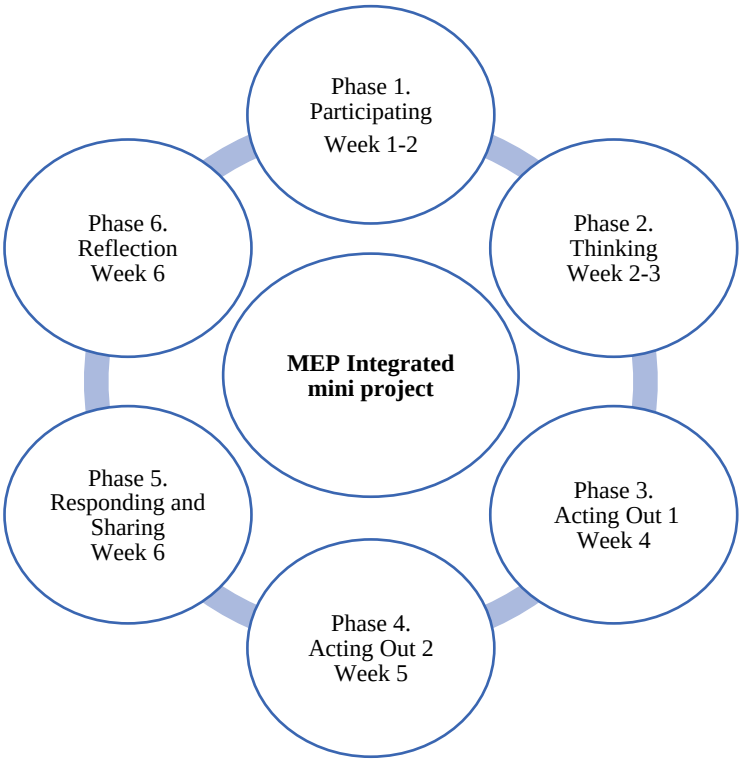
instance, some of suggested tasks are making timelines of story events, asking questions about a document, designing a blog, website, brochure, roleplays, among others. During these six weeks, students are to develop their project through the following phases: *participating, thinking, acting out, responding* and *sharing.*

For the purpose of this research, two other stages were added in order to ensure an optimum CL experience: acting out 2 and a reflection stage. The acting out 2 stage is key for the mini project as it provides a space for learners to engage in formative assessment processes. Students, along with the instructor, assess their work in order to focus on strengths and areas of improvement. As claimed by Dewey (1993, cited in Hatton and Smith, 1995) reflection is defined as "an active and deliberative cognitive process, involving sequences of interconnected ideas which take account of underlying beliefs and knowledge" (p. 34). A reflection stage is essential for the mini project process since it gives the opportunities for students to address problems in their learning process, allowing for doubt and perplexity before possible solutions are reached. A more detailed explanation can be found in the subsequent paragraphs.

As previously mentioned, the Ministry of Education has promoted the use of the three official documents for educators to guide their teaching and assessment processes: the Bilingual Groups Scope 7th (2016), the Teacher's Guide 7th Grade (2016), and a separate PowerPoint presentation titled From Tasks to the Integrated Mini Project (2016) by Marianella Granados Sirias and Yamileth Chaves Soto, both representatives of MEP. The latter provides additional insight and an example for carrying out the integrated mini project along the established timeframe and stages. Therefore, based on the information provided in these three sources, the researchers were able to state the following phases of the integrated mini project to be followed in this proposal:

Figure 2

Phases of the AOA Integrated Mini project



Source. Adapted from Granados, M. & Chaves, Y. (n.d.). From tasks to the integrated mini project.

Phase 1. Participating. The instructor introduces the integrated project options to students, they can either choose to work in groups based on their interest, or the entire class can choose one project in common to everybody in the group. This part of the project involves the brainstorming of ideas. The next step for the instructor is to clarify and review essential questions and unit goals. Finally, as a collective decision, the teacher and learners choose an integrated project.

Phase 2. Thinking. Students start planning and creating, outlining, and finding information collaboratively about the language content and strategies that are going to be used in the project. Here learners activate their prior knowledge, do research, share, negotiate, search for materials, and collaboratively start planning the project.

Phase 3. Acting out -Part 1. In this phase, based on the preparation and planning that the learners have conducted in the previous phase, they start working on assembling their project and on completing the product. Learners must distribute the important tasks, roles and that will after become their final project. Once this phase is concluded, each group member completes a self-assessment instrument to reflect on their own work.

Phase 4. Acting out -Part 2. Learners rehearse the mini project presentation. In this phase, instructors provide formative feedback to evaluate the group's performance and to gauge weaknesses and strengths to make adaptations before the presentation.

Phase 5. Responding and sharing. In this stage each group presents their completed mini project. The project is presented to the class, instructor and/or administrative guests. Learners must be ready to ask and answer questions from classmates and instructors. Once all the presentations are concluded, each group member provides feedback to one of their peers by using a peer-assessment instrument.

Phase 6. Reflection. Once students have presented their projects, they will engage in a reflection process to present their ideas on the effectiveness of the overall experience on creating the mini project.

The type of mini project to be developed depends on the learners and instructors' creativity to assess the corresponding topics on the different units being taught for each grade. Nevertheless, MEP provides the instructors with a list of mini project options per unit and general options that apply for any unit. The outcome from collaborative activities complies with the curriculum's goal to form new citizens with the ability to work as a community in order to complete a task in a learning language scenario.

The phases of the integrated mini-project presented by MEP share similarities with Jonassen's (1999) model for designing a CLE mentioned previously in this section. Both sequences highlight the importance of analyzing a problem by constructing and describing its characteristics. The CLE model and the integrated mini-project encourage learners to do their own research and to propose active solutions. During both processes learners work collaboratively, which generates opportunities to develop social skills to be implemented later in life. Cognitive, conversation and collaborative tools are promoted in both sequences as a means for learners to find a solution to the problem or facilitate the process of completing the project. Finally, social awareness and reflection on the learning process is included in the final phase of both sequences as a way for learners to conclude the task with a meaningful learning outcome. In an aim to expand on the collaboration and communication tools for CL practice, the following section explains how ICTs can be used to enact collaboration.

3.4 Enacting collaboration through ICTs

ICTs have been present in language learning classrooms even before the Covid-19 pandemic started, transforming the methods to teach a foreign language and the resources used in class to achieve language proficiency. Even with distance learning, ICTs have provided learners with digital spaces to work collaboratively in class and to interact to achieve the curriculum objectives. Nevertheless, the use of ICTs has to be planned in detail for its application to be successful and to ensure the quality of the education instructors are aiming to provide to their students.

Despite all the positive advances in education such as the incorporation of ICTs in the learning process, the quality of education is still a feature that has to be studied when using

technology within the classroom. Tinio (2003) mentions three ways in which ICTs can improve the quality of education. First, by motivating students to learn since the usage of different multimedia software that are colorful and appealing provide challenging and authentic content that engages the student in the learning process. Second, ICTs facilitate the acquisition of basic skills which are the foundation of higher order thinking skills and creativity needed in a 21st century employability environment. Third, ICTs have also been used to improve access to a higher quality teacher training instructors may review at any given time and place (p. 7-8).

Moreover, Theng and Neo (2015) state that the implementation of ICTs expand the opportunity for learners to communicate, interact, discuss, and find solutions, considering individuals' accountability needed for working as a team when distributing roles and communicating ideas. These skills are core for the development of the CL process in project-based learning. The incorporation of ICTs into the education system has facilitated the implementation of different teaching methods such as CL to a wide variety of learners.

ICTs help transform the learning environment through the use of technological sources such as computers and internet technologies. In terms of the use of ICTs to promote CL, Becta (2008) explains that engagement and participation are increased since students who deal with anxiety or shyness can express themselves through other means such as videos. Thereby, more opportunities in online discussions are given since social networking is used as a means to continue the learning process outside school hours (as cited in Ezekoka, 2015, p. 1006). Similarly, ICT tools are available for learners anywhere and at any time, this encourages them to further investigate topics that are of interest. Finally, the benefits previously mentioned create a sense of ownership of the learners' own learning process that motivates them into pursuing their academic goals. ICTs play a meaningful role, empowering students to become active, creative, integrative, and

evaluative learners. Nevertheless, not all educational institutions have the resources to successfully incorporate ICTs in their curriculum.

Regardless of the many benefits that come with the use of ICTs in education, limitations are still found; for instance, Kumar (2008) mentions that one of the main challenges to incorporate ICTs in education is the infrastructure available in the institutions; appropriate equipment and software are needed to develop a class supported by ICTs. Most of the time schools and teachers have to spend considerable amounts of money to acquire technological resources and develop their classes. Kumar (2008) also suggests that language and content may interfere with maximizing the benefits of ICTs. Since most of the resources found are created in English, some students might find them more difficult to explore. Instructor skills is another drawback mentioned by the author. Institutions must ensure training for all teachers on how and when to use different tools, before having to teach their students using ICTs. As a result, fear of change is another drawback since according to Kumar (2008), a large number of teachers are resistant to change. Consequently, leadership is necessary during the implementation process of ICTs in the classrooms (p. 558-559).

On a similar matter, Ezekoka (2015) acknowledges students and teachers' individual differences such as access to electricity, available communication infrastructure, basic ICT skills, and limited funds as factors that interfere with the learning process (p. 1009). Modern and stable ICTs infrastructure as well as vast knowledge regarding technological tools are crucial to achieving fluency in lesson development for all teachers and students.

As nowadays virtual classes have been given a prominent role in education worldwide, teaching and learning processes need to include suitable tools that help students achieve the learning goals in the virtual modality. These tools are known as web tools which, namely, platforms for communication, collaboration and knowledge sharing. Web tools are any online

website that allows instructors and learners to upload, download, modify and create content, as well as create meetings through the use of the internet. The following table contains six web tools that can be used in order to enhance collaboration:

Table 1

Web Tools That Promote Collaborative Learning

Web Tools	Description and collaborative purpose
Microsoft Teams	A collaboration app that helps your team stay organized and have conversations all in one place. Inside Microsoft Teams channels you can hold on-the-spot meetings, have conversations, and share files.
Google Classroom	An online platform that lets teachers and learners share, upload and download learning resources, and create online classrooms.
Padlet	An online wall that lets learners collaborate by posting texts, images, links, and audio recordings.
Google docs	An online word processor that lets learners work collaboratively, in the same document, in real time.
Edublogs	An online web-publishing platform that allows learners and instructors to create blogs. This platform is instructor friendly, safe for learners and centered on learning.
Flip	An online video discussion platform that lets learners film videos, record audios, post images and interact through comments.

Source. Researchers' own creation. Web tools that promote CL (2021).

Through the use of these web tools learners engage in collaborative processes in which they construct knowledge together and make use of necessary conversation tools to discuss different aspects (distribution of roles, schedules, brainstorming ideas). In that way, as proposed by Jonassen (1999), learners construct social-shared knowledge. This was carried out when learners used web tools and collaboratively provided solutions to a given problem. Web tools allow learners not only to build knowledge in a collaborative manner, but also to have a better access to education. Instructors and learners need to be aware of the benefits and limitations of these web tools in order to manipulate these resources in a responsible and informed manner. Additionally,

the integration of ICTs in the curriculum promotes flexibility regarding the use of different technological resources that also contribute to the teaching and learning process allowing instructors to create more appealing and dynamic classes.

4. Previous studies on ICTs to support collaborative work

This section contains a selection of previous studies on ICTs and web tools that enhance CL in Central America, Europe, Australia, and Asia. Hence, this section compiles previous research regarding three main sections: blogs, Google tools and other tools. Each section includes the type of study, the methodology and a small discussion of the results in order to justify the relevance of the current research. The studies are analyzed thematically.

4.1 Blogs

Distance learning has opened the opportunity to explore different tools in which students can interact and work collaboratively in their classes. A blog is an online space in which users can create and publish written content sometimes accompanied with media such as photos, videos, and audio. Sites such as Blogger, Edublogs and Microsoft Sway provide the opportunity for users to start their own blogs for free. In education, students can work together in two ways, creating the blog itself and leaving comments on their classmates work in order to receive feedback. Studies around the world have explored the use of blogs in an educational setting using CL, the results are explained as follows.

