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Original Research

Exploring Regulation and EFL Learners' Attitudes in an Online Collaborative WebQuest Task

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Abstract

Self-regulation and inquiry-based learning tasks, while beneficial for successful computer-supported collaborative learning (CSCL) and attaining positive language learning outcomes, have remained under-implemented and under-explored in second/foreign language learning. The current study implemented a WebQuest task to explore how the use of regulation types and the learners' attitudes are shaped and improved. The participants of the study were 60 Iranian junior high school EFL learners at a school context. Multimodal data were collected from multiple sources including 21 hours of video-recorded discussion sessions, event-contingent design reflective journals after each session, and semi-structured interviews with selected participants. A combined approach was adopted in the analysis of the qualitative data. The findings revealed that the design and implementation of the WebQuest in CSCL filled a significant pedagogical gap in the locally-produced textbooks and provided a collaboration-conducive guiding framework through which self-regulation, co-regulation, and socially shared regulation types developed progressively. Moreover, the thematic analysis showed the dynamicity of the learners' attitudes as they changed from negative to highly positive. Furthermore, the WebQuest afforded a diverse range of language learning opportunities through collaboration and resulted in improved interest and motivation. The learners also displayed different competencies, such as critical-thinking and creativity during the WebQuest. The findings have pedagogical implication for inquiry-based tasks and promoting the use of regulation types in CSCL and online language learning environments.

***Keywords*:** Self-Regulated Learning; Co-Regulation; Socially Shared Regulation; WebQuest-Based Activity; EFL Learners.

1. Introduction

Regulation of learning is a multifaceted phenomenon that plays a crucial role in learning and group performance (Hadwin et al., 2018). Computer-supported collaborative learning (CSCL), as a social form of learning (Puntambekar et al., 2011), has become a central focus of research on regulation (Järvelä & Hadwin, 2013). Collaboration and regulation, however, can be more challenging in online and technology-enhanced learning contexts (Miyake & Kirschner, 2014). Learners must self-regulate their behaviors, emotions, cognition, metacognition, and motivation (Pintrich, 2000) to achieve task goals. Simultaneously, they must engage in mutual support and regulate learning processes (i.e., co-regulation and socially shared regulation) with group members (Järvelä & Hadwin, 2013; Kirschner et al., 2018). Moreover, learners' experiences and interpretations significantly shape collaborative dynamics (Rogat & Adams-Wiggins, 2014), underscoring the need to explore learners' attitudes alongside regulation in CSCL (Järvelä et al., 2023; Järvenoja et al., 2018).

Most research on regulation has focused on face-to-face settings (e.g., Grau & Whitebread, 2012) and fields such as mathematics, medicine, and science (Lee et al., 2017; Rogat & Linnenbrink-Garcia, 2011; Ucan, 2017). However, the regulation behaviors and attitudes of English as a foreign language (EFL) learners in online and CSCL contexts remain underexplored (Teng & Zhang, 2021). This is particularly relevant to Iranian English classes, where locally-produced textbooks lack sociocultural, communicative, cognitive, and creative dimensions of language learning (Goodarzi et al., 2020a, 2020b). These textbooks hinder self-directed learning and fail to provide activities enabling learners to extend their learning beyond the textbook (Atai et al., 2012; Safari & Sahragard, 2015). Furthermore, their content often does not align with learners' needs and interests (Atai et al., 2012). In view of this, there is a need for the implementation of learner-centered and collaborative pedagogies that transcend from the often-practiced teacher-centered approaches and engage learners in inquiry-based tasks. Among these tasks, WebQuests, grounded in cognitive psychology and constructivism (March, 1998), provide such a learning-conducive environment for collaboration and promote higher-order thinking and critical thinking (Ebadi & Rahimi, 2018). However, in Iranian EFL pedagogical practices, WebQuests that engage learners in co-constructing meaning from different sources beyond the class, have largely been neglected (Parsaiyan & Gholami, 2023). Additionally, research on WebQuests remains scarce in the scholarly literature on regulation in collaborative learning. This study addresses the call for further research on regulation in second/foreign language learning (Rose et al., 2018; Teng & Zhang, 2021). It investigates how self-regulation, group regulation, and learners' attitudes unfold during a creative WebQuest-based task in an English class at an Iranian junior high school. By extending prior studies, this research offers novel insights into using CSCL tasks to foster regulation in collaboration and enhance learners' attitudes.

2. Literature Review

2.1. WebQuests

CSCL research emphasizes technology-enhanced collaborative tasks for their positive effects on language skills, problem-solving, and collaboration (Su & Zou, 2020). Of the various inquiry-based learning (IBL) approaches, WebQuests stand out for their emphasis on genuine inquiry and collaboration (Adhami & Taghizadeh, 2022; Yang et al., 2011). March (2004) defines WebQuests as:

> a scaffolded learning structure that uses links to essential resources…and an authentic task to motivate students' investigation of a central, open-ended question, development of individual expertise and participation in a final group process that attempts to transform newly acquired information into a more sophisticated understanding. The best WebQuests do this in a way that inspires students to see richer thematic relationships, facilitate a contribution to the real world of learning and reflect on their own metacognitive processes (p. 2).

