Thinking Allowed: Linguistic Landscapes-Based Projects for Higher-Order and Critical Thinking Skills

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Abstract This chapter describes the design and integration of linguistic landscape (LL)-based projects in a secondary English as a foreign language course. Throughout the project, students were encouraged to learn about and become ethnographers while documenting their neighbourhoods' LL. The project was also designed to promote learners' critical thinking (CT) and higher order thinking skills (HOTS). In this chapter we identify and discuss which critical and higher order thinking skills students used to construct knowledge from their ethnographic work and final presentation of their findings. We adapt and apply definitions provided by Beyer (1985) for critical thinking skills and Lewis and Smith (1993) for higher order thinking skills to Silbey's (2021a, b) framework, which is based on Grounded Theory (Charmaz, 2007) to analyse students' selected output as well as their responses in post-project interviews. Our analysis indicates that the LL project supported students' development of linguistic and intercultural sensitivity.

Keywords Linguistic landscapes · Critical thinking · Higher order thinking skills project-based learning

1 Introduction

In a constantly transforming globalized world where there are significant socio-political and economic changes, it is increasingly paramount for teachers to equip their students with skills that will enable them to face incessant change. Foreign language teachers can play a vital role in the process of preparing students to not only learn the target language of the classroom, but, more importantly, arm them with

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tools that will enable them to become aware of and familiar with other languages they may need further down their personal and/or professional paths. Language teachers can also help raise students' cultural and linguistic sensitivities towards other languages and cultures (Bergroth et al., 2021). It is increasingly important for individuals to develop linguistic and intercultural sensitivity as economic, political and social relationships span multiple national borders. Moreover, some researchers find correlations between language learning and development of higher order and critical thinking skills (Bergroth et al., 2021; Toyoda, 2015), another key competence needed for the immediate and far future of learners.

For the purpose of this study, we draw on Beyer's (1985) definition of critical thinking (CT): "critical thinking is the assessing of the authenticity, accuracy and/or worth of knowledge claims and arguments" (p. 271). Additionally, we use Lewis and Smith's (1993) definition for higher order thinking skills (HOTS), described as "elaborating the given material, making inferences beyond what is explicitly presented, building adequate representations, analysing and constructing relationships (…) all of which are involved in even the most apparently elementary mental activities" (p. 133). HOTS can be divided into lower levels of thinking, which include the ability to generate information, and higher levels that involve the application of the former to guide one's behaviour. For this study, CT and HOTS have been operationalized through the application of measurable verbs and related domains that stem from Bloom's taxonomy, as adapted and updated by Anderson et al. (2001). In this way, we can track the students' use of lower and higher order thinking skills during a Linguistic Landscape (LL) pedagogical approach to foreign language teaching.

Recently there has been a significant amount of research carried out on the use of LL in a language classroom (Gorter, 2018), as many scholars find it a useful tool to interrogate definitions of language and to expand students' conceptualizations towards the notion of language as "a unique and complex repertoire made up of diverse semiotic and multimodal resources" (Vallejo & Dooly, 2020, p. 9). Despite a growing interest in this field, there are fewer studies that focus on learners' perspectives regarding LL-based projects and their impact on their learning, and in particular on the development of their metacognitive awareness.

Following Malinowski et al.'s (2020, p. 1) notion that "this wealth of language and literacy opportunities in the discursive world of public texts and textual practices" can be an excellent tool in students' development of HOTS and CT skills, we developed and implemented LL-based activities, which not only promoted language awareness and language skills, but also aimed to enhance students' HOTS. We believe that LL-based projects encourage students to ask questions about themselves and 'others' in a very authentic and personal way, as many times the 'others' are their classmates. In the ever changing twenty-first century it is particularly important for schools to equip young people in HOTS that include analysing, comparing, or evaluating so that they can better manage the circumstances in which they live and will come to live.