Pifarre, Guijosa and Argelagós (2014) explored the use of blogs to support high school students' collaborative interaction and how collaboration can promote the creation of a Community of Inquiry to enhance 21st century skills and meaningful learning. The participants

were fifteen secondary students from Spain who participated in a science case-based project of a creation of a science blog that they designed, implemented, and evaluated. Participants engaged collaboratively in critical discourse and reflection commentary in their blogs in order to collectively solve science challenges and construct meaning about topics related to astronomy and space sciences. This science based-case project followed a multi method approach (quantitative and qualitative methods) in which the researchers analyzed comments made on the blogs and the blog science challenge activities performed by each student. The results showed that the collaborative learning which took place in the blog environment allowed the active construction of cognitive, social, and teaching presences, the integration of the three presences is required for meaningful learning to take place in online environments. Furthermore, based on the students' comments on the blogs, the study confirms that an innovative blog environment promotes an effective online collaborative learning community by providing a well-structured model and set of guidelines to create effective, collaborative learning communities in online learning environments. Therefore, the authors' findings promote discussion and reflection as key elements of blogging in a CL setting.

Jackling, Natoli, Siddique and Sciulli (2015) conducted a study in a business college in Australia to evaluate the capacity of blogging to facilitate reflection among students as part of collaborative group learning. This qualitative research designed a situated case study to be used in a second-year corporate accounting course with over three hundred students, at the end only one hundred eleven students provided usable data for the study. Participants gathered in small groups to collaboratively complete an assessment task for the course in which they had to create written entries based on the topic of the unit and four blog entries to be posted over eight weeks. The blog entries were based on reflections on the experience of the collaboration and were designed to

reinforce the ongoing exercise of interaction between the group members. After this period, a questionnaire with Likert-scale items was distributed to evaluate students' attitudes towards using blogs as completion of the assessment task. The results showed that attitudes towards blogs are mixed since groups of participants did not agree with the argument that blogging in CL promotes reflection given that there was a lack of group engagement as the ongoing online dialogue in maintaining the blog was not assessed by the instructor, and the group assessment was only five percent of the final grade. The results of this study indicated that focused consideration is required if an e-learning activity is to be successfully incorporated into a group assignment task. Even though Jackling et. al. (2015) gathered results that show the use of blogs is a viable tool to conduct CL for a few students, it cannot be generalized to smaller group environments or other study areas, such as language learning. This research could have provided different results if it had been applied to a smaller group of students where collaboration is more genuine. Therefore, group size should be considered in order to accurately monitor the students' blog entries and the comments made to their peers and assessment strategies.

Kuo, Belland, and Kuo (2017) developed a mixed method study in which they investigated the relationship between learners' blogging and self-efficacy, sense of community, perceived collaborative learning and perceived learning in classroom environments on sixty African-American adult students whose ages ranged from 18 to 55. The authors applied a survey containing five different sections (5-point Likert scale each one) to measure self-efficacy, sense of community, perceived collaborative learning and perceived learning in the end of the creation of the blog. In terms of the results, the study showed that blogs enhance the sense of belonging to a learning community as they work and collaborate together to create and edit the blog. In the same way, collaborative learning through blogs helped students gain knowledge through communication

and sharing of ideas and gain teamwork skills as they indicated teamwork requires respect, patience, support, and encouragement from the groupmates. This study presented blogs as a mediating tool that allow students to interact and negotiate among them, offering an opportunity to learn and collaborate online. Furthermore, the study provided a series of suggestions for instructors to take into account before implementing blogs in the classroom. The research presented the results in terms of self-efficacy, sense of community, perceived collaborative learning and perceived learning, as this study intended to measure learners' perspectives towards the creation and use of blogs. However, Kuo, Belland, and Kuo's (2017) study did not explore learning regarding language proficiency, which could be of great interest when conducting this type of collaborative learning study.

Domalewska (2014) carried out a case study in which she investigated the use of blogs as a technologically enhanced support to develop interaction and interrelatedness among learners in a foreign language course. The research followed a traditional content analysis to examine the interaction of students on blogs through entries and comments. The study analyzed twelve blogs and a total of sixty-two blog entries posted by twelve students. The results of the study indicated that blogs do not offer the opportunity for students to enhance interaction between learners as it was limited due to the anxiety when writing or posting a text with grammatical mistakes, a decrease in motivation, and the difficulty to write a constructive feedback comment without being rude. Furthermore, as there was limited interaction, collaboration through blogging proved to be impossible to achieve. This study is useful since it presented a different scenario than the previous studies. It is important to highlight that the type of population is strictly related to the results. Domalewska's study chose a population from a beginning language stage that precludes interaction as they were not prepared and did not have the language required to edit and make

entries on a blog. Students were not prepared for the task of creating a blog since their language proficiency at that learning stage did not allow them to fulfill the requirements intended in the study. Thus, students' language proficiency level must be considered when conducting these types of tasks.

Other authors, such as Kılıç and Gokdas (2014) in a North American setting and Saravia (2010) in Costa Rica have examined the use of blogs in an educational environment with positive results. Nevertheless, they have not been explored using a CL strategy that focuses on the students' performance. The majority of the studies found focus their results on the overall use of the ICT tool and on how beneficial it may be in class, without focusing on whether or not the strategy can improve the student's skills. Kılıç and Gokdas (2014) directed a study in Turkey with the aim to investigate the effectiveness of blogging as an educational tool in an undergraduate course for pre-service ICT teachers. Kılıç and Gokdas' study is one of many that does not explore the benefits that the use of blogs may have on the students' language learning process. Saravia (2010) explored the use of ICTs with collaborative learning by implementing an alternative assessment technique in a U.S. literature survey course at UCR. Here students had access to a blog previously created by Saravia, and they had to participate each week by writing reaction posts on a topic studied in class, leaving comments on the classmates' reactions, or introducing a new topic of discussion. This strategy was carried out in a way in which students had to be in constant interaction with each other. At the end of the course, Saravia conducted a survey to collect the students' impression on the activity. Even though participation, motivation and collaboration skills increased in the online environments' problems like disrespectful comments and misleading instructions also emerged. Nonetheless, the results did not mention whether or not this activity increased learners' English skills, it only focused on their literary analysis skills.

A majority of the studies analyzed in this section focused on the learners' perceptions and opinions on the use of an alternative methodology used in class, such as blogs in fields of study such as science, accounting, and literature. Most of these studies focused their results on a qualitative approach giving more importance to the insights provided by the students, promoting reflection on the process and its benefits to their learning. The findings showed that, when planned correctly and rigorously, blogs promote collaboration among students. Factors such as group size, lack of engagement and the instructors background knowledge on the tool being used affected the results of the previous studies. Additionally, not having a good English proficiency level nor any guidelines or rubrics to evaluate the peer feedback interaction caused anxiety and disrespect among students while working online in many of the studies examined, therefore the feedback provided by the participants was not appealing for completing the task.

4.2 Google tools

Google offers a variety of useful applications for education. These applications are used in the educational environment to create, promote, and enhance e-learning spaces for learners to compensate for interaction and collaborative work. Some of the apps used to promote collaboration are the following: Google Docs (it enables learners to work on the same file by using different devices); Google Slides (it allows multiple learners to create and edit a presentation simultaneously); and Google Forms (it facilitates the creation of polls, questionnaires, and tests). Learners and instructors can take advantage of these Google apps to continue learning and overcome the barriers that virtual learning can present.

Peacock and Grande (2016) carried out a case study on the use of Google apps to enhance collaborative learning in forty-seven first-year medical students of a pathology course. The authors used Google applications such as Blogger, Google Forms, Google Sheets, Google Docs and

Google Slides to build a collaborative environment. The study applied a final survey, using Google forms, at the end of the course to measure the use and effectiveness of the apps. The results yielded that Blogger can be used for online class discussions as it is a digital environment that allows students to comment and ask questions, post resources they have seen and answer questions from their classmates. In terms of Google Drive apps, Slides allows multiple students to work remotely in a collaborative manner, in real time; Docs allows multiple users to collaborate on the same file. In terms of students' perspectives, they were asked about the usefulness of these apps regarding collaborative group learning (CGL) and half of them ranked the apps and most of the answers were positive. This study points out the usefulness of the Google apps for collaborative learning. In terms of limitations, some of the students stated that the discussion part could be improved, the authors highlighted that in the future they would like to use wikis which allows students not only to create a presentation but also a webpage. In the same way, the authors mentioned they would like to assess different outcomes that the present study did not focus on as measuring the clinical proficiency of the students.

Andrew (2019) conducted a project in response to the need to integrate new forms of technology in language-learning classrooms not only to enhance learning, but to provide students with the technological and collaborative tools necessary for future academic and professional contexts. This study aimed to investigate students' attitudes towards doing various language-learning assignments on Google apps, explore the advantages and limitations of using Google apps as a cloud-based collaborative tool, and research learners' behaviors while collaborating on Google apps. Surveys and interviews were used with thirty-one participants in a pre-university English for Academic Purposes course in the United Arab Emirates to explore student perceptions of using four Google apps (Sheets, Slides, Docs, and Forms) to perform various language-learning tasks.

Field notes based on observations of one in-class task were also analyzed to investigate student behaviors while collaborating. The participants reported advantages of collaborating on Google apps such as ease of use, working together from different places, and being able to give feedback online. In regard to behaviors, participants showed a tendency to task distribution while working together. Andrew's investigation shows that collaborative learning can be done online by taking advantage of Google platforms.

Jeong (2016) research explores EFL (English as a Foreign Language) college students' perceptions and experiences about a technology-enhanced collaborative English writing course. The objective pursued in the study was to use Google Docs as a cloud-based online collaborative writing tool and peer activities to develop college students' English academic writing skills and motivation. The task consists of having students submit their essay to the Google Docs platform in which each classmate and the teacher could provide feedback to each student's essay in real time. The study included 20 students of an English writing course at a university in Korea. A cloud-based survey was administered at the end of the course, and students' essay samples were analyzed for the purpose of this study. The results show that students have positive perceptions about the use of Google Docs since it enhances active communication, autonomous class participation, and mutual collaboration among peers. Jeong's study confirms the positive use of Google Docs when working collaboratively to promote peer's and teacher's feedback through collaborative work.

Based on the studies previously cited, the majority analyzed the use of Google apps such as Google slides, Docs, Blogger and Forms as mediating tools to promote collaboration in virtual environments. The studies conducted their results in terms of perceptions toward the use of the apps, students' perspectives, and usefulness in terms of collaborative work. In general terms, the limitations found are the following: the discussion part should be improved when implementing

these apps, the focus of the studies could be directed to language proficiency, and not only as an assessment of the usefulness of the Google apps. The findings showed that Google apps can be used in virtual learning contexts to promote collaborative learning and enhance participation of the teams as they can simultaneously work in the apps. The use of Google apps opens a new opportunity for instructors to reinvent their teaching methodology.

4.3 Other tools

The world wide web provides a variety of interactive tools that can be included in an educational setting. With the recent events of the pandemic, instructors all around the world have been forced to explore different tools that can be applied in lessons from any field. Some of the most popular tools being used are the following: Padlet (a free online tool that is best described as an online notice board); Zoom (a cloud-based video communications app that allows users to set up virtual video and audio conferencing); Kahoot (a game-based learning platform that makes it easy to create, share and play learning games or trivia quizzes). The following studies have explored the use of these tools in an CL environment.

Beltrán (2019) conducted a teaching proposal on the uses of Padlet as a web tool to promote collaborative learning in the classroom. The study was conducted at University Jayme I in Spain, and participants consisted of students in the Master's degree for secondary education, vocational training and language teaching. In this study, the participants were asked to work collaboratively on the creation of an innovative Padlet that contained varied and novel teaching methodologies for further use in their teaching. The author explained six ways in which this web tool can support collaboration among students: class resources, class diary, frequently asked questions (FAQ), brainstorming and online dialogue. The author used a 5-point Likert scale to gather students'

opinions toward the use of this web tool. The results suggested that students were highly satisfied with the use of Padlet since all the items obtained values higher than three. In addition, the study shows that Padlet fosters collaborative work in small and big groups as it encourages students' reflections about their own learning through real-time contributions; this platform also facilitates student-student and student-teacher communication. As concluded by the author, online collaboration through this platform goes beyond learning a specific class subject since it enhances students' negotiation and teamwork abilities. Thus, this platform is considered useful to promote collaborative work and other team soft skills in online learning environments.