The WebQuest model entails five stages: Introduction, Task, Process, Evaluation, and Conclusion (Dodge, 1997). The introduction provides background and outlines the topic and goal. In the process stage, learners complete individual and group tasks using pre-selected resources. A rubric guides evaluation, and the activity concludes by summarizing outcomes and experiences.

Research shows WebQuests improve reading comprehension, motivation, oral communication, and higher-order thinking (Alias et al., 2013; Aydin, 2016). Liang and Fung (2021) found exploratory talk and reasoning in WebQuest interactions, reflecting critical thinking. Ebadi and Rahimi (2018) reported improvements in critical thinking and academic writing, while Awada et al. (2020) found WebQuests and cooperative methods enhanced learners' argumentative writing, confirming the effectiveness of technology-enhanced learning. Taken together, previous studies mainly focused on the products of learning through WebQuests. However, the process through which collaboration and learning occurs within them has received limited scrutiny.

2.2 Regulation in Computer-Supported Collaborative Learning

Decades of CSCL research demonstrate the positive effects of technology on interactions, group dynamics, and knowledge construction in online collaborative tasks (Cress et al., 2021; Järvelä & Hadwin, 2013). The impetus for success in IBL or problem-based tasks is regulation, metacognition, and collaborative learning (Chen, 2023). Regulation, in particular, underpins productive collaboration, especially in online environments (Winne, 2015) where challenges can

hinder task completion. Without effective regulation, the group's learning process becomes unsatisfactory and less efficient (Järvelä & Hadwin, 2013).

Self-regulated learning (SRL) involves regulating metacognitive, cognitive, behavioral, motivational, and emotional processes (Pintrich, 2004; Zimmerman, 2011a). SRL models depict how these components interact in regulating the learning process (Panadero, 2017). Regulation typically includes planning, monitoring, strategy use, and evaluation (Hadwin et al., 2011), which enhance academic achievement (Zimmerman & Schunk, 2011) in online environments (Broadbent & Poon, 2015). As such, learners plan and set goals before tasks, monitor progress and use strategies during tasks, and reflect and adapt after tasks (Pintrich, 2004; Zimmerman, 2011a).

While earlier SRL models emphasized individual learning processes influenced by social contexts (Ucan & Webb, 2015; Zimmerman, 2000), contemporary perspectives integrate social-cognitive (Bandura, 1991), sociocultural (Hadwin & Oshige, 2011), and situative theoretical perspectives (Hadwin et al., 2011). Previous studies have characterized SRL as a social phenomenon and highlighted both individual and group processes as equally crucial in collaborative learning (Järvenoja et al., 2015). Sociocultural theory posits a causal link between social interaction and cognitive development, emphasizing the transformative role of socially shared activities in individual internalization (Vygotsky, 1978).

According to Hadwin et al. (2011) regulation in collaboration extends beyond self-regulation to include the group's regulation of learning for task accomplishment. Three types of regulation were identified: self-regulation (SRL), co-regulation (CoRL), and socially shared regulation (SSRL) (Grau & Whitebread, 2012; Ucan & Webb, 2015). SRL focuses on individuals regulating their actions during collaboration, with members adopting strategies to complete tasks ("I" verbalizations). CoRL occurs when one or more group members influence, moderate, or coordinate another's learning ("You" verbalizations), often leading to SRL or SSRL. Environmental features, tools, technologies, and task design can also co-regulate collaboration and learning (Hadwin et al., 2018). SSRL involves the group jointly regulating their cognition, behavior, motivation, and emotions to achieve common goals ("We" verbalizations). Research emphasizes that self-, co-, and shared regulation are central to successful collaboration, enabling the co-construction of learning processes towards achieving shared goals (Chan, 2012; Järvelä & Hadwin, 2013; Volet et al., 2013).

Research on regulation in CSCL has been prominent in fields like science and mathematics (e.g., Ucan & Webb, 2015; Zabolotna et al., 2023), but is under-explored in applied linguistics. Studies on second language learning have shown that CoRL and SSRL predict language outcomes and learning engagement (Li et al., 2021). However, most research has focused on wiki-supported reading (Li et al., 2021), collaborative writing (Qiu & Lee, 2020), or classroom regulation and motivation (Nakata et al., 2020). There is limited exploration of how self and group regulation emerge in different IBL tasks. Additionally, while the use of WebQuests in improving language learning skills and collaboration has been investigated (Ebadi & Rahimi, 2018; Parsaiyan & Gholami, 2023), the extent to which WebQuests can shape the learners' online regulation and their attitudes remains largely an uncharted territory.

Regulation is multifaceted, agentic, socially situated, and context-dependent (Hadwin et al., 2018), requiring further exploration in second/foreign language learning. However, studies on regulation types in CSCL tasks with EFL learners, particularly at the junior high school level, are limited. The present research examines the role of a WebQuest-based task on the use of regulation types and learners' attitudes. Hence, it addresses the following research questions:

1. How do self-regulation, co-regulation, and socially shared regulation types occur in the online collaborative WebQuest tasks?
2. What are the EFL learners' attitudes toward the online collaborative WebQuest tasks?