This study's goal is to answer the following research question: To what extent do LL-based projects promote and/or support HOTS and CT skills among secondary school students? Expanding on the notion of promotion of CT, it can be argued that

all teachers—not only in language-focused subjects—need to help their students to become more reflective so that they can better understand how they learn and identify skills they can use to advance their learning. Over the past three decades, there has been an emerging consensus on the importance of CT as one of the key goals for education to respond to the social and economic needs of learners and the general populace (Ananiadou & Claro, 2009; McAleese et al., 2013). CT has been present in education since the teachings of Socrates but has become firmly entrenched as a foundational principle of education in the European Union (Paris Declaration, 2015). In education policy documents, CT is put forth as intrinsic for social stability, economic growth, personal and collective creativity, individual and social well-being, and as a basis for the continuance of democratic society (Kromydas, 2017).

As regards language teachings, it has long been prevalent in theories on learning that CT is relevant because knowing how to express oneself helps one think clearly and systematically. Being able to break down oral and written texts can lead to enhanced ability to comprehend and express increasingly complex ideas (Dooly, 2015; Ross et al., 2012). Arguably, as their ability to apply CT increases, students need to be presented with classroom activities that will allow them to question their (and others') assumptions in order to promote "linguistically sensitive teaching" that "includes awareness of the role of languages in learning, identity growth and wellbeing" (Bergroth et al., 2021, p. 2).

One means of promoting CT is through contextualized inquiries (Johnson, 2002). Contextualizing students' learning so that they can then make connections to the complex world in which they live is not always an easy task. Linguistic Landscape (LL) can provide an authentic and up-to-date means to raise students' awareness of their surroundings (Dagenais et al., 2009) and give teachers a powerful tool to bring the 'outside' world into the classroom. Through LL, together they can then critically interrogate and probe their sociocultural contexts. This study's aim is to demonstrate that through LL-based projects, which invite and guide students in analysing their own LL-generated data through measurable verbs related to HOTS, it is possible to educate more autonomous and critical learners who are able to question and reflect upon their surroundings.

2 Theoretical Background

One of the first and most well-known definitions of LL was proposed by Landry and Bourhis (1997) who defined it as: "visibility and salience of languages on public and commercial signs in a given territory or region" (p. 23). Since the introduction of the term, there has been continuous scholarly interest and significant research regarding LL in diverse geographical (and disciplinary) areas, reaching as far as rural areas of Zambia (Banda & Jimaima, 2015). As Barni and Bagna (2015) have noted, there is "a considerable scope for analysing the LL with different and often interdisciplinary approaches—semiotic, sociological, political, geographical, economic—that draw

not only on quantitative but, above all, on qualitative research methods" (Barni & Bagna, 2015, p. 6; cited in Bagna & Bellinzona, 2021).

Cenoz and Gorter (2008) are widely considered as the pioneers who first saw the value of LL in language acquisition. Malinowski (2015) later proposed that "linguistic landscape research offers valuable tools for pedagogical application" (p. 1) and, in recent years, more and more researchers and practitioners have seen LL as a beneficial tool in pedagogical application, especially in the foreign language classroom (Gorter, 2018). LL has been used in the English as a Foreign Language (EFL) classroom to provide students with authentic English input, as per Sayer (2010) who prompted his students in Oaxaca, Mexico, to become ethnographers in a LL-based activity with the goal of examining which signs in English could be found in the city. A more recent anthology of LL activities in language classes has been edited by Solmaz and Przymus (2021) and compiles teaching proposals from teachers around the world.

Rowland (2013, p. 498) summarised the pedagogical benefits in prior LL studies as the following:

- develop students' critical literacy skills
- improve students' pragmatic competence
- increase the possibility of incidental language learning
- facilitate the acquisition of multimodal literacy skills
- stimulate students' multicompetence
- enhance students' sensitivity to connotational aspects of language.