Rahayu (2020) explored students' experiences and perceptions towards the implementation of the Zoom conference system in synchronous e-learning. The study followed an exploratory sequential design using qualitative exploratory data and quantitative instruments. Participants in this study comprised sixty-two students from two English classes at the same university in Indonesia. Data collection instruments included class observations and a questionnaire with a Likert scale. The results from the study were divided into the following three categories: communication, lesson material, and study process. The findings suggested that using the Zoom platform facilitated communication prior to their synchronous e-learning class, question and answer activities during the study process, and collaborative work through the breakout rooms and the shared screen feature. Participants in the study were able to easily interact with their peers and instructor in an e-learning environment through the use of this online platform. Lastly, the author claimed that the participants involved in this research indicated that the access to materials was not as easy and simple as in face-to-face environments, which suggests closer attention on the type of materials and teaching practices implemented in the online environment. This study confirms

that Zoom is an online platform that favors collaboration among students as it also calls for careful analysis of the online teaching and learning resources being used.

Due to the effects of the global pandemic that bursted in early 2020, other authors have studied the use of ICTs and how they can be incorporated in the classroom. Nevertheless, many studies focus on the use of ICTs as a means to teach and not as an asset for CL strategies. For example, Swaran, Singh, Abdullah, Moneyam, bin Ismail, and Ong (2020) investigated ESL teachers' strategies on English Language teaching during the global pandemic at selected secondary schools in Malaysia. The results showed that the ESL teachers have resorted to Telegram, WhatsApp, Google classroom and Zoom to engage the students in the learning process. Other software applications such as Quizziz, Padlet and Kahoot were used to conduct online assessment. As can be seen in the studies reviewed thus far, ICTs are used in the classroom, but they have not been studied in sufficient detail as they related to CL activities that focus on the students' language learning abilities.

Additionally, five studies conducted in Costa Rica have been examined for the purpose of this research. These projects have certainly addressed the use of ICTs in education but from a different lens. For instance, areas such the role and use of the ICTs in language teaching in schools and high schools in Costa Rica (Charpentier, 2013), teachers' integration of ICTs in their teaching practices (Pizarro & Cordero, 2014), the effectiveness of incorporating ICTs in the EFL classroom through the R2D2 model (Olivares, Brenes, & Valverde, 2020), the use of an online WebQuest project implementing a blended learning approach for analyzing short stories (Arias, Bejarano, Fernandez, Hernandez, & Sanchez, 2018), and the factors that influence teachers' progress in terms of ICT use in their teaching (Brenes, Fernández, Pérez, & Carrión, 2020) have been investigated in the last decade. Nonetheless, the outcomes are merely based on perspectives on the

implementation of ICTs in the classroom and no research studies have been found regarding the use of ICTs to support CL in the national context.

Based on the studies analyzed in this section, it can be seen that a considerable amount of research has been conducted on ICT platforms for educational purposes; however, little research has been found in terms of ICTs as enhancers of CL. According to the examined studies, research is conducted at different population levels but, the majority of the studies conducted in numerous groups of people did not portray positive results in the research. Additionally, many of the studies showed that researchers must be sure about the English level students have when planning projects, as some of the studies did not accomplish their goals because learners did not have the English level to manage the task. Furthermore, most of the studies in this section have been carried out at the college level and no prominent importance has been given to investigation at the high school level. Along with the drawbacks described previously, few research has been conducted using a classroom action research methodology which according to Efrat y Ravid (n.d) is usually defined as an inquiry conducted by educators in their own settings in order to advance their practice and improve their students' learning (p.2). In addition to this, a mixed method design has been frequently used to gather the data in education. Nonetheless, this studied data provides appealing information to prepare with further detail classroom projects that involve ICT´s.

5. Methodology

5.1 Research design

This study followed the Classroom Action Research (CAR) method grounded on a qualitative approach. According to Kumar (2011), qualitative studies aim to "explain, explore, discover and clarify situations, feelings, perceptions, attitudes, values, beliefs and experiences of a group of people." (p. 102). One of the main benefits of the qualitative approach is that it allows researchers to obtain exhaustive data from participants since the data collection process is more flexible and open. Linked to this, the CAR method was selected for this study as it offers an opportunity for teachers-researchers to bring up new insights on how to solve a specific issue affecting the teaching and learning environment and dynamics in the classroom. Taylor, Wilkie, and Baser (2006) refer to action research as a method that is "practical, cyclical and problem-solving in nature." (p. 5). Given that the present study was carried out in an English classroom, the researchers were able to explore collaboration through the analysis of different materials and classroom practices as they engaged in a process of reflection with the students. In other words, CAR focuses on discovering new areas of improvement in order to provide solutions or answers to a problem/issue from a real ongoing and hands-on perspective.

Additionally, one of the main features of CAR is that it is seen as a cycle involving a series of phases or "moments". These phases were also embedded in the design of the AOA mini project carried out by students. As explained by Willis and Eduards (2014), action research may consist of four to six phases; however, for the purpose of this study the four-phase method was selected, which consists of observing, planning, acting and reflecting (p. 59). This process can be seen in Figure 3 and served to guide the development of the project and the analysis of findings. The four

aforementioned phases are considered of great importance; nevertheless, it is worth recalling reflection as a part of an ongoing refining process since it is implicitly present in each phase.

5.2 Context

This research was carried out at Naranjo Bilingual High School located in the western region of the country. This high school was founded in 1999 with the initiative of many members of the community and had an estimated population of 600 students in 2021. It follows a bilingual curriculum in which students receive approximately twelve forty-minute lessons of English per week, divided into listening and speaking, reading and writing, and literature classes.

The project was developed during the third term of the school calendar in 2021. The researchers worked with a reading and writing class with a subgroup of ninth graders. According to the MEP syllabus, ninth graders in a bilingual high school are within the B1 English proficiency level according to the Common European Framework of Reference (p. 4-5). That means that they can understand the main aspects related to topics such as work, travel, and school. Students should be able to produce simple connected text on topics, which are familiar, or of personal interest. At this level, students are also able to express and describe emotional situations such as hopes, dreams and aspirations and the feelings related to these situations.

During the III Term of 2021, the high school worked in a hybrid modality, where they had to attend the high school three days of the week, and the other two days were taken virtually as a sanitary measure due to the Covid-19 pandemic. This research was conducted during the online part of the class. The high school provided students with online spaces on the platform Microsoft Teams to review content, deliver assignments, tutoring or to clarify doubts with the teachers.

The virtual classes were not designed for explanation of new topics. These were explained by the cooperating teacher in the face-to-face classes. This project was applied during the one-

hour virtual class, allocated for the students to develop the mini project once a week. During this process, researchers reinforced grammar and writing topics that the students had previously studied with the cooperating teacher in face-to-face classes throughout the week. The virtual platforms available for the students were Microsoft Teams, WhatsApp and Google classroom where the students could interact with teachers and classmates, review material, deliver assignments and corroborate due dates for the different tasks.

5.3 Participants

5.3.1 Students

This study was completed with a group of eight ninth graders, 6 girls and 2 boys, in a reading and writing class. All the participants were fifteen years old at the moment of the intervention. A purposeful sampling method was used for selecting the participants. Nineth grade was selected given that the participants possess the level and the skills needed and the experience working collaboratively in the mini project as they have already developed mini projects in seventh and eighth grade. This research started with a population of twelve students, however, because the completion of the project was not mandatory for the approval of the class, four students dropped out. For this reason, the results cannot be generalized to the entire group.

5.4 Instruments

This section contains a description of the instruments used in this study. A total of four instruments were used to collect the data.

5.4.1 Rubric to assess the AOA mini project (found in Appendix N.1)

This instrument was used to evaluate the completion of the blog. The following five criteria were considered: blog development, personal involvement, ICT integration, language use, and collaboration. The criteria were graded following a three-point scale. The researchers used this instrument after students presented their finished mini project.

5.4.2 Self-assessment instrument (found in Appendix N.2)

This instrument allowed self-reflection about the fulfillment of collaborative principles through the first three phases of the mini project. This self-assessment consisted of a checklist and was used by students in the third phase of the AOA mini project.

5.4.3 Peer-assessment instrument (found in Appendix N.3)

This instrument was used to evaluate collaboration among team members and also their writing skills during the completion of the AOA mini project. This peer-assessment consisted of a checklist, and it was used by group members to evaluate each other at the end of the fifth phase of the AOA mini project.

5.4.4 Questionnaire (found in Appendix N.4)

This instrument gathered the students' opinions towards the effectiveness of the ICT-based collaboration tools used in the mini project, their benefits and the limitations in an English classroom. This questionnaire was composed of Likert scales and close-ended questions. The questions were designed for students to provide insight on the benefits and drawbacks of the ICT-

based collaboration tools used in the mini project. Students completed the questionnaire after the sixth phase of the mini project.

5.5 Procedures

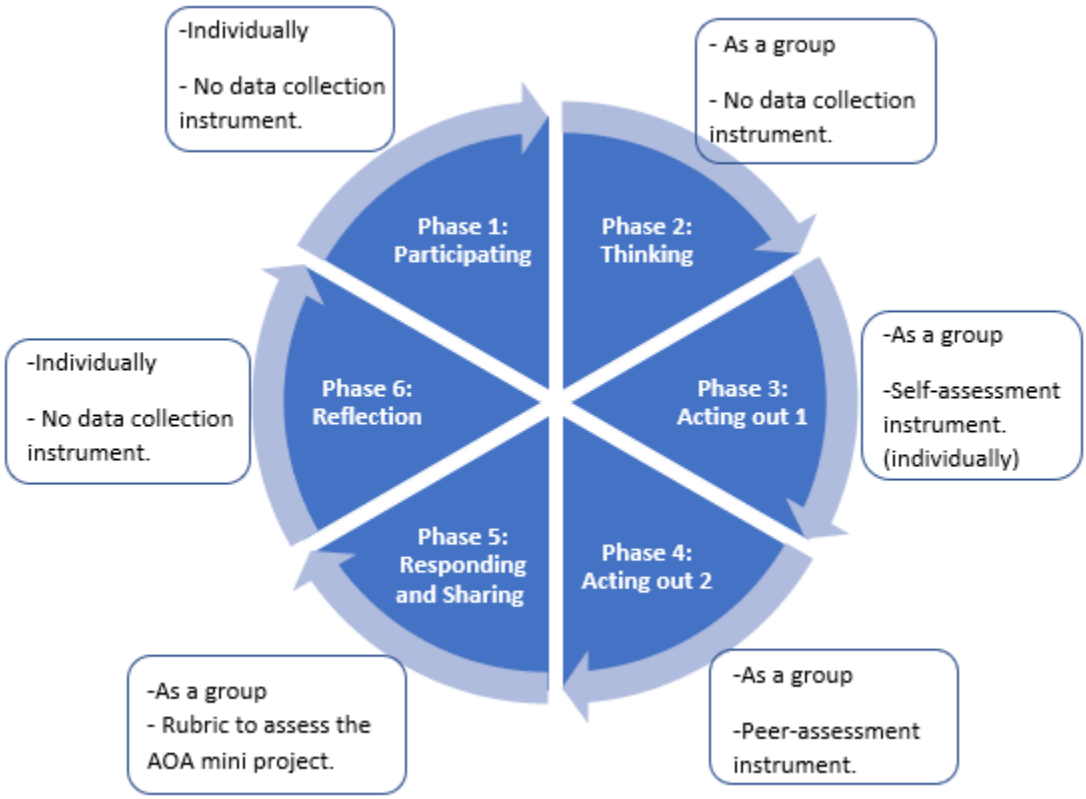
In the first week, the researchers met with the principal to obtain her approval to develop the project in the institution. Additionally, the researchers talked to the cooperating teacher to select a group, unit, and specific dates to develop the project. The first week consisted of a one-hour virtual lesson via Microsoft Teams in which introductory activities were implemented to explain the research proposal and the project guidelines (see Appendix N.5). The students were asked to fill an informed consent form (see Appendix N.6) to make their participation official.

The following five weeks were used to apply the corresponding stages of the integrated mini project. One sixty-minute lesson per week was utilized to develop the project, with a total of five lessons (300 minutes). Students completed the corresponding assessment instruments of the mini project stages during this process. The lessons were conducted via Microsoft Teams, following a flipped classroom methodology and using Google Classroom as an online environment. In addition, the researchers provided instructions and the means for students to complete each of the formative assessment instruments on Google Forms, which corresponded to phase three and five of the AOA mini project.

Additionally, after students completed their projects, the researchers implemented the rubric to assess the AOA mini project. This instrument was used to identify the level of completion in all students' finished blog projects. In order to have a clearer understanding of the stages of the mini project a diagram is presented and explained in detailed below.