3. Methodology

3.1. Design and Participants of the Study

Owing to limited existing research on English language learning environments (Lim & Fraser, 2018), the current study adopted a qualitative exploratory design to gain a deeper understanding of the potential affordances of WebQuest in creating learning-conducive environments. The participants of this study were 60 eighth and ninth-grade students, with their ages ranging from 14 to 16. They were chosen based on convenience sampling from four intact classes in a junior

high school in Iran. The representativeness of the sample is attributable to the type of school from which the students were recruited. The school was a typical junior high school that reflected the general characteristics of similar institutions in terms of curriculum, student demographics, and academic performance.

Seven participants dropped out due to absenteeism, the emotional toll of the COVID-19 pandemic, sickness, and family issues. Therefore, 53 participants remained. Similar to other junior high school students, the participants had been tested in school during and at the end of each academic year to ensure their progress and were representative of junior high school EFL learners. They had participated in a prior study, during which their proficiency level was assessed as lower-intermediate using the Oxford Placement Test. Given the short interval between the two studies, it is reasonable to assume that their proficiency level remained at the lower-intermediate level.

Each class had one session per week lasting 60 minutes on *Madtalk* platform. Five collaborative sessions were held on the online breakout rooms. The participants were randomly divided into twelve groups, with no more than six members in each one.

3.2. Materials and the WebQuest

Mandated by Iran's Ministry of Education, the participants were studying locally-produced *Prospect* series (1 to 3) as their instructional material. To fill the cognitive, creative, communicative and sociocultural gap that exists in these English textbooks (Goodarzi et al., 2020), a collaborative inquiry-based WebQuest was designed based on the literature to engage learners in a problem-solving activity that promoted transformative group discussions with a final original product (March, 2003). The topic of WebQuest, "Attractions of my city WebQuest," was chosen based on the participants' interests in solving a self-perceived problem in their own city. This choice was made based on prolonged student-teacher interactions (Ary et al., 2019) as well as an open-ended survey conducted prior to the study. Moreover, the WebQuest was grounded in the common themes and topics of the *Prospect* series to make sure that the learners were familiar with the words and grammatical structures associated with it. A global-to-local approach (March, 2003) was adopted for designing a transformative WebQuest from the selected lessons of *Prospect 2* (i.e., My nationality, My city, My village, My hobbies) and *Prospect 3* (i.e., Travel). The five stages of the designed WebQuest are described in Figure 1.

Introduction

- The learners were familiarized with the topic, relevant vocabulary, and the three chosen most popular countries: The United States of America, Spain, and France. The learners were debriefed that the goal was to find out about the attractions of the assigned country and get innovative ideas to bring about a positive change in their own city. The countries were randomly assigned to each group.

Task

- This stage introduced the two tasks that the learners were required to accomplish as well as how the WebQuest was to solve a real-life problem, engage them in collaboration, and go beyond the limits of national English textbooks.

Process

- This stage consisted of three online sessions that required them to: 1) pick a specific role and explore the websites and resources for the country to gain information on the specified country and identify the problems and gaps in their city, 2) Collaboratively discuss and exchange information to make an innovative plan with the information and ideas that they have gained from other countries, 3) Collaboratively produce a written piece that includes the necessary information using the guiding questions included in the WebQuest.

Evaluation

- A rubric was developed to evaluate the quality of the product and group's performance.

Conclusion

- At this stage, the teacher summarized learners' outcomes and prompted them to reflect on their learning experiences during the collaborative WebQuest.

Note: The WebQuest is available at www.zunal.com//webquest.php?w=759962.

Figure 1. The Five Stages of the Designed WebQuest

3.3. Data Collection Instruments

3.3.1. Video Recordings of Group Collaboration

The groups' collaborations were screen-recorded as they engaged in the WebQuest task. The video-recorded data for each group was approximately two hours, resulting in 24 hours of video data. Due to technical issues, three hours of data had not been recorded and 1290 minutes of data comprised the total recordings for analysis.

3.3.2. Reflective Journals

Reflective journals were gathered using the event contingent temporal design. In other words, the learners were asked to send their reflection shortly after each WebQuest session. The weekly reflections prompted the participants to dwell on their experience and their perception and opinions toward the WebQuest. The participants were required to record their reflections and submit them via messages after each collaborative session in the form of text or audio files. These reflections were meant to capture the learners' changing emotions, perceptions, and attitudes toward the WebQuest.

3.3.3. Semi-Structured Interviews

Four participants who had reported negative changes in attitudes or had shown low participation in groups took part in semi-structured interviews. They were selected after an initial analysis of the data collected to complement the findings of reflective journals and to gain an in-depth understanding of learners' perceptions. The interviews lasted approximately 20-30 minutes and were held online at the end of the study.

3.4. Procedure

As the learners had not experienced online classes before, a pilot session was conducted on *Madtalk* breakout rooms using the activities of *Prospect* series. It aimed at observing the learners' online interactions to predict and solve problems in the data collection. Accordingly, the learners were randomly assigned to groups and engaged in interaction to accomplish the form-focused task. The efficacy of reflective journals was evaluated by collecting learners' reflections at the end of the pilot session. The learners found text-based journals too demanding, therefore they were replaced with audio-based reflective journals in the main study.

WebQuest served as the framework for this study, which was conducted over five weeks. Initially, the participants were introduced to the WebQuest activity to become familiar with the scenario, the questions, and the task. Then, three online discussion sessions were held during the next three weeks in online breakout rooms on *Madtalk*. Each online English class had one session per week on the platform. Also, each group had an out-of-the-class WhatsApp-based group, where they could communicate about the WebQuest. The participants received formal English learning sessions according to their curriculum with supplementary instructions on the topic of the WebQuest (e.g., travel, countries, hobbies, places).