In his study of LL-output produced by 27 university students, Rowland (2013) found that the above-described pedagogical benefits could also be developed in a context of EFL. Similarly, Ying (2019) proposed that LL in an EFL classroom offers "language learning in 'real-life' situations" (p. 1) and that it develops students' positive attitudes towards the "use of English in city space as teaching material" (p. 7). However, the study also revealed that, depending on their age and their level (high school, graduate, or postgraduate students), they had different opinions on how "English on signs can improve vocabulary, English literacy, and critical thinking" (Ying, 2019, p. 9).

This short review reveals that the use of LL in the EFL classroom has emerged within the last few years as a useful tool to promote students' language development, language awareness, and help them become ethnographers of their linguistic and cultural milieu (Gorter, 2018; Melo Pfeifer & Schmidt, 2012). LL has also been applied as a support for CT development in students. Lozano, Jimenéz-Caisedo and Abraham (2020) use LL-based projects "to make students read texts critically by asking questions that involve identifying the text's purpose, interpreting the perspectives and intentions of those who created it, and situating those texts in the sociocultural context where those texts (Street Signs) are found in the city" (p. 26). Along similar lines, we propose that LL can promote HOTS and CT skills, which are arguably required in all areas of learning, but especially in a foreign language classroom.

3 Research Methodology

For some years now, academic institutions have actively included teachers and students in their research, with the idea of promoting reflexive teaching and learning practice as well as making the academic responses more adequate to the current educational needs (Larrivee, 2000; Nussbaum, 2017). As both the researcher and the implementer of the project, the first author's goal was to acknowledge the tension between the researcher and the object of the research. This implies accepting and fully subscribing to the notion that the person doing the research can also be the subject of it. Doing so can help reduce the gap between research teams (of which the second author belongs to) and their subjects, and between theory and practice (Nussbaum, 2017) and ensure a more equitable and balanced research. The authors are aware that this approach has both gains and drawbacks. On one hand, being the classroom teacher allowed students to talk in great detail about many things that happened in the lessons during the interviews without needing to provide her with the context. However, on the other hand, the students might have been hesitant to share some of their opinions, as she was also responsible for their evaluation in the subject where LL activities were carried out. To mitigate this, students were assured at the beginning of each interview that their answers would not affect their evaluation; furthermore, the interviews were carried out after students had received their final marks for LL-based projects.

Overall, this study is formulated as a practitioners' research: it is conducted by individuals with dual roles of both practitioner and researcher in order to enhance and improve the practice under question (Campbell & Groundwater-Smith, 2009; Ergas & Ritter, 2020). The data analysis is based on Silbey's (2021b) adaptation of Grounded Theory, "where the theory is built ostensibly from ground up (relying entirely on the data)". This approach stems from the compilation of empirical data (observations, the respondents' words, or documentary evidence) together with the "use of some concepts from the existing literature and theoretical resources as possible codes" (Silbey, 2021a, n.p.). According to Tavory and Timmermans (2014), some categories may emerge directly from the data while other categories or concepts may be imported from elsewhere, if they are relevant to what is observed in the data.

Since this qualitative study has as its objective to investigate whether any of the HOTS are visible in the learners' output, an adapted version of Bloom's Taxonomy (Anderson et al., 2001) provided us with preliminary 'imported categories' or domains to help identify possible displays of different levels of cognition. This taxonomy is useful for exploring CT, as these skills are an integral part of both higher and lower order thinking as defined by Bloom. HOTS are often divided into two components: (1) lower order thinking (ability to generate information): knowledge, comprehension, application and (2) higher order thinking (application of the former to guide behaviour): analysis, synthesis and evaluation. Applying these domains to documentation of the learners' output as they carry out the LL project can help us determine what HOTS the students use while working on the LL-based activities (Table 1).