Figure 3

Diagram of Stages, Group arrangement, and Data Collection



As seen above in Figure 3, the development process of the mini project started with phase 1: *Participating*, which is the stage where learners individually wrote the first entry about themselves (entry 1). In phase 2: *Thinking*, learners posted entry 1 in their blog and worked in their teams to complete the outline for the blog. Then, phase 3: *Acting out 1* was conducted in groups. Learners wrote the second blog entry in which they described the problem from the topic they selected on phase 2. After learners completed their work, they were provided with a self-assessment to reflect on their work and progress based on the principles of collaborative work. The students worked on entry number three at home, each student had to write a solution to the problem explained in entry 2. The students had to post their entry on the blog before the next class.

Furthermore, in phase 4: *Acting out 2*, learners worked in groups, they wrote the final entry where they discussed about the importance of protecting the environment and posted it on the blog. After that, students made the necessary corrections on their project before phase 5. Finally, in phase 5: *Responding and sharing*, learners shared their completed blogs by presenting a video, students asked and answered questions concerning their project. After the presentations, the students completed a peer assessment to reflect on their peers' progress based on the principles of collaborative work. After students had finished and presented their mini projects, they participated in a reflection activity to provide insight into the overall experience regarding creating their AOA mini project. By the end of the intervention process, the researcher teachers administered a rubric to assess the completion of the blogs.

During the final week, the researchers administered a questionnaire to gather students' perspectives towards the effectiveness of the ICT-based collaboration tools used in the mini project via Google Forms after the interventions. Students completed the questionnaire individually.

5.6 Data analysis

The data collected in this study was analyzed per objective. The data analysis is explained in this section.

5.6.1 Objective 1

In order to measure the students' performance, a rubric was used to evaluate student's completion of the project. This rubric was applied at the end of the intervention process, after the students presented their completed projects. Each blog was evaluated and compared to identify areas of improvement when completing a mini project.

5.6.2 Objective 2

To identify the fulfillment of collaborative learning principles, a self-assessment and a peer-assessment instrument were administered and compared to identify commonalities in students' impact when working individually and collaboratively following the principles of collaborative learning.

5.6.3 Objective 3

To determine the effectiveness of ICTs, a questionnaire was administered for students to provide insights about the implementation of ICT-based collaboration tools. The results from the questionnaire were analyzed to identify the level of agreement in students' perspectives about the use of ICTs in in the development of the project. This instrument sought to identify benefits and possible drawbacks in regard to the ICT-based collaboration tools implemented during the AOA mini project.

5.7 Quality control in qualitative research

As in any research project, data collection processes must comply with several aspects in order to ensure the validity and trustworthiness of the results. This section contains a description of the practices followed to guarantee the quality of the collected data.

In terms of standardization of classroom practices, consistent instructions for the blog development were utilized. The students had access to the same instructions document in the class space on Google Classroom where they could enter at any time. The specific tasks for the day and homework were always shared with all members and the given time to complete the activities was equally assigned to each of the groups. The participants used the same assessment instruments to

evaluate themselves and their peers. Similarly, the researchers used the same assessment instruments to evaluate the students' blogs. In addition, the totality of the intervention was carried out virtually; all the participants were provided with the same online spaces and tools to complete the mini project from home.

As for iteration and material engagement, cycles of formative feedback were provided to students before the final delivery of the project. Furthermore, students' engagement was reinforced by repeatedly monitoring the participants' reactions and personal contact with the participants allowing for unique experiences in the project.

Finally, concerning inter-rater reliability of written texts, the entries were checked two times by different researchers. The students received the first feedback by one of the researchers and the second one by a different researcher. The goal of exchanging texts was to reduce potential biases within group members.

6. Results

6.1 Blog description

The students involved in the project were instructed to get into small groups of three or four members and together create a blog on the platform Edublogs based on the theme "Our responsibility: Environmental concerns" included in the MEP English curriculum for 9th grade. Each group needed to create a blog consisting of four entries and each entry was different. Students followed a specific set of guidelines to write each entry. In the first entry, students introduced themselves and briefly referred to the importance of nature according to their beliefs. In the second entry, students described an environmental problem and its effects on the environment. In the third entry, students provided some solutions to face the problem explained on entry two. Lastly, in the

fourth entry students enrolled in a reflection process as they needed to write about the importance of protecting the environment. Entries one and three were written individually and entries two and four were written collaboratively, and media such as images, videos, songs, gifs needed to be posted in order to support each of the blog entries. Furthermore, the participants had to provide feedback on other blogs in order to support their classmates' learning process by addressing strengths, areas of improvement or other compelling aspects. A set of questions were given to students to write their comments; these comments were written first collaboratively (comment for entry 3) and then individually (comment for entry 4). A total of four comments had to be posted on each blog by the end of the project. The project was completed virtually over a period of 6 weeks. Overall, three blogs were developed in this project and each of them is briefly explained as follows:

Figure 4

Blog Section From Group N.1: Celestia

Group 1 consisted of three students. Their blog was called "Celestia" because they believe the earth is a sacred place. They developed a project on deforestation and provided solutions to this environmental problem. Through their blog, the group wanted to tell readers that they are just

guests on the planet and need to take care of it. Students highlighted the importance of protecting the forests and avoiding indiscriminate deforestation.

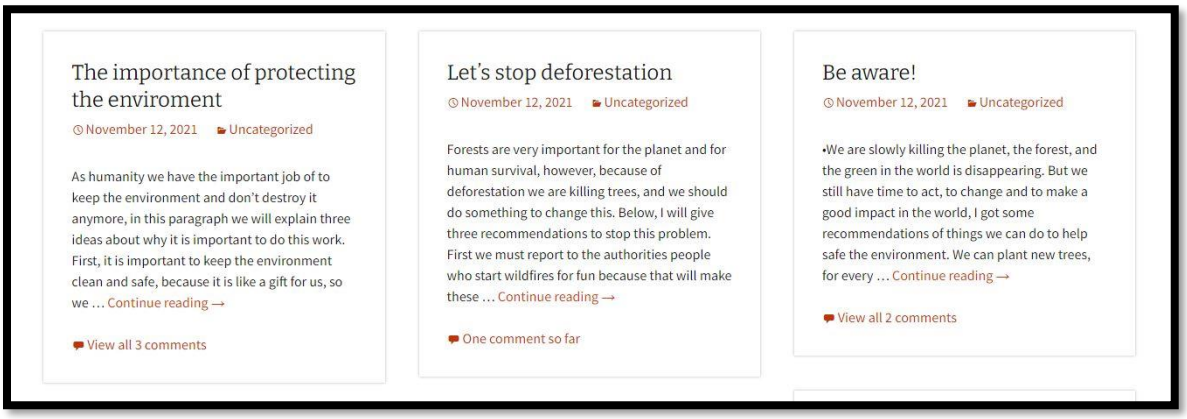
Figure 5

Blog Section From Group N.2: Environmental Assistants

Group 2 consisted of two students. They named their blog “Environmental assistants” since they considered themselves agents who can change people's way of thinking about the environment by writing about dairy farming and its effect on nature. They also proposed a series of actions to reduce its impact and protect the environment. Furthermore, the group came up with creative titles for their blog entries; for example, they named one of their entries “muuuuch pollutants”. The group wanted to raise awareness about the topic and explain how farmers can reduce the effects of this economic activity.

Figure 6

Blog Section from Group N.3: Deforestation



Group 3 also carried out a project on deforestation. This group consisted of three students, and they named their blog "Deforestation". They personalized their blog by changing its layout as they organized the blog entries in a series of columns and not as a top-to-bottom feed like the other two groups. Students discussed the causes of deforestation and proposed the following to the readers: "*start the change now and the future will be better*".

6.2 Blog completion

After students had completed their blog, a rubric was used to report the degree of completion of the dimensions of the project, namely: blog development, personal involvement, ICT integration, language use, and collaboration. As for blog development, the students needed to complete four blog entries. Personal involvement deals with students' personal style to customize their blogs. ICT integration refers to using images or media to support the four entries. Language use refers to grammar and punctuation in the blog. Lastly, collaboration concerns having students post comments on their classmates' blog to provide feedback and insights about their entries.

Figure 7

Naranjo Bilingual High School, Costa Rica: Group's Performance in the AOA Mini Project, November, 2021.

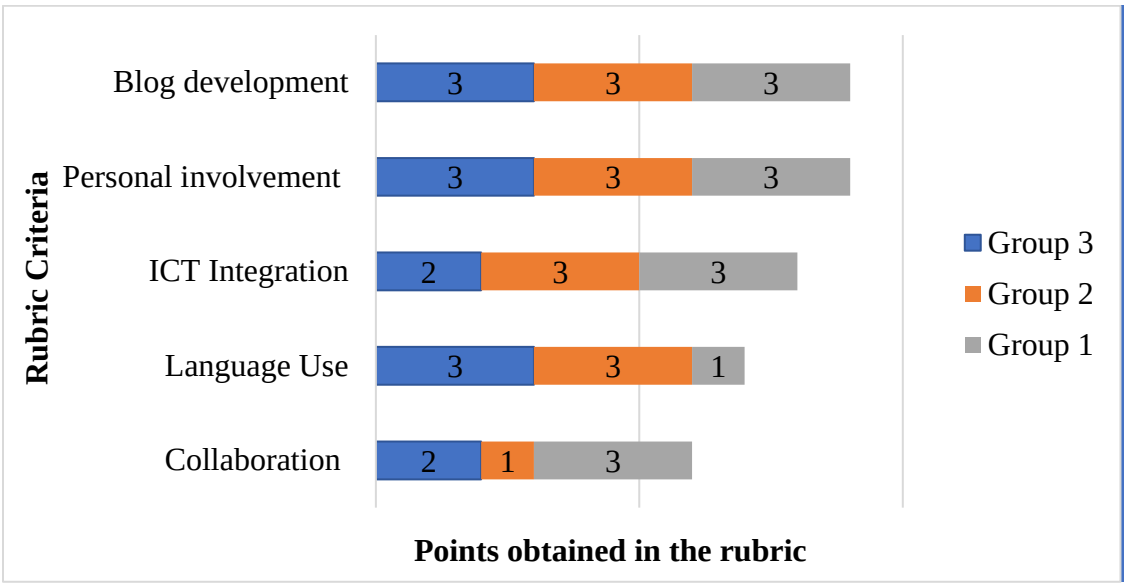


Figure 7 shows the results from the rubric to assess group's performance which included the following criteria: blog development, refers to the required number of entries the students must post on the blog, personal involvement deals with customizing the layout of the blog. The ICT integration criteria seeks that students included the images or media in the blog to visually support their entries. Furthermore, language use refers to grammar and punctuation mistakes and collaboration deals with the exchange of comments through the blogs. A scale from 1 to 3, in which 1 stands for "Below expectations", 2 stands for "Approaching expectations," and 3 "Meets expectations" was used to assess the criteria.

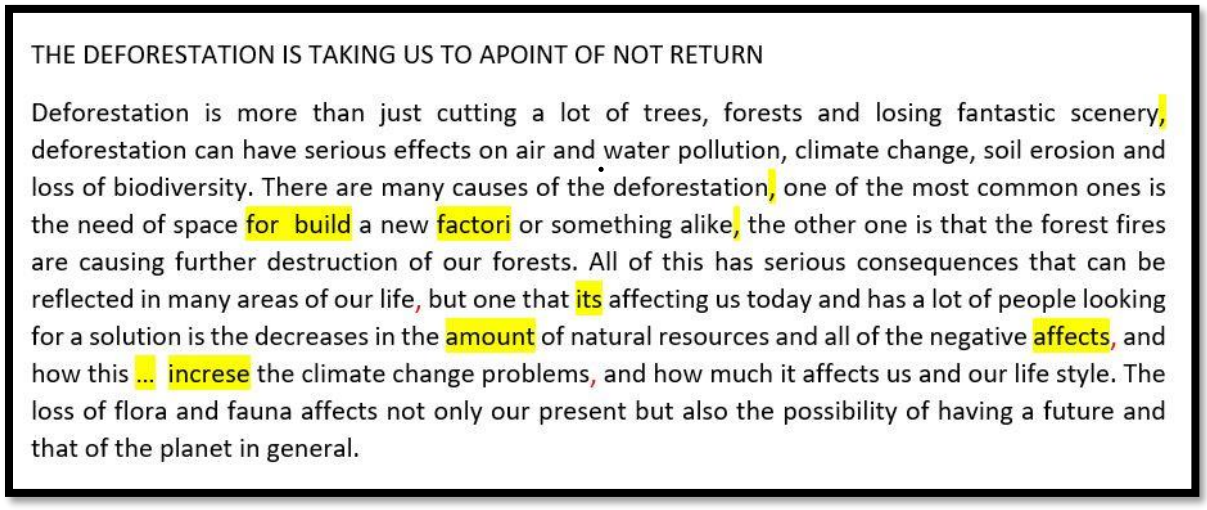
As can be seen, all groups met the expectations about blog development and personal involvement. They completed the four entries of the project and customized the blog according to their personal style. In this sense, a positive relationship between personal involvement, blog

development and collaborative work was identified as the experience in the class revealed that assigning individual and collective responsibilities during the development of the project appears to help increase personal involvement and collaborative work.