To scaffold learners' progress, the teacher provided individual and group support, guided group work, and addressed questions before and after each discussion session. Over the five-week WebQuest, each class received 70 minutes of support weekly, totaling four hours of scaffolding. During the last week, the teacher assessed group performance using a rubric in the evaluation stage and summarized learning outcomes in the conclusion stage. Learners also shared their reflections on the WebQuest in their logs during the last session.

3.5. Data Analysis

The data were transcribed verbatim based on the transcription symbols of Storch (2002) and were analyzed using MaxQDA. The analysis procedure for each data source is detailed below.

The video-recorded sessions were analyzed using content analysis in multiple steps. The videos were first reviewed for familiarization with the data. Next, learners' interactions were segmented into episodes where they focused on task progress, with each episode consisting of one or multiple turns (Malmberg et al., 2017). These episodes were then coded and analyzed using a coding scheme for regulation types (see Appendix A). A combined approach was used, combining quantitative analysis of episode frequencies and coded segments with qualitative descriptions for richer insights.

The weekly reflections were analyzed using Braun and Clarke's (2006) six-stage thematic analysis, with multiple measures ensuring trustworthiness of the analysis. First, the practitioner-researcher minimized student-teacher interactions during online discussions, intervening only for unresolved technical issues and using chat tool of the breakout rooms to avoid disrupting group dynamics. Moreover, prolonged contact with participants over an academic year enhanced the researcher's familiarity with the context and participants (Ary et al., 2019). A reflective log was also kept by the researcher for documenting thoughts and emotions and to promote reflexivity and reduce bias. Low-inference descriptors, thick descriptions, and discrepant information were used to ensure credibility (Creswell & Creswell, 2018). Finally, triangulation of data sources provided a comprehensive account of regulation and attitudes during the task.

4. Results

The findings highlight the complexity of regulation in collaboration and learners' attitudes and depict how an online WebQuest transformed the collaboration and process of language learning. In this section, the findings on the dynamic use of regulation types during three online WebQuest sessions are explained. Moreover, the learners' change of attitudes during the task will be presented.

4.1. How Do Self-Regulation, Co-Regulation, and Socially Shared Regulation Types Occur in the Online Collaborative WebQuestTask?

Regarding the first research question that explored self-regulation, co-regulation, and socially shared regulation types during the WebQuest task, the analysis showed that the most frequent regulation type during the three CSCL sessions was co-regulation (f = 310), followed by socially shared regulation (f = 286), and self-regulation (f = 103) as shown in Table 1.

Table 1. *Overview of the Regulation Types During the WebQuest Task*

	Self –regulation		Co-regulation		Socially shared regulation		Total
	f	%	*F*	%	*f*	%	*F*
Total regulation types	103	14.74	310	44.35	286	41.6	699

The analysis revealed that most EFL learners' discussions were focused on group-level regulatory interactions that aimed at co-regulating other members or socially shared regulation of collaboration and learning.

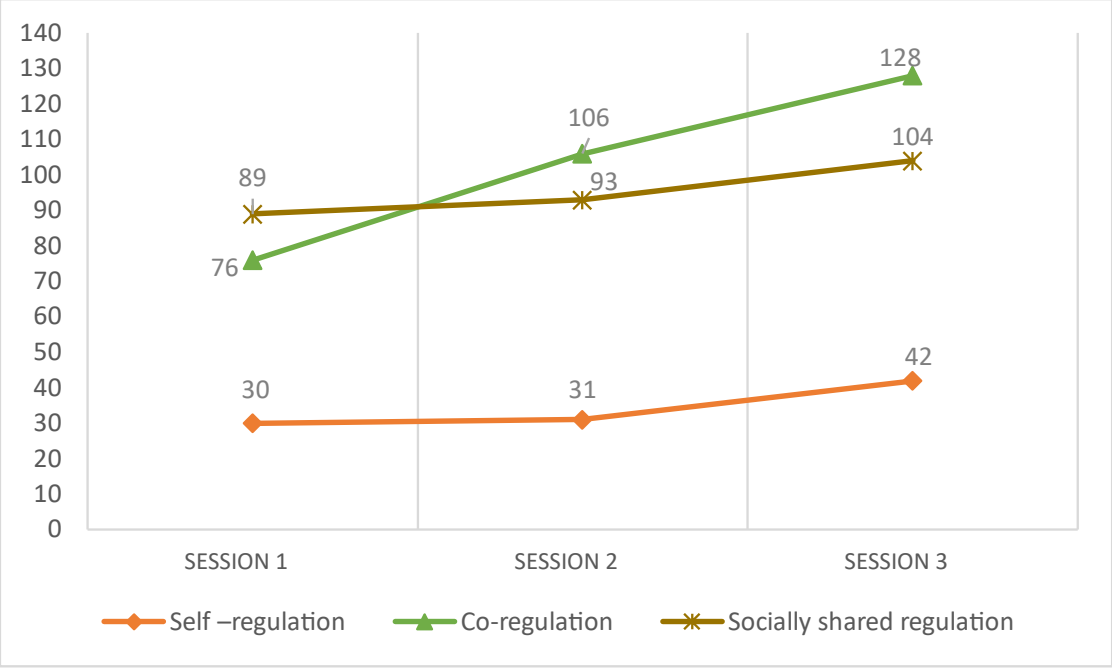

Figure 2. The Temporal Progression of the Patterns of Regulation Types across Three Sessions