Table 1 Descriptors of imported concepts for analysis (based on Bloom's Taxonomy)

Bloom's definition					
Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
Remembers previously learned information	Demonstrates understanding of the facts	Applies knowledge to actual situations	Breaks down objects or ideas into simpler parts and finds evidence to support generalizations	Compiles component ideas into a new whole or proposes alternative solutions	Makes and defends judgments based on internal evidence or external criteria

Source The Tenth Annual Curriculum Mapping Institute: Snowbird Utah, July 15–18, 2004 Adapted from Benjamin Bloom

4 Context

4.1 Participants

The study was conducted in a private secondary school located in a medium size town in Catalonia, Spain. Twenty-six students, eleven boys and fifteen girls, in their third year of compulsory secondary education (ages 14–15) took part in this research. Students came from five different homerooms and were assigned to this specific English class based on their English level. Their English level ranged from B1 to B2 level. Students attended four 50-min English lessons per week. The first author was the students' regular English teacher during the year the data were collected.

LL-based activities were incorporated into the first and second term's teaching plan, part of the work were formative tasks, others summative. The activities were varied, there were both oral and written tasks, some required the use of technology (voice recording, videos), some used drawing on paper, some were done individually and some in groups.

4.2 Pedagogical Activities that Led to Data Compilation

Written parental permission was obtained at the onset of the study and students were informed that their work might be analysed for research purposes.

Students took part in the LL-based activities described below. Bloom's Taxonomy was used to set the learning objectives (LO): comprehension, application, analysis, synthesis, and evaluation. These learning objectives were integrated into the LL activities to promote reflection. Itemized measurable verbs as LOs are as follows:

1. Comprehension: Reflect on personal language biographies as relates to self/family.

Task: Students individually prepared linguistic biographies: posters in which they represented languages that were spoken by them and/or were important in their families through images. They then recorded themselves describing their posters, paying special attention to reasons why they had chosen specific images to represent their languages.

2. Synthesis: Combine known languages to create one text, nurturing language awareness of grammar, phonetics, and meaning.

   Task: In groups of three to five, students prepared a literary text (a poem, a story, a song) in which they used all the languages represented in their linguistic biographies. They were free to choose the theme and text format. Next, they recorded themselves reading or singing and accompanied it with images that best corresponded to their texts (e.g. vlog).
3. Evaluation: Analyse and consider fellow students' writing.

   Task: Students worked in the same groups as in which they had prepared their literary text. Each group analysed a text written by a different group, guided by six questions prepared by the teacher (based on Bloom's Taxonomy's measurable verbs). Next, students presented their finding to the rest of the class.
4. Application: Present ideas about your neighbourhood's LL findings.

   Task: Students individually organized pictures representing different languages that they had discovered in their neighbourhoods, grouping them into different categories, e.g., official (top-down), unofficial/informal (bottom-up), etc.
5. Analysis: Describe and compare languages found in different neighbourhoods.

   Task: Students, in groups, prepared videos in which they compared the photographs they had taken in the previous activity.

For this paper, we consider two datasets: students' videos related to activity 5 and students' interviews responses.

4.3 Description of Data

Dataset 1: Videos

Due to the high volume of collected data only activity 5 was analysed for the purpose of this chapter: *Analysis: Describe and compare languages found in different neighbourhoods.* This activity was selected for analysis because it gave students an opportunity to develop different HOTS on various cognitive levels. The data proceeded from seven videos; four videos were created by groups of 4 students, one of 3, one of 2, and one of 5. The length of each video varied from five to nearly twelve minutes.

To analyse the video content, the authors (1) drew up a table with the measurable verbs and related domains: label, list, select (knowledge), discuss, explain (comprehension), apply (application), arrange, plan, design, create (synthesis), compare,

describe, justify (evaluation); (2) viewed each student groups' video multiple times; (3) took notes in order to compare student's utterance to the above-described Bloom's Taxonomy measurable verbs; (4) annotated findings in the table.