In terms of ICT integration, not all the students uploaded images, gifs or videos to their blogs. As shown in figure 7, group number 3 obtained a two for this criteria, which means they only uploaded 4 images instead of the six required. Furthermore, groups 2 and 3 did not comply with the minimum number of comments per entry on each blog entry, thus negatively affecting collaboration. The comments posted by students were meant to provide insights and feedback about their classmates' entries. Therefore, the groups who did not receive the comments could not improve their entries based on the recommendations that were supposed to be posted by their peers. This might have occurred because instructions were not followed correctly. In addition, group number 1 had difficulties concerning language use in grammar, punctuation, and spelling, as shown in the example below.

Figure 8

Blog Entry from Group N.1: Celestia.



THE DEFORESTATION IS TAKING US TO APOINT OF NOT RETURN

Deforestation is more than just cutting a lot of trees, forests and losing fantastic scenery, deforestation can have serious effects on air and water pollution, climate change, soil erosion and loss of biodiversity. There are many causes of the deforestation, one of the most common ones is the need of space for build a new factori or something alike, the other one is that the forest fires are causing further destruction of our forests. All of this has serious consequences that can be reflected in many areas of our life, but one that its affecting us today and has a lot of people looking for a solution is the decreases in the amount of natural resources and all of the negative affects, and how this ... increse the climate change problems, and how much it affects us and our life style. The loss of flora and fauna affects not only our present but also the possibility of having a future and that of the planet in general.

As seen in Figure 8, most of the mistakes made by group 1 were in terms of language use: grammar, punctuation, and spelling. Students were able to convey the intended messages through the entries despite mistakes. Even though students were provided with constant cycles of formative feedback through the creation of the project, time constrains could have interfered with students making the corrections in order to improve their entries. This suggests that feedback and time for improvement are aspects to be considered when developing ICT-based projects.

6.3 Students' achievements and struggles in the blog development

To enquire about the students' experiences while creating the blog, two open-ended questions were included in the self-assessment and the peer assessment instrument. The questions inquired about students' perceptions of benefits and the struggles faced while creating the blog. The participants' answers were interpreted, categorized by components and combined in order to be analyzed.

6.3.1 Insights from students' self-assessment and peer assessment instruments

In the self-assessment instrument, the participants featured discussion of context and problem-based topics and use of appealing ICT tools and technology as beneficials aspects while creating the project. Being able to research, discuss and write about a topic of their preference fostered students' motivation and triggered their interest as new technological platforms were part of the process, which at the same time helped improve their technological knowledge. ICT integration and problem solving are also connected with the knowledge building component, as the participants also expressed that discussing a contextualized issue like environmental problems allowed them to learn and share insight while working with their peers.

In the peer assessment instrument, the participants' overall assessment of their peers was positive. Knowledge sharing and group work emerged as common aspects addressed by the participants. Students mentioned that their classmates' ideas were useful to write the entries and create the project. The participants also reported their classmates' personal responsibility to complete tasks on time as a benefit of working together. From these data, it can be seen that students played an active role in the process learning with and from their peers.

The participants' social skills were positively assessed in both the self-assessment and the peer assessment instruments. The students reported that the exchange of ideas and peer work were beneficial for the development of the project. Students' familiarity with their peers and their working style also supported the creation of the blog and allowed for individual accountability to be present along the process.

In terms of struggles, personal responsibility was addressed twice by students in the peer assessment instrument. The participants noted that inconsistent participation affected personal responsibility as their classmates skipped a class or joined the class late, which could have interfered with the collaborative component of the project.

Linked to the above, in the self and peer assessment the participants mostly referred to two components: social skills and ICT tools. About social skills, students experienced some disagreement in terms of the relevance of the ideas provided by their classmates and they also mentioned difficulty to organize everyone's ideas into a single one. As for ICT tools, the students reported lack of knowledge and experience with Edublogs, which was mentioned on four occasions.

6.4 Fulfillment of collaborative learning principles in self and peer assessment

The data collected from a checklist included in the self-assessment and the peer assessment forms were contrasted to examine the fulfillment of collaborative learning principles in the students' projects.

Figure 9

Naranjo Bilingual High School, Costa Rica: Fulfillment of CL Principles in Students' Projects According to the Self and Peer Assessment Instrument, November 2021

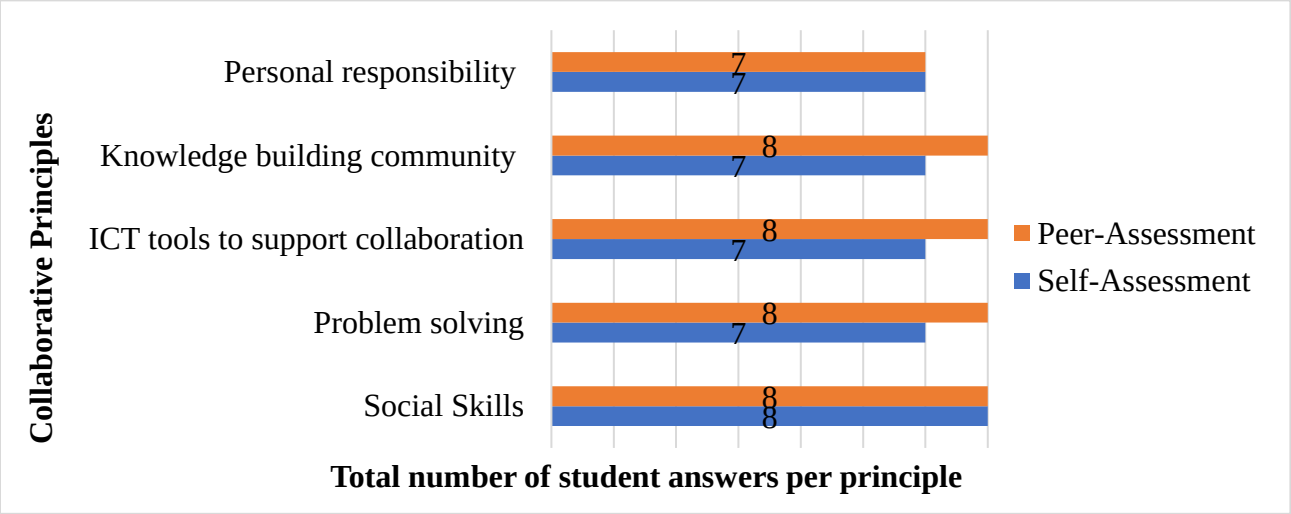


Figure 9 displays the results obtained from the checklists about collaborative learning principles. According to the instrument, a positive relationship was found between the self and peer assessment as students accomplished almost all the collaborative learning principles. It was found that learners who evaluated each other assigned all the participants practically the same grade regarding solutions to the problem developed in the blog, contribution of ideas, and the use of technology to complete the blog.

Furthermore, a compelling relationship between problem-solving, social skills, ICT collaboration tools, knowledge-building community and personal responsibility was found in the

outcomes from the self-assessment checklist. As shown in Figure 9, almost all collaborative principles in the self-assessment occupied the same line in the rate except for social skills, which all students marked with the highest rate. Therefore, it can be said that the individual performance showed during the development of the project met the expected outcome, which was to implement CL principles in the completion of the project. However, each learner still had opportunities for improvement in terms of individual responsibilities, collaboration through ICTs, communication of ideas related to problem solving, and recognition of classmates' feedback.

Overall, these outcomes suggest that almost all the collaborative learning principles were fulfilled while students worked to complete the project, thus allowing students to make both individual and collective decisions. Additionally, the peer assessment portrayed positive results about the fulfillment of the CL principles since only one student was not given the highest mark for personal responsibility.

6.5 Effectiveness of the ICT collaboration tools used in the project

The following section contains the questionnaire results, which can be seen in three sections. The first section deals with students' perceptions of ICT-based collaborative learning. The second section shows the students' perceptions of the ICT tools. The third section corresponds to the open-ended questions about the benefits and challenges encountered during the completion of the project. The results of each section are presented as follows.

6.5.1 Motivation and creativity

The students positively assessed being able to express their ideas and emotions throughout the project and customizing the layout of the blog. The possibility to add images, music and videos

to their written work improved their motivation. The outcomes showed that allowing students to have a saying on the layout and visuals of their work provided positive results. However, not all the students mentioned liking the use of apps to develop the project. At the beginning of the process, the students mentioned complications with the platform Edublogs since they could not find certain features in the app such as enabling comments and personalizing features. Overall, all the participants positively evaluated motivation and creativity for the previous reasons.

6.5.2 Technological skills

Similarly, to the results in the section blog completion, the students reported an improvement in their technological skills and knowledge in their overall learning experience, which was the highest positively assessed criterion in this section. This was exemplified during the final reflection activity. The students expressed that they would use the platform Edublogs again in the future, which means that they were able to overcome the problems they had with the platform at the beginning of the process. Nevertheless, most students showed difficulties when working with the Edublogs and Flip. The three most mentioned difficulties were the following: finding certain features in Edublogs, leaving comments on classmates' blogs, and using Flip to upload their presentations. The students noted that learning about the functioning of many different platforms in a short amount of time was overwhelming. Overall, the students' technological skills were improved throughout the completion of the project, nonetheless. They discovered new applications to upload their work, acquired skills in customizing a website and uploading media, and successfully delivered a virtual assignment.

6.5.3 Social skills

The social skill component was positively assessed in most of the statements presented. All the students indicated that they enjoyed working with their partners and felt comfortable sharing ideas and posting comments to their classmates. Similar results can be seen in Table 2 about the peer and self-assessment instruments, where the students commented positively on the exchange of opinions and ideas and the familiarity they had working with peers. In both instruments, students expressed that they liked working with their partners because of the ideas and creativity many of them had during the development of the mini project. However, posting comments on their classmates' blogs was the lowest-rated aspect since the students would prefer to talk to their classmates directly than to write comments on the blog. The students showed a positive social relationship based on these results, encouraging them to provide feedback directly. These results indicate that most of the students agreed that the social skills promoted during the process were effective for completing the project.

6.5.4 Connectivity

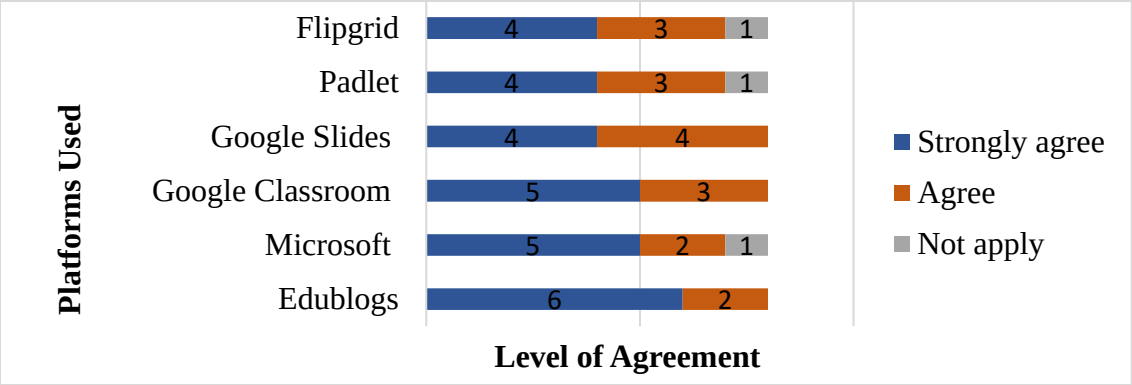
Most of the participants had the technological resources to connect to the online sessions and develop the mini project. These include owning at least one device with a stable internet connection to receive the session. Issues about the internet connection were reported only once.

6.5.5 ICT collaboration tools

Figure 10 displays the results from the questionnaire in terms of the ICT collaboration tools.

Figure 10

Naranjo Bilingual Highschool, Costa Rica: Students' Perceptions about the Effectiveness of ICT Collaboration Tools Used in the Mini Project, November 2021



All of the apps used during the development of the project are found within a positively assessed range. The students highlighted the platforms Edublogs and Google Classroom as the ones that fulfilled their intended role in the project. The platforms that received negative feedback were Padlet and Flip since they were not used as much as Edublogs and Google Classroom, which means that students did not have the same amount of time to explore and learn their technicalities. Overall, the students expressed that they enjoyed learning about many new platforms and that the tools were helpful to complete the project.