Figure 2 shows the temporal progression of the patterns of regulation types across three sessions in the process stage of the WebQuest task. The figure demonstrates how each regulation type evolved over time, thus presenting an overview of the learners' progress in regulating CSCL during the five-week WebQuest task. It particularly indicates that the frequency of regulation types increased during the three sessions. In other words, the learners progressively improved in supporting the emergence of self- and socially shared regulation through co-regulation and learned to jointly plan, monitor, and evaluate their group's progress toward the completion of the task.

The data showed that the use of self-, co-, and socially shared regulation types varied across the three sessions. During the first discussion session, socially shared regulation was the most frequent regulation type ($f = 89$), followed by co-regulation ($f = 76$) and self-regulation ($f = 30$). The analysis indicated that learners' discussions during the first session mostly revolved around collaborative knowledge construction to understand the WebQuest and planning for task completion. Excerpt 1 shows an example of a socially shared regulation episode, during which the group engaged in group regulation to understand the task, divide responsibilities, and plan.

Excerpt 1: SSRL

Turn	Transcript
1	S1: ***So, does everyone know what we are going to do?*** *We should first explore the websites and gather information. First,* ***we*** *should check the websites and collect information on Spain's famous places. Then,* ***we*** *can choose one place in our own city.*
2	S4: *Oh…[my idea is to…((gets interrupted))*
3	S2: So, we are going to] check Spain, right?
4	S1: *Yes. We should get our ideas from Spain*
5	S4: *Ok, I think* ***we*** *should divide the task into different sections so that each one of us can read about one of the places in Spain.* ***We*** *can then compare the places and decide in the next session.*
6	S1: *I don't think so.* ***We should all*** *go and read the websites. If the task was about summarizing traditions, foods, and places, then we could have assigned the topics to different members.*
7	*S2: I think* ***we*** *should also be in touch on WhatsApp to discuss this further. We should choose one of the places in Spain. Then, we should all read about that place only.*
8	S4: *That's what I am saying.* ***We need a plan!*** *For example, each one of us can read about two places in Spain. Then, we can share our ideas together and choose the best option.*
9	*S3: Ok, I think one of us should divide the responsibilities.*
10	*S4: I think each one of us should gather information on 3 or 4 places.*

The temporal progression of regulation patterns in Figure 2 shows that the learners increasingly started supporting or thwarting the emergence of regulation in their interpersonal and dyadic interactions. During the second session, learners mostly used co-regulation ($f = 106$), followed by socially shared regulation ($f = 93$), and self-regulation ($f = 31$). Similarly, during the third session, learners used co-regulation ($f = 128$), followed by socially shared regulation ($f = 104$), and self-regulation ($f = 42$).

The analysis showed that co-regulation episodes emerged when regulation and support was requested and was subsequently provided by another member or through the features of the WebQuest, including roles. Excerpt 2 is an example of a co-regulation episode that was initiated with self-regulation. This episode shows how one member sought help from the more proficient learners and asked them to monitor and evaluate the grammatical accuracy of the sentence she had written. This is a representation of a self-regulatory behavior (Zimmerman, 2011b). This was followed by another member's co-regulation and monitoring of the learner's progress with peer feedback.

Excerpt 2: CoRL

Turn	Transcript
1	*S1: Can you please check* ***my*** *sentence?*
2	*S2: I don't think your sentence is correct. You shouldn't say 'they must* ***to*** *build.' I don't think that you can use* ***to*** *in there. 'They must build' is correct.*
3	*S1: Oh. OK. I'll correct that.*

In another instance, one member initiated co-regulating two free-riders in the group. Following this, other members collectively co-regulated the silent members and tried to encourage them to participate by switching roles and

responsibilities. The group's joint effort was successful as it resulted in self-regulation of the two learners when they finally decided to collaborate in the task, leading to socially shared regulation of the group progress. Excerpt 3 describes this episode.

Excerpt 3: CoRL

Turn	Transcript
1	*S1: **You two** have not participated in the writing process!*
2	*S2: She is right. You cannot just stay silent. All of us have a responsibility!*
3	*S3: Guys. I think **we** should stop writing and let **them** write the rest of the answers.*
4	*S1: Yes. OK. Please turn on **your*** [silent members] *microphones and answer the questions.*

The analysis showed that the scaffolding structure of the WebQuest co-regulated the collaborations, promoting SSRL. For instance, the learners in a group decided to read the process stage individually and then discuss it together (Excerpt 4). Accordingly, the learners used the WebQuest as a prompt to initiate planning and discussions to negotiate and make meaning during the first session.