Dataset 2: Interviews Responses

Additional data were collected during group oral conversational interviews in English. These were done with students from the same homeroom to ensure that they felt comfortable among their peers; groups consisted of two to five students. The interviews were voluntary, and they took place in a separate room. During the interviews the students were asked to share their perspectives on this school year's English lessons. The incidents could refer to both positive and negative aspects of the LL lessons. When needed, the researcher asked prompting questions to encourage the participants to further explain the recalled situation, examine their own reactions and critically evaluate what they had learned from it. The interviews were video recorded and transcribed.

The data collected through students' interview is an example of inductive qualitative research, which consists of first collecting observations and then findings generalizations or patterns across the observations (Silbey, 2021a). The collected data were then coded as indicated by Charmaz (2007) through "categorizing segments of data with a short name that simultaneously summarizes and accounts for each piece of data" (p. 43).

To analyse the students' interview responses, the authors (1) highlighted the responses that were related to LL-activities; (2) identified when students had brought up these activities to find connections to topics, particularly language-related themes. After this initial analysis, the following themes related to LL-activities emerged: Way of learning; Participation; Digital skills; Group work/Collaboration. The last two categories—Digital skills and Group work/Collaboration—are not discussed in this chapter as they are not directly related to the research questions that this investigation attempts to answer.

5 Analysis and Results from Each Dataset

5.1 Dataset 1: Videos

The Table 2 summarizes the number of utterances related to each measurable verb. Following the table, we provide a generalized overview of student output and student quotes that provide further insight into the students' perspective regarding their learning, through the LL project, in each domain. Organizing data in this way gave us an opportunity to view student output and to explore student perspectives, for example their viewpoints on the easiest or the most challenging tasks.

Table 2 Numerical overview of output in relation to measurable verbs

Domain	Measurable verb	Number of utterances
Knowledge	Label	26
	Select	26
	List	1
Comprehension	Discuss	6
	Explain	13
Application	Apply	10
Synthesis	Arrange	26
	Plan	26
	Design	26
	Create	26
Evaluation	Compare	6
	Describe	4
	Justify	8

In general, we found that the students were able to accomplish the learning goals for each domain. Beginning with knowledge, all of the students selected pictures, labelled and listed languages that were visible in the pictures that they had taken in their neighbourhoods. Working together, one group listed all the languages they had found at the beginning of their presentation and the other groups gave the name of each language together with the pictures of the signs that they had chosen to represent the given language. As one student explained, "The languages that we have used have been: Catalan, English, Spanish, Japanese, Italian, French, Chinese, German, Braille."

One student labelled the Hindu language as Indian, not realizing that there are actually many languages spoken in India; however, in all cases the learners were able to provide explicit information that displayed fundamental understanding of the neighbourhood's linguistic landscape.

In what concerns comprehension, the students were able to explain how they had identified the languages visible in their pictures and languages on the photographed signs and six of them explicitly discussed their findings with their group members. This same number of students made reference to their partners' findings in the videos; highlighting that the use of comparison and discussion of their findings with each other supported and enhanced their comprehension of the content. At this stage, a little over half of the students demonstrated that they had strategies to interpret better their local linguistic landscapes, as the following quote shows: "I could identify all languages by putting them into translator, google them, and also by my knowledge in other languages, e.g. I speak Spanish and Catalan so I could recognize these languages."

Moving on to application and analysis, learners were expected to apply prior theoretical knowledge related to sign types (top-down or official versus bottom-up or informal) to put their pictures into different categories. Ten students attempted

to use the previous lessons' information related to category of signs (bottom-up, private–public, etc.) in order to classify their sign pictures. Several students described formal business signs or informal signs (such as hand-written notes); however, some students' attempts were incorrect: "This [sic] two photos are private as they are from businesses, and they are restaurants. " At this stage, several of the learners demonstrated a capacity to use prior knowledge to analyse and recognize patterns in the LL of their community.