Table 2

Naranjo Bilingual Highschool, Costa Rica: Students' Perceptions of the Drawbacks and Benefits of ICT Collaboration Tools on the Development of the Mini Project, November 2021.

Perceived benefits and drawbacks of ICT tools in the development of the project	
Benefits	Drawbacks
• Acquiring new technological knowledge. • Building a community of knowledge in regard to environmental issues. • Being able to work in groups and exchange ideas through virtual environments. • Developing skills for the 21st century student and employees.	• Using the platforms Flip and Edublogs since students had no prior knowledge. • Experiencing internet connection issues. • Incorporating everybody's ideas in one project without it being disorganized was a challenge.

As can be seen in table 2, the participants mentioned both positive aspects and challenges of the use of ICTs while completing the project. The difficulties included the number of platforms that were used during the mini project as participants expressed that there were a lot of platforms with different and difficult layouts and usages to learn in such a short period of time. In total there were five platforms that the students needed to use, Flip and Google Slides were used only once during the process. Particularly during class, the participants highlighted issues with the platform Flip, mentioning they did not understand how to use the application with its screen recording and editing features. This led to one group not following instructions and presenting their project through PowerPoint, which was not included as an option.

Many of the students pointed out the acquisition of technological knowledge as a benefit of using ICT tools in this and the previous section of the questionnaire. Also, the students included comments about the benefits of having the space to learn about environmental issues in class. Even though the participants had a few challenges when learning how to use the different platforms,

they said to have learned from the experience in both technological and environmental issues. Some students addressed the fact that knowledge obtained from the project could be beneficial for their personal and professional growth.

Overall, the use of ICT tools in this project seemed to be challenging for the students, mainly because the students had to use various platforms for the project.

7. Discussion

This section contains an analysis and discussion of the results, considering the fulfillment of collaborative learning principles supported by ICTs and the perceived impact on the development of the AOA mini-project. The outcomes of the research were analyzed in light of the different collaborative learning principles and educational theories used in the project.

The students fulfilled the six stages of the AOA mini-project developed in the class. The stages implemented to create the blog coincided with Hedge's claim (1993, as cited in Du and Han, 2016) about how to develop a project. The author claims that a project is developed by carrying out several activities in which different skills are performed to complete the final objective of the task. Based on the process followed in this research to fulfill the AOA mini-project stages and Hedge's claim, the students were able to complete the project as it was structured by stages, following a sequence of steps that involved different collaborative, technological and language skills during the development of the project.

Blog development and personal involvement were assessed as the dimensions with the best performance by students, both of them seemed to be connected to ICT use. According to Tinio (2003) ICTs motivate students to create original content and learn about several platforms with different colors which are attractive for students, engaging them into the learning process. This

may be linked to the students' having customized their blog according to their likes, positively impacting blog development and personal involvement.

Individual accountability and personal responsibility were present in the *participating* and *acting out part 1* phase as the students had to distribute tasks and contribute to accomplishing a collective goal. Additionally, the "considerable interaction" principle was fulfilled in the thinking, *acting out part 2, responding and sharing and reflection* phases since students interacted as members of a team to provide insights, offer, and receive feedback, negotiate meaning and support their ideas. Overall, the collaborative learning principle particularly present in the project was positive interdependence. Students had to support and trust each other and contribute to the project to complete the shared goal.

Additionally, collaboration was affected during the project as two students from group two and three students from group three did not reach the number of comments expected in other classmates' entries by each group, thus affecting the classmates who did not receive feedback to improve the entries. According to Salmons (2019) CL involves "constructing knowledge, negotiating meanings, and/or solving problems through mutual engagement of two or more learners in a coordinated effort" (p. 5). Therefore, based on Salmons's (2019) theory of construction of knowledge, negotiation of meaning and mutual engagement did not occur, thus affecting the outcome of the project.

Most of the CL principles were fulfilled in the mini project, except for personal responsibility. The results obtained from the self and peer assessment instrument showed that the CL principles proposed by Johnson et al. (1990) were present in the different phases of the mini project. The students' active role in their learning process allowed for considerable interaction, communication, individual accountability, interdependence and self/peer assessment to be

fostered, thus opening a space for students to build knowledge as individuals and members of a community.

Interaction and exchange of ideas among peers were positively assessed, meaning that the students' social skills were put into practice through the project, as mentioned by the majority of the students in the self and peer assessment instrument. This finding is consistent with that of Theng and Neo (2015) as they state that the implementation of ICTs expands the opportunity for learners to communicate, interact, discuss, and find solutions while working towards the completion of a common goal. Similarly, this finding and the participants' positive insights on the project problem-solving structure also relate to Jonassen's (1999) theory about CLEs, which states that these spaces open a room for students to discuss the resolution of a problem, make use of conversation and collaborative tools.

Another finding in this study refers to the use of ICT learning platforms. The students' comments focused on their lack of knowledge and experience working with the platforms used in classes, which was also reflected in both instruments. This result may be linked to the fact that the students had not been exposed to the platforms before, especially Edublogs. Nonetheless, through their comments on the self-assessment instrument, several participants expressed that they liked creating an ICT based collaboration project; the participants verbally communicated their fondness to work on a collaborative project that didn't require them to use a pencil and a sheet of paper.

Overall, no difference was found between the self and peer assessment instruments. Students' answers in both instruments fairly matched, except for two occasions where two students said not to have helped customize and choose a problem to develop the blog. However, their classmates marked otherwise in the peer assessment. A possible explanation for this might be the

participants' limited experience working on peer and self-assessment in their day-to-day learning experience.

As presented in the previous section, the main drawbacks that students experienced were the large number of platforms during the intervention process, the difficult use of platforms such as Edublogs and Flip, and the short time available to learn the apps in class. These results may be seen because the number of weeks assigned to complete the blog was not enough time to develop the project and the lack of experience that the students had with ICTs in the classroom. Another reason may have been that online classes hinder communication between the students and teachers, which causes misunderstandings when clearing doubts. In addition, students may have encountered drawbacks is that most platforms were written in English. According to Kumar (2008), language skills may interfere with maximizing the benefits of ICTs since students with beginner language skills might find platforms more challenging.

On the other hand, the main benefits of ICTs mentioned by students were the knowledge gained on technological tools and the motivation to complete the project. Tinio (2003) emphasizes that ICTs motivate students to learn since the usage of different multimedia software that is colorful and appealing provides challenging and authentic content that engages the student in the learning process. (p. 18). The results from the questionnaire support this finding since most of the participants expressed that they felt motivated to complete the project. Also, they were satisfied with the project, given that they had the chance share their ideas and opinions on the blog. According to, Theng and Neo (2015), ICTs expand the opportunity for learners to communicate, interact, discuss, and find solutions. Similarly, in the study, the students were able to meet through a virtual space by using ICTs where they could share their ideas by finding new communication channels.

8. Conclusions, limitations and recommendations

8.1 Conclusions

The aim in the present study was to assess the fulfillment of CL principles and their impact on the development of a collaborative project supported by ICTs. After having conducted an intervention process and implementing the previously stated instruments, the findings indicate that the participants completed the project and positively integrated most of the CL principles considered in this study, social skills being predominantly reported by the participants as students were able to work, interact, and share their ideas and beliefs with their peers to reach a common goal.

Based on the overall analysis of the project completion, having students performing different tasks involving collaborative, technological, language, and critical thinking skills allowed them to include their interests and preferences when developing ICT-based collaborative projects. This seemed to engage students to complete the project. Then, it can be said that implementing ICT-based collaborative projects helps students develop an interest in the technological world, fosters learning, and favors the development of soft skills for life.

Traditional evaluations tend to focus on individual assessments in which students prepare and deliver a task, focusing on the product and not on the process. Whereas project-based learning allows students to reflect upon their learning process. Through MEP's mini project students engage in a scaffolded process to complete a complex learning task. However, there is a need for a reflection stage in the AOA mini project structure proposed by MEP. In this proposal , reflection was considered as a key element in the different phases of the project since it was present within the tasks assigned. Students were able to discuss, review and consider feedback provided from

their peers, and their teachers as well as their own thoughts to polish their work and abilities for future assessment.

This research serves as reference for English teachers in Costa Rica to enrich and improve the development of the AOA mini project by integrating ICT-based collaboration tools where 21st century skills are learned. Based on the results, providing students with didactic materials such as: blog samples, specific set of guidelines, and video tutorials support learners to complete the project through a guided process.

Furthermore, the number of platforms must be considered for future research to ease the process and reduce the workload for the students. Students need more time to learn about each of the platforms to be used in the project to seize the apps' benefits to the fullest. By doing this, learners have enough time to focus on each dimension of the blog. Edublogs, Google Tools and Padlet are considered essential for the purpose of this project; however, platforms such as Flipgrip and Nearpod can be left out without affecting the overall process.

Additionally, the findings from the self and the peer assessment instruments showed that the participants put into practice the required collaborative skills to complete the project. Students positively referred to being part of collaborative spaces to exchange ideas with their peers, putting into practice their social skills while completing each of the phases of the AOA mini project proposed by MEP.

Lastly, the Covid-19 pandemic opened a space for creating and implementing an AOA mini project proposal to be developed on a virtual learning environment, where collaborative and technological skills are fostered. In a globalized world, learners are expected to acquire essential technological and social skills necessary for personal and professional development. Skills such as working in teams, solving problems, and negotiation of meaning are considered abilities of a

2022 employee or university student. Thus, by applying collaborative work supported by ICTs in the classroom, teachers are contributing to the development of those skills and, at the same time, are implementing a fresh-looking project that engages students and motivates them to finish it. Collaborative projects supported by ICTs are an opportunity for learners in English environments to develop language proficiency and technological knowledge about platforms, websites, apps, and blogs in a collaborative environment.

8.2 Recommendations

The following recommendations are intended to improve the pedagogical intervention process and other aspects related to future similar projects. These recommendations are listed as follows:

8.2.1 Pedagogical recommendations

Based on the results from the questionnaire on ICT tools, the number of platforms used in the intervention process should be reduced to four instead of six to avoid overloading students' work on learning about platform layouts and technicalities in such a short period of time. Before the development of the project, it is recommended for teachers to gradually introduce the ICT platforms in their teaching so that students are used to them. The instructor must pay attention to how students follow collaborative instructions, ensuring that each group member equally contributes to the completion of the assigned tasks. Furthermore, based on the responses given by the students in the peer assessment, the self and peer assessment instruments should assess students' participation during the completion of the project. This could be included as a descriptor for the criteria of personal responsibility. The students' knowledge of nontraditional assessment practices like self and peer assessment should be explored before the intervention process to ensure

understanding of the purpose of these instruments. Finally, the rubric to assess the project should be more specific in terms of the criteria for ICT integration, language use, and collaboration.

8.2.2 Recommendations for future research

Based on this intervention, the following series of recommendations for further research aiming to assess ICTs in a collaborative learning environment are proposed below:

The results suggest that a diagnostic test in ICTs and language use should be carried out before starting an intervention process to create a remedial plan if those results are likely to interfere with the intervention process.

Also, future research should explore the possibility of implementing the project in a face-to-face environment, where collaboration among students can be directly observed in the classroom. Additionally, future research should be aimed at expanding the number of groups involved in the project where one group develops the project in a virtual environment and the other group in a face-to-face setting to compare the results as to the extent to which collaboration principles are reached in different environments.

Furthermore, for the project to be developed as proposed, it is necessary to expand the time given for each mini-project stage so that students follow a scaffolded process and have enough time between tasks.

8.3 Limitations

During the application of the intervention and after having addressed the objectives of this research, some limitations were observed.

8.3.1 Limitations for pedagogical intervention

- Inconsistent students' attendance in the class was also a problem while creating the blog. The students highlighted their classmates' lack of personal responsibility as some

of them skipped a class or joined the class late, which ultimately affected the collaborative component of the project.

- Working with students with different proficiency levels interfered with the organization of ideas within the groups; however, the project's overall completion was not affected.
- The students' limited experience with self and peer assessment could be related to the results obtained in these instruments since there was a tendency for students to assess almost all the principles included in these instruments positively.
- The limited time to develop the blog interfered with the amount of time given to each ICT platform used. The students did not have the same amount of time to explore and learn their technicalities in detail and take advantage of all the features to create their project.
- The cooperating teacher did not have an active role in the project; thus, it was not included in the population involved in the study and no insight in terms of benefits or drawbacks was provided. This data could have supported the results obtained from the instruments applied in the process.
- The small population involved in the project does not allow for generalizations on the results; however, the methodology proposed in this research serves as an indicator that collaborative learning can take place not only in face-to-face environments but also in online learning.
- The COVID-19 pandemic interfered with the process of obtaining a group and permission to carry out the current study. MEP institutions were working under both face-to-face and virtual modalities, which delayed the data collection process.