Excerpt 4: SSRL

Turn	Transcript
1	*S1: Guys…Let's check the U.S.A. websites and then tell each other whatever information we found.*
2	*S2: Let's first check the **websites** individually.*
3	*S1: Then, **we** can share the information we have found. **We** will plan and make sentences*
4	*S3: Guys the links are numbered and you can click on them.*
5	*S1: I think **we** should check all the **links** to see what they are about.*

Similarly, Excerpt 5 demonstrates an SSRL episode that occurred after the members generated ideas and discussed as a group and decided to progress to the collaborative writing task. This episode was initiated by the co-regulation of one member as well as the co-regulatory support provided by the WebQuest design, which paved the way for SSRL and SRL. According to this episode, interactions initiated in the group and among learners but were then followed by individual goal setting and planning.

Excerpt 5: SSRL followed by SRL

Turn	Transcript
1	*S1: So, according to the WebQuest, **project planners should** make sure that the answers to questions one to four are in the text, and **project managers should** do the same for questions five and six.*
2	*S2: **I** have written the answer to question number one. Did you see it?*
3	*S1: Yes! So, questions 2, 3, and 4 are for project managers. Please divide these between yourselves. Which one are you going to answer?*
4	*S3: **I** will answer question four.*
5	*S4: **I** will answer question three.*
6	*S1: So, question two is left for her. She is absent today.*

The analysis also indicated that the learners used self-regulation to regulate the behavioral, cognitive, emotional, and motivational aspects of learning. Excerpt 6 represents one instance, in which a low self-regulated learner, who usually requested help from others decided to regulate her own language learning process.

Excerpt 6: SRL

Turn	Transcript
1	*S5: "Does anyone know what this word means?...*[waiting for the others' responses and immediately changing her mind] *Never mind. **I** will check that word in the dictionary."*

The progressive increase in the number of SRL episodes during the three sessions (see Figure 2), as exemplified in Excerpt 6, shows the extent to which the CSCL WebQuest task promoted self-regulation as well as the group regulation types.

4.2. What Are the EFL Learners' Attitudes Toward the Online Collaborative WebQuest Task?

The second research question explored language learners' attitudes and perceptions toward the WebQuest. Overall, the analysis revealed that despite the learners' negative attitudes at the beginning, most of the learners (N = 48)

adopted positive attitudes by the end of the fifth week and perceived it as effective in improving their language learning outcomes, such as vocabulary, grammar, and sentence structures.

The data showed that the learners' initial negative attitudes originated from their perceptions of task difficulty and unfamiliarity with or negative experiences of collaborative tasks. For example, a learner stated:

> *"At first, I thought it was too difficult and challenging and I told myself that we can't complete it. At least not with this group* [referring to her teammates]. *But it became easier because we worked together* […] *My opinion* [toward the task] *has changed dramatically"*

Another learner reflected on her negative experiences and reported her change of attitude and perception: "o*ur teachers* [in previous English classes] *always gave us individual projects. I think that's why I didn't have a good feeling about this project at the beginning. I had never experienced collaboration like this!* [Excited]*"*

In another instance, a learner who had previously experienced cooperative group activities (i.e., division of tasks by the learners to be completed individually) reported: *"My perception has changed dramatically during this period. I always believed that group activities would never work because we always ended up doing the projects individually* [in the past]*."*

Moreover, the findings showed that different factors, such as the lack of coordination, low accountability of the free riders, absenteeism, the poor Internet connection, and the learners' health issues at the time (i.e., COVID-19) influenced the learners' experiences and resulted in negative attitudes. For instance, the learners stated that *"some members were absent"* and *"the other members did not follow the steps written in the WebQuest, and this made things difficult. They were thinking of the last stage before completing the first."* As learners engaged and progressed in the task, they increasingly recognized how the WebQuest's scaffolding structure enhanced, sustained, and regulated their collaborative activities, leading to more positive attitudes toward the structured, inquiry-based approach. The learners' sense of improvement in collaboration and regulation in their groups grew in tandem with these positive attitudes towards WebQuest. For example, one learner stated that *"I feel good because we did better than the last session."* Similarly, another learner's positive feelings were connected to the group's improved regulation. She stated that *"we hadn't done much last session, but today we reached an agreement and moved the project forward."*

The learners believed that the WebQuest provided collaboration, peer-to-peer interaction, and language learning opportunities. The learners reported that they *"learned new vocabularies," "grammar rules and sentence making," "pronunciation of words from other group members,"* and *"how to use Google Docs for collaboration."* The excerpt below shows the extent to which the collaborative WebQuest contributed to a learner's grammatical and vocabulary learning:

> *I didn't expect sentence making to be good. I always told myself that I can't make sentences. But when we worked together in the group, it became really interesting. When I didn't know one word and others made sentences, I learned from them. I learned new words from others.*

The learners also reported that the WebQuest led to autonomous out-of-class language learning practices and extensive reading using websites. For example, a learner reported her interest in the WebQuest and stated that: *"I really liked the resources that you had introduced* [in the WebQuest]. *So, I often checked them out of the class and read them to know more about different places in the U.S.A."* This improved her language learning process and learning outcomes as she stated: *"I learned lots of sentence structures and new vocabularies from the websites and during our collaborations."*

Importantly, the WebQuest and its global to local approach, which aimed at bringing about a positive change, encouraged the learners to gain more information about their own city and other countries, enabling them to fill the sociocultural and knowledge gap that had been created by national English textbooks. As such, the learners reported that they gained new competencies, such as critical thinking, creativity. For instance, one learner noted: *"The WebQuest provided an opportunity for becoming familiar with the other countries and made me think critically and creatively."* Another learner also stated: *"I learned about the countries I had never thought of or even learned about before* [in previous English classes at school]*."* This indicates that the WebQuest sparked their interests in learning English language to learn about other countries and to creatively and critically offer solutions.