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10.Appendixes

10.1Rubric to assess the AOA mini project (Appendix N.1)

Objective: To assess students 'performance through the development of the blog.

Criteria	Meets expectations (3 points)	Approaching expectations (2 points)	Below expectations (1 points)
Blog development	Four blog entries are completed.	Three blog entries are completed.	Two or fewer blog entries are completed.
Personal involvement	Blog is clearly customized to the student's personal style.	Blog is partially customized to the student's personal style.	Blog shows no modifications to the general template.
ICT integration	Four entries are accompanied by engaging images or gifs.	Three entries are accompanied by engaging images or gifs.	Two or fewer entries are accompanied by engaging images or gifs.
Language use	One to three grammatical mistakes are found.	Four to six grammatical mistakes are found.	Seven or more grammatical mistakes are found.
Collaboration	Four comments are posted on other blog entries.	Three comments are posted on other blog entries.	Two or fewer comments are posted on other blog entries.

Adapted from Vargas (2021). Course material Writing I.

10.2 Checklist for self-assessment (Appendix N.2)

Universidad de Costa Rica-Sede de Occidente	
Research project: A collaborative ICT based proposal to implement the AOA mini-project	Date: _____
Researchers: Noelia Mora Jara, B44565 Joselyn Pérez Quirós, B65375 Carlos Varela Méndez B57468 David Vargas Jiménez, B67510	Student's name: _____

Objectives:

1. To reflect on individual progress based on the principles of collaborative work.
2. To reflect on individual progress in writing based on the principles of collaborative work.

I. Please mark with an "X" the box that best describes your performance during the completion of your blog.

Aspects	Yes	No	
A. Knowledge-building community			**Comments**
a. I provided comments to help my classmates develop the blog entries.			
b. I considered my classmates' comments to improve the blog entries.			
c. I provided new information about the unit while working with my peers to create the blog.			
B. Personal responsibility			**Comments**
a. I did research on the topic to develop the blog.			
b. I completed my tasks to create the blog.			
c. I finished my tasks on time.			
C. ICT tools to support collaboration			**Comments**
a. I was able to discuss aspects about the blog with my group through technological tools.			
b. I was motivated to work with my classmates through technological tools.			

c. I collaborated with my classmates on customizing the blog according to the group's preferences (theme, fonts, images, gif, and format).			
D. Social skills			**Comments**
a. I shared my opinions and ideas to create the blog entries.			
b. I respected my classmates' opinions and ideas to create the blog.			
c. I participated in the process of making decisions to create the blog.			
E. Problem solving skills			**Comments**
a. I collaborated to choose a possible environmental problem to develop the blog.			
b. I followed the examples provided to solve the problem (to complete the project)			
c. I included concrete actions to solve the problem.			
d. The actions I included to solve the problem are doable.			
F. Writing Skills			**Comments**
a. I followed the studied paragraph structure to create the entries (topic sentence, supporting ideas and concluding sentence).			
b. I included complete sentences to develop my ideas.			
c. I included information related to the topic to develop my ideas.			

II. Answer the following questions with short and honest answers.

1. What have you liked about creating the project so far?

_____

_____

2. What have you struggle the most with while completing the project so far?

_____

_____

We kindly appreciate your participation!

10.3 Checklist for peer-assessment (Appendix N.3)

Universidad de Costa Rica-Sede de Occidente	
Research project: A collaborative ICT based proposal to implement the AOA mini-project	Date: _____
Researchers: Noelia Mora Jara, B44565 Joselyn Pérez Quirós, B65375 Carlos Varela Méndez B57468 David Vargas Jiménez, B67510	Student's name: _____

Objectives:

1. To reflect on peers' progress based on the principles of collaborative work.
2. To reflect on peers' progress in writing based on the principles of collaborative work.

I. Complete this form based on one of your teammate's work while developing the blog. Select the option that best describes his/her performance based on the process of creating the blog.

	Yes	No	Comments
A. Knowledge-building community			
a. My classmate provided comments to help others develop the blog entries.			
b. My classmate considered others' comments to improve the blog entries.			
c. My classmate provided new information about the unit while working with peers to create the blog.			
B. Personal responsibility			**Comments**
a. My classmate did research on the topic to develop the blog.			
b. My classmate completed his/her tasks to create the blog.			
c. My classmate finished his/her tasks on time.			
C. ICT to support collaboration			**Comments**
a. My classmate was able to discuss aspects about the blog through technological tools.			
b. My classmate actively worked with others through technological tools.			
c. My classmate collaborated on customizing the blog according to the group's preferences (theme, fonts, images, gif, and format).			

D. Social skills			**Comments**
a. My classmate shared his/her opinions and ideas to create the blog entries.			
b. My classmate respected the group's opinions and ideas to create the blog.			
c. My classmate participated in the process of making decisions to create the blog.			
E. Problem solving skills			**Comments**
a. My classmate collaborated to choose a possible environmental problem to develop the blog.			
b. My classmate provided ideas to describe the problem.			
c. My classmate included concrete actions to solve the problem.			
d. The actions my classmate included to solve the problem are doable.			
6. Writing Skills			**Comments**
a. My classmate followed the studied paragraph structure to create the entries (topic sentence, supporting ideas and concluding sentence).			
b. My classmate included complete sentences to develop his/her ideas.			
c. My classmate included information related to the topic to develop his/her ideas.			

II. Answer the following questions with short and honest answers.

1. What did you like the most about working with your classmate while creating the blog?

_____

_____

2. What did you like the least about working with your classmate while creating the blog?

_____

_____

We kindly appreciate your participation!

10.4 Questionnaire (Appendix N.4)

Universidad de Costa Rica-Sede de Occidente	
Research project: A collaborative ICT based proposal to implement the AOA mini-project	Date: _____
Researchers: Noelia Mora Jara, B44565 Joselyn Pérez Quirós, B65375 Carlos Varela Méndez B57468 David Vargas Jiménez, B67510	Student's name: _____

I. Answer the following questions based on your experience as a student developing the AOA mini project supported by ICTs and collaborative learning. Please, provide honest responses.

1. Select the option that best describes your opinion towards each statement

Indicators	Strongly agree	Agree	Disagree	Strongly disagree	Not apply
A. Motivation and creativity					
a. I enjoyed customizing my blog. (Adding colors, themes, images and gifs)					
b. I liked using different apps and platforms while creating the project.					
c. I expressed personal ideas and emotions through the creating of the blog.					
B. Technological skills					
a. I struggled with the platforms used while creating the project.					
b. I learned about new apps and platforms to improve my technological knowledge.					
c. It was challenging for me to create the project.					
C. Social skills					

a. I enjoyed interacting with my classmates through different apps and platforms while creating the blog.					
b. I felt comfortable sharing my ideas with my classmates.					
c. I felt comfortable posting comments on my classmates' blog entries.					
d. I prefer to write comments on blogs than to tell my classmates orally.					
D. Connectivity					
a. I was able to work on my blog from anywhere and at any time.					
b. I had a stable internet connection that allowed me to participate in all the online activities.					
c. I had a stable internet connection that allowed me to join all the TEAM meetings.					
d. I had the technological resources to develop the project.					

II. Based on your experience working with technology on this project, answer the following questions. Please, provide honest answers.

1. What would you say was the most challenging part of working with technology while creating the project?

_____

_____

2. What would you say was the most beneficial part of working with technology while creating the project?

_____

_____

10.5 Guidelines for the AOA mini project (Appendix N.5)

Mini project Guidelines: Creating a blog

Innovative ways to save the environment: Living sustainably

- **Scenario:** "Glocal" Citizens
- **Theme:** *Our Responsibility:* Environmental Concerns
- **Enduring understanding:** Environmental integrity is a collective and individual responsibility for current and future generations. Caring for the world is a shared responsibility
- **Writing Component:** Modals, connectors, cause and effect and paragraph structure.
- **Essential question:** What makes us environmentally responsible citizens of the world?
- **General objective:** To examine alternative practices to save the environment.
- **Description of the mini project**: Students will create a blog on the site https://edublogs.org/ to raise awareness about their ecological footprint and innovative ways to save the environment.
- **Check out the teachers' blog for inspiration**: https://blogmodelforminiproject.edublogs.org/

A. General instructions:

To complete each blog entry successfully, you must consider the following aspects:

1. In small groups (3 or 4) create a blog on the platform EduBlogs.
2. The blog should contain 4 main entries. The entries will be written and posted according to due dates. The entries are distributed as follows:

Entry number	Topic	Group arrangement
Entry 1	Introducing yourself	Individually, each group member writes a paragraph to introduce themselves.
Entry 2	A description of the environmental problem selected.	As a group
Entry 3	Solutions to face the problem	Individually, each group member writes a paragraph with a solution to the problem explained in entry 2.
Entry 4	Importance of protecting the environment	As a group

3. All entries should be written as paragraphs of a minimum 6 complete and clear sentences.
4. Entries should contain a title, a topic sentence, at least 3 supporting ideas, and a closing sentence. Check out this video review about paragraph structure: https://www.youtube.com/watch?v=c2qLERuHSRE
5. Be careful with grammar and spelling.
6. Follow the teachers' examples for guidance to write your own paragraphs.
7. Be creative! Use images, video, music, and other media to make your blog more appealing.
8. For entry 3 and 4, students should post a comment on another blog. Follow the guidelines for the comments below.

B. Specific instructions:

❖ ***Creating your blog***

1. Open an account on Edublogs and create your blog. Watch the teachers' tutorial on how to use the platform. (https://www.youtube.com/watch?v=g-o8Bgnf6v0)
2. Choose a theme for your blog and customize all the settings. Be creative and remember to choose a title for your blog.

❖ ***Entry 1: Introducing yourself***

1. **Post your first entry**. Include the following aspects:
    a. A catchy title.
    b. A welcoming message for your audience.
    c. A brief introduction about yourself (name, age, place of residence, likes, etc).
    d. Briefly answer the following questions: How important is nature to you and why?
2. Use images, video, music, and other media to make your entry more appealing. Include at least two images, gifs, videos, music, and other media to support your entry.
3. Before the next class, post the link to your blog on the Padlet that you will find in the Google Classroom post "9-1 environmental blogs" https://padlet.com/josipq1996/fs8468cnbx7ptw13

DUE DATES FOR ENTRY 1		
DATE	**TASK**	**WHERE TO COMPLETE IT**
Friday, October 29th	Creating an account on Edublogs and create your blog.	Edublogs
Before Wednesday November 3rd	Post the first entry.	Edublogs
Before Wednesday November 3rd	Post the link to your blog on Padlet.	Padlet

❖ ***Entry 2: What have we done?***

1. In groups, create an outline for your blog.
2. Once the outline is ready, begin working on writing entry 2:
    a. Choose a human activity that has negatively affected the environment.
    b. Write a paragraph about the activity chosen and describe 3 effects of this activity. Try to answer the following question: In what ways has this activity affected the environment?
3. Post your entries on the blog!
4. Use images, video, music, and other media to make your entry more appealing. Include at least two images, gifs, videos, music, and other media to support your entry.

DUE DATES FOR ENTRY 2		
DATE	**TASK**	**WHERE TO COMPLETE IT**
October 29th	Complete the outline as a group.	Google Slides
November 5th	Write and post entry 2.	Edublogs

❖ ***Entry 3: Let's find solutions!***

1. Write a paragraph to provide recommendations to the problem discussed in entry 2.
2. Include 3 concrete actions that people can follow to reduce the effects of the problem explained in entry 2.
3. Include at least 3 modal auxiliaries in this entry.
4. Use images, video, music, and other media to make your entry more appealing. Include at least two images, gifs, videos, music, and other media to support your entry.

DUE DATES FOR ENTRY 3		
DATE	**TASK**	**WHERE TO COMPLETE IT**
Before Wednesday November 10th	Write and post entry 3.	Edublogs
October 11th or 12th	Write a comment on another group's blog.	Edublogs

❖ ***Entry 4: Thinking differently!***

1. Write a paragraph to talk about the importance of protecting the environment.
2. Include 3 reasons that support your idea.
3. Use images, video, music, and other media to make your entry more appealing. Include at least two images, gifs, videos, music, and other media to support your entry.