Another important finding was that the WebQuest heightened the low-performing learners' motivation and interest and contributed to their positive attitudes and learning behaviors. For example, a low-performing learner increasingly improved throughout the task and became an active participant in collaboration. She stated: *"I have learned much more during collaboration. I think projects and such activities should be the foundation of every English language learning class."* Similarly, another learner, who was frequently absent, started attending the classes regularly and participated in the group discussion sessions. The learner said: *"Everything, including my sleep schedule changed during the pandemic, and I could not attend the classes regularly. The topic of the activity and what other members were* [collaboratively] *doing piqued my interest."* The learner mentioned that she had quit her out-of-school English classes with the outbreak of COVID-19 due to the belief that *"online classes will not be as effective"*. However, according to her weekly reflections, the positive experience of online collaboration changed her opinion, thus a renewed willingness and intention to attend online classes. She mentioned: "*I am thinking about retaking online English classes out of school even during the pandemic*".

The analysis also revealed that six low-achieving learners had still negative attitudes at the end of the task. Individual semi-structured interviews were conducted with four of these learners to document the reasons for such attitudes. The data indicated that the negative socioemotional atmosphere of the groups affected the attitudes toward the WebQuest and consequently resulted in their low participation. For example, a learner reflected on her negative experience and stated: *"I think we don't know how to* ***listen*** *to each other's ideas."* Another learner stated that:

> *They* [other members] *did not include the sentences I had made in the text* [final product]. *They told me that my sentences were wrong and when I asked them how I can correct them, they said* [...] *I should figure out by myself.*

This indicates that the extent to which members co-regulate and socially share regulation builds a positive learning-conducive atmosphere that can impact the attitudes of the learners toward the online WebQuest task.

5. Discussion

The present study responded to Teng and Zhang's (2021) call to address regulation in second/foreign language learning. In doing so, multimodal 'in-situ' data (Järvelä et al., 2019) were collected from multiple sources to probe into how self and group regulation types and learners' attitudes shape, interplay, and evolve during an inquiry-based WebQuest task. The study was an attempt to explore the impact of an online collaborative WebQuest as a transformative pedagogical solution in the context of a junior high school in Iran where the traditional teacher-centered approach prevailed and the learners received "limited, censured doses of culture-free, localized English input" (Babaii, 2022, p. 354). As such, it bridged the gap in the locally-produced textbooks and transformed the learners' language learning process, thus allowing them to learn beyond the boundaries of the books (Atai et al., 2012; Safari & Sahragard, 2015). The findings of the study revealed that the design and implementation of a WebQuest task engaged the learners in a genuine online collaboration, thus enhancing their regulatory behaviors and attitudes in groups. Furthermore, it helped them display competencies such as critical thinking and creativity.

The main finding of the present study was the impact of online collaborative WebQuests in cognitively engaging the learners and helping them apply self-regulation, co-regulation, and socially shared regulation. That the learners reported language learning gains through collaboration and peer-to-peer interaction highlights the extent to which promoting and scaffolding the use of regulation types in CSCL can provide a fecund ground for the improvement of self-regulated learning skills, language learning gains (Li et al., 2021) and essential competencies, such as critical thinking (Ebadi & Rahimi, 2018; Liang & Fung, 2021). Given that WebQuests are a form of inquiry-based learning (IBL), this outcome further substantiates Wale and Bishaw's (2020) observation that IBL tasks promote learner engagement and problem-solving capacity.

The regulation patterns that emerged from the multimodal data in the present study align with Järvelä et al. (2023), who emphasized the necessity for students to work toward shared goals through various types of regulation in successful cases of collaborative learning. Moreover, the finding that SSRL was the most frequent regulation type during the first session is consistent with Järvelä et al.'s (2023) characterization of SSRL as a process that empowers individuals and peers to participate effectively in groups, fostering collective agency and collaborative goal setting.

While the findings confirmed previous studies on the frequent use of CoRL and SSRL regulation types in groups (Su et al., 2018; Zhang et al., 2021), the progressive increase in the number of regulation types during the task may be explained by findings from Liang and Fung (2021), who observed that students engaged in WebQuest activities demonstrated reasoning and exploratory talk - features that accompany critical thinking (Wilkinson et al., 2010) and serve as a prerequisite to regulatory behavior. This is attributed to the affordances of WebQuests, which provide a secure atmosphere for students' acquisition of linguistic and extralinguistic knowledge (Aydin, 2016). However, these findings contrast with those of Li et al. (2021), possibly due to differences in task type, namely their use of wiki-supported reading activities compared to the collaborative WebQuests in the present study. Seemingly, the use of WebQuest and the open-ended inquiry nature of the question governing the task required the learners to engage in more regulation to accomplish the task. Nonetheless, the improved use of regulation types during the study presented proof of the raised question of whether self-regulation can be transferred to second/foreign language education (Teng & Zhang, 2021). Pedagogically, the use of regulation types in CSCL should be capitalized and instructed to better prepare the learners for online collaboration.

In this study, co-regulation was provided through an array of human and non-human resources, including the teacher, all learners as a group, individual learners, as well as the features of the WebQuest task. The findings uncovered that WebQuest roles and its scaffolding structure provided a guiding framework through which EFL learners could collaborate and regulate each other's learning. As previous studies have also discussed, teachers' approaches and practices can scaffold the development of SRL (Mohammadi & Zandi, 2023). Moreover, CoRL, which can trigger the emergence of SRL and SSRL, is not limited to receiving regulation from another individual. It can also be provided from multiple resources including the design of the task and the tools in the environment (Hadwin et al., 2018). The findings on the learners' positive attitudes toward the structure shaped through roles corroborates previous research on the impact of roles in CSCL (De Wever & Strijbos, 2021).

Crucially, the agentic practice of learning through a structured and open-ended inquiry which was based on the learners' personal and content interests as well as the novel and less-practiced approach of adopting a global-to-local approach in WebQuest design not only filled a significant pedagogical and learning gap in the curriculum of these learners (Atai et al., 2012), but also resulted in the improvement of regulation use in CSCL and positive conceptual and attitudinal change. The findings on the learners' increased out-of-class language learning practices and motivation, and their decreased absenteeism, especially in low-achieving learners, provided compelling evidence for the importance of considering the learners' interests (Atai et al., 2012) and including collaboration and IBL tasks in designing syllabi and curriculum. Accordingly, the careful design and implementation of tasks, teaching approaches and materials that can co-regulate the language learning process and trigger regulation types in CSCL has become more important than before in today's technology-enhanced environment wherein the use of digital and artificial intelligence tools have become widespread in education (Farrokhnia et al., 2023).

The learners' initial unfavorable attitudes toward the WebQuest echoed the findings of previous research on other IBL approaches (e.g., Parsaiyan & Gholami, 2023; Petersen & Nassaji, 2016). The findings showed that the learners' personal history (Consoli, 2022), including their negative experiences of cooperation instead of regulation in collaboration and the experience of conventional individualized and teacher-centered approaches can also affect their interpretations and attitudes towards CSCL. Importantly, similar to previous research findings on IBL activities (Parsaiyan & Gholami, 2023), the online collaborative WebQuest resulted in perceived language learning gains, and the development of competencies, such as critical thinking and creativity skills (e.g., Ebadi & Rahimi, 2018; Liang & Fung, 2021).

An important gained insight was that most of the learners' attitudes changed from negative to positive as a corollary of the gradual increase and the learners' engagement in self and group regulation types in collaboration and their sense of group progress toward task completion. The findings thus bear on the notion that learners' attitudes are determinant of self-regulation and group regulation in collaborative activities (Järvelä et al., 2023). The findings showed the interplay of learners' attitudes with emotions and motivations. The collection of event-contingent design reflective journals and individual semi-structured interviews with the learners who continued to have negative attitudes after the study helped recognize that the negative individualistic or positive collaborative and regulation-conducive atmosphere of groups create and shape the learners' negative and positive socio-emotional attitudes, respectively. This highlights the

pedagogical importance of monitoring the learners' and the groups' emotions in classes as affective factors that shape regulation.

6. Conclusion

The present study sought to portray the complexities of CSCL in second/foreign language classes and the ways through which tasks and learning approaches can be used to transform the learners' language learning processes. Accordingly, the following pedagogical implications can be drawn from the study to inspire language teachers to agentively transform classrooms. First, teachers can design and implement inquiry-based tasks such as WebQuest and customize them according to the learners' interests. Second, the three regulation types, namely SRL, CoRL, and SSRL should be instructed and scaffolded as a necessary means through which collaboration can be shaped in online environments. Finally, the learners' attitudes as determinant and affective factors that shape regulation in in-class and in-group learning behaviors should be continuously monitored. The audio and text-based reflective journals that were used in the current study can be embedded in classrooms as a pedagogical tool assisting teachers in monitoring the learners' progress and feedback toward the teaching approach.

Notwithstanding the findings and implications, the study had limitations. The study adopted a qualitative design and focused on regulation and attitudes displayed by EFL learners. Future research can be conducted on more participants and can adopt an experimental design to quantitatively compare the efficacy of tasks and learning environments on regulation and language learning outcomes. The study concentrated on WebQuest as an IBL task and was conducted on junior high school EFL learners in a context where language learning resources were scarce. Future research can explore various task types and the regulatory behaviors of learners in CSCL. Moreover, further studies could be conducted on learners with different characteristics in various context to examine how regulation in CSCL is displayed and evolved.

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Appendix

Coding Scheme for Students' Regulation Types

Regulation Type	Empirical Indicator
Self-regulation	One person regulates his/her cognition, emotion, motivation, and behavior. For example, a member indicates what he or she needs to do, has done, or does not understand. "I" perspective verbalizations.
Co-regulation	Group members regulating specific member's emotions, motivation, cognition, or behavior. For example, members prompting a specific group member to contribute to the collaborative group work. The episodes suggest an imbalanced involvement in the task. Members might echo one idea and agree with the member; however, they do not add to the interaction. Verbalizations usually target a member of the group.
Socially shared regulation	Group members collectively regulate emotional, cognitive, motivational, and behavioral aspects and plan, monitor, and make adaptations. Verbalizations are targeted at all members of the group. For example, "We should proceed like this".