DUE DATES FOR ENTRY 4		
DATE	**TASK**	**WHERE TO COMPLETE IT**
November 12th	Write and post entry 4	Edublogs
Before Wednesday November 17th	Write a comment on another group's blog	Edublogs

C. Guidelines to comment on your classmates' blogs.

Each of the comments must be of at least 3 sentences long. To comment on your classmates' entries, answer the questions below. Remember to use appropriate language in your comments, be respectful to your classmates.

Entry 3: Let's find solutions!	***Entry 4: Thinking differently!***
Deadline for comments:	**Deadline for comments:**
● What do you think about your classmate's recommendations? ● Do you follow any of the recommendations given by your classmate? If not, would you follow them? ● Include one recommendation for your classmate's entry.	● Do you agree with your classmate's ideas? Why/Why not? ● Were any of the ideas similar to your ideas? ● Aside from your classmate's ideas would you suggest any other? Which?

D. Presentation guidelines.

1. Each group has to create a 5–6-minute video on the platform Flip to show and present the blog.
    a. Flip Tutorial: https://www.youtube.com/watch?v=bKWbGjWfDnw
    b. Flip Mini Project Page: https://flipgrid.com/bffaa127
2. Present the blog to your classmates.
3. Briefly, refer to the main topic and the main ideas of the body paragraphs.
4. End with a summary of your entry 4.

Blog Structure: Outline

A. General Instructions: Look at the sample provided to organize the structure of each entry.

Entry 2:

- *Topic sentence:* _____.
    - *Supporting idea #1:* _____.
    - *Supporting idea #2:* _____.
    - *Supporting idea #3:* _____.
- *Concluding sentence:* _____.

Entry 3:

- *Topic sentence:* _____.
    - *Supporting idea #1:* _____.
    - *Supporting idea #2:* _____.
    - *Supporting idea #3:* _____.
- *Concluding sentence:* _____.

Entry 4:

- *Topic sentence:* _____.
    - *Supporting idea #1:* _____.
    - *Supporting idea #2:* _____.
    - *Supporting idea #3:* _____.
- *Concluding sentence:* _____.

Paragraph Structure: Outline

General Instructions: Look at the sample provided to organize the structure of each paragraph.

Topic sentence:

_____

_____

Supporting idea #1:

_____

_____

Supporting idea #2:

_____

_____

Supporting idea #3:

_____

_____

Concluding sentence

_____

MINI PROJECT TIMETABLE

MINI PROJECT TIMETABLE		
DATE	**TASK**	**CLASS DYNAMIC**
October 22nd	Sign into Edublogs	In class
October 29th	Brainstorm ideas about environmental problems and possible solutions that can be included in the blog.	In class
October 29th	In your groups, choose a topic for your blog	In class
October 29th	As a group, complete the outline for your blog	In class
October 29th	Create your environmental blog	In class
Before Wednesday November 3rd	Post the link to your blog on Padlet	At home
Before Wednesday November 3rd	Edit and post entry 1	At home
November 5th	As a group, write, edit and customize entry number 2. Post in on your blog.	In class
November 5th	Complete a self-assessment.	In class
Before Wednesday November 10th	Individually, write, edit and customize entry number 3. Post in on your blog.	At home
October 11th or 12th	Post a comment on another blog's entry 3	At home
November 12th	As a group, write, edit and customize entry number 4. Post in on your blog.	In class
November 12th	Complete a peer-assessment.	In class
Before Wednesday November 17th	Post a comment on another blog's entry 4	At home
In the week of the 15th and 18th of November	Check the comments from your classmates and make any changes to your entries if necessary.	At home
In the week of the 15th and 18th of November	Finishing touches! Customizing your blog, adding images, color, videos. And checking entries.	At home
Before Friday November 19th	Uploading your video presentation on Flip	At home
November 19th	Presentations of the blogs to the rest of the class and teachers	In class
November 19th	Reflection NearPod	In class

10.6 Consent form (Appendix N.6)

18 de octubre del 2021

Consentimiento informado

Nosotros/as Noelia Mora Jara, Joselyn Perez Quiros, Carlos Varela Mendez y, David Vargas Jimenez, estudiantes de la Licenciatura en la Enseñanza del Inglés en la Sede de Occidente de la Universidad de Costa Rica, estamos realizando nuestro proyecto de graduación titulado: "***Una propuesta colaborativa basada en Tecnologías de la Información y Comunicación para implementar el mini proyecto del método de enseñanza de idiomas enfocado en la acción con un grupo de noveno grado en el Liceo Bilingüe de Naranjo en el periodo 2021"*** bajo la dirección del profesor José Miguel Vargas Vásquez. Este proyecto cuenta con el visto bueno de la directora de la institución. Asimismo, es importante destacar que el proyecto se enmarca en las iniciativas de la Universidad de Costa Rica para la mejora constante de la educación pública mediate herramientas tecnológicas a raíz de la crisis sanitaria COVID-19.

La importancia del estudio reside en que es una propuesta innovadora para apoyar el aprendizaje del idioma inglés mediante el trabajo colaborativo y apoyado en herramientas digitales. El énfasis principal del proyecto es el desarrollo de las destrezas comunicativas, particularmente la escritura mediante el desarrollo de un blog de manera grupal. Además, el proyecto se convierte en una oportunidad para pilotear y evaluar los principios metodológicos y pedagógicos del mini proyecto desde un enfoque colaborativo. Por lo anterior, le solicitamos muy respetuosamente su autorización para que su hijo/a o familiar participe en el proyecto durante las lecciones de las clases de escritura y lectura con el profesor Roy Rojas Garro.

El proceso será estrictamente **confidencial** y el fin es estrictamente académico. La participación en este proyecto es **voluntaria** y **anónima**. El nombre de el/ la participante no será utilizado en ningún informe cuando los resultados de la investigación sean publicados. Las sesiones serán realizadas de forma virtual por medio de la plataforma Microsoft Teams en el horario virtual destinado por la institución (viernes de 7am a 8am). Ninguna sesión será grabada, sólo en caso de que los estudiantes lo soliciten en forma de repaso o registro de las lecciones.

El objetivo de la investigación:

Evaluar el cumplimiento de los principios de aprendizaje colaborativo apoyados por las TICs y su impacto en la escritura en inglés a través del desarrollo de un mini proyecto en una clase de noveno grado en el Liceo Bilingüe de Naranjo durante el tercer ciclo del 2021.

Método:

Se realizarán seis sesiones virtuales con los/las estudiantes donde se guiará el proceso de la elaboración del mini proyecto. En ellas, los y las estudiantes desarrollan un blog online sobre acciones que están dañando el medio ambiente y posibles soluciones a las mismas. Este proyecto tiene una duración de aproximadamente seis semanas (22 de Octubre al 26 de Noviembre) en donde los/las estudiantes desarrollan las diferentes etapas del proyecto.

Riesgos y beneficios: El estudio no conlleva ningún riesgo. Los beneficios consisten en que el/la participante desarrollará y mejorará habilidades comunicativas y de escritura en inglés así también como destrezas relacionadas a la tecnología y trabajo colaborativo.

Si desea adquirir más información sobre el proyecto o la aplicación del mismo, pueden contactar al profesor encargado del proyecto al correo jose.vargas_v@ucr.ac.cr o las/los estudiantes investigadores por medio del correo marianoelia.mora@ucr.ac.cr

Autorización del encargado legal

Yo _____, cédula número _____, padre, madre o encargado/a legal de el/la estudiante _____ he leído toda la información descrita en esta fórmula, antes de firmarla. Es por esto, que por este medio autorizo a mi hijo/a o familiar para que participe como sujeto de investigación en este estudio.

Le agradecemos el apoyo que pueda brindarnos.

Atentamente,
M.Ed. José Miguel Vargas Vásquez.
Profesor de inglés y director del proyecto. UCR, SO.
Correo electrónico: jose.vargas_v@ucr.ac.cr

M.Ed. Tamatha Rabb Andrews
Coordinadora del Bachillerato y la Licenciatura en Enseñanza del Inglés. UCR, SO.
Correo electrónico: tamatha.rabb@ucr.ac.cr

10.7 Letter of approval from the high school (Appendix N.7)

San Ramón, Alajuela, miércoles 30 de junio 2021
M.Ed. Yerlin Jara Amores
Directora del Liceo Bilingüe de Naranjo

Estimada directora:

Con todo respeto me permito solicitarle su autorización para que los y las estudiantes: Noelia Mora Jara, carné B44565; Joselyn Pérez Quirós, carné B65375; Carlos Varela Méndez carné B57468 y David Vargas Jiménez, carné B67510, puedan aplicar el proyecto final de graduación titulado "*Una propuesta colaborativa basada en el uso de TICs para implementar el AOA mini project"* para optar por el grado de Licenciatura en la Enseñanza del Inglés en la Universidad de Costa Rica, Sede de Occidente, en el colegio a su cargo.

Este proyecto consiste en la aplicación de principios colaborativos y el uso de TICs para apoyar el desarrollo del AOA mini project en clases de inglés, en un grupo de estudiantes de noveno o décimo año. Además, se llevará a cabo un cuestionario a estudiantes y una entrevista al docente colaborador con el objetivo de evaluar la efectividad del proyecto en términos de beneficios y limitaciones en el aula. Este proyecto se desarrollará únicamente a través de la modalidad virtual por medio de sesiones sincrónicas por la plataforma ZOOM o Microsoft Teams. Con el fin de resguardar la integridad de los menores de edad y el docente colaborador, las sesiones no serán grabadas y la información proporcionada será considerada de carácter confidencial. La participación es voluntaria y se realizará bajo el protocolo de consentimiento informado y ética de la universidad, consecuentemente los resultados serán únicamente utilizados para fines de este estudio. Este proyecto será implementado durante el tercer trimestre del calendario escolar del 2021. Las y los estudiantes de este proyecto de graduación se comprometen a acatar los lineamientos que su persona y la institución dirigida por usted requieran para la correcta ejecución del proyecto. Asimismo, en mi función de docente, me encargaré de velar para que así sea.

Una vez concluido el proyecto de investigación, se realizará una devolución de resultados con el personal docente de inglés y se compartirá la guía didáctica producida durante esta investigación para uso de la institución. Le agradecemos todo el apoyo que nos pueda brindar, así como su anuencia por contribuir a estrechar lazos académicos entre el Liceo Bilingüe de Naranjo y la Universidad de Costa Rica.

Atentamente,

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10.8 Researh design (Appendix N.8)

Specific Objectives	Information required	Source	Method for data collection	Information collection procedures	Analysis and interpretation procedures	Timetable
To evaluate students' performance in terms of project completion, ICT integration, personal involvement, language use, and collaboration in the AOA mini-project.	Project completion, ICT Integration, personal involvement, language use and collaboration	Three complete blog mini-projects.	Rubric to assess the AOA mini project/ Rubric to assess the blog entries	At the end of the intervention During the intervention process (after the second, third and fourth blog entries)	To identify the areas of improvement in the student's performance in terms of project completion.	Late – October 2021
To analyze the fulfillment of collaborative learning principles in the mini-projects according to the students' insights in a self-assessment and a peer assessment activity.	Collaborative learning principles	Three complete blog mini-projects	Self-assessment Peer-assessment	Completion of the checklist after students present their projects. Third phase of the mini project Fourth phase of the mini project	To identify the level of fulfillment of collaborative learning principles in student´s finished AOA mini project blog samples. To identify commonalities among two students' formative assessment instruments (self, peer) in terms of the perceived impact of collaborative learning principles.	Mid- Late October 2021

To assess the effectiveness of the ICT-based collaboration used in the mini-project to identify benefits and drawbacks for the fulfillment of the mini-project.	ICT-based tools for collaboration	Students' and assessment of tools	Questionnaire for students to provide insights on the use of ICT-based collaboration.	Application of a questionnaire to the student participants after the intervention. Compare results based on commonalities.	To identify the percentage of response according to a given criteria. To identify benefits and drawbacks based on commonalities between teacher and students' responses in the questionnaire and semi-structured interview.	Early-November 2021 Mid-November 2021
To design a set of guidelines and assessment instruments for the development of a project following the tenets of collaborative learning based on one unit of the national English syllabus integrating the lessons learned from the research project.	All the qualitative and quantitative data gathered from the application of the project	Results from the instruments implemented.	Research Instruments Formative assessment instruments	Data collected at the end of the project.	To examine the results of the project and instruments administered during the research in order to create a set of guidelines and assessment instruments for the AOA mini project.	Late - November 2021 Mid-December 2021