The domain of synthesis was directly related to the core task of groups planning, designing, and creating a video that integrated feedback from other group members. In this final phase, learners negotiated how to organize the information in order to best communicate their intended message. Despite being a voluntary basis activity, all the groups prepared videos, with all group members participating in their elaboration. This implied pulling together all of the previous information and incorporating it into the end result of an informative, explicatory video. However, it must be noted that most of the groups prepared their videos in a way that each group member recorded his/her sign photos and their description and then the groups combined the composite parts.

Finally, in the evaluation stage the students compared different group members' findings to select signs they believed best represented each language. They also had to justify their choices, as this quote shows: "The four members of the group have taken different pictures, but we've decided to show only some of them because they show culture of the language, we can find them in our daily lives, or we can differentiate them between public or private". Furthermore, they had to describe the signs, e.g., explain their locations and see if all group members found their signs for specific languages in similar places (city centres, etc.), if there is only one or multiple languages (and why?) on the same sign, etc. Five students explicitly compared their findings to those of their colleagues by making clear reference to what the others had or had not found in their neighbourhoods (e.g., "All of my partners found sings [sic] in Catalan"). Eight students justified why they had chosen specific pictures for each language: "This sign attracts people because people will think that this is traditional Chinese food." Four students tried to describe in depth their signs, for instance, they outlined how some of them were in one language while others were written in multiple languages or mentioned specific locations where they had found greater variety of languages, implying that they were reaching a stage where they could perceive correlations between what they were studying and its greater impact (e.g., social values of languages in public places).

5.2 Dataset 2: Interviews

During the interviews, students were asked to reflect on all the aspects of the lessons, but the teacher-researcher was careful not to specifically allude to any of the LL-based activities. Students' utterances are divided into the two categories that emerged from analysing the data: participation and way of learning.

Participation

Significantly, when asked what they enjoyed most during English lessons 17 out of 24 students mentioned the LL-based activities. The rationale the students gave for foregrounding these specific activities were varied. One reason provided was because the LL-activities allowed them to get to know their classmates better: "we all know our basis and things, but maybe we don't know that her father comes here from Chile." This reasoning seemed corollary to the fact that they were able to connect to their classmates and feel comfortable around them; the LL project helped them be more accepting of each other, especially since this was the only class the students had together.

Students also enjoyed learning about LL because it was highly personal and learner-centred: "it's like in some way connected to our lives." In turn, this increased their participation: "depending on topics sometimes I'm more interested in participating" and "it interested us, they're not boring stuff and it's a thing that you introduced to us and then we did it." Some students mentioned LL-based activities as a way of learning more about their neighbourhoods: "So I need to really explore my city."

Ways of Learning

Students seemed to intuitively understand that LL-based activities promoted deeper cognition, although they were not able to state it explicitly. As one student explained: "we tend to forget things less […] because it's like you're putting your memory to work." The students seemed to be aware that practising, formulating and expressing opinions helped them learn: "with your class we talk, we interact with you. It's better because we think and we practise more English." Another student put emphasis on her understanding of how she learns (metacognitive awareness) and on the authentic use of the target language (what she called 'practice'): "for learning, the best lesson is practicing. […] So, practising makes us think, oh, I did this, this and this and then you're like, um, expand your level", and "but then we improve our English stating our opinion." Learners also underscored that by examining their own work and comparing what they had done before they were able to achieve better comprehension: "you can listen to yourself and your partners or friends and compare yourself and see if you did something bad or you can improve it for an exam". Listening to their colleagues' feedback was also highlighted by the learners as beneficial to their learning process. "I know that feedback is very important, so we get to learn from other people's mistakes" The students seem to recognize that the process helped them develop metalinguistic and metacognitive awareness.

The interview's responses indicate that students enjoyed learning about LL and were able to use HOTS, synthesise different components into new ideas or propose alternative solutions in order to form and defend opinions and thereby expand their knowledge, understanding and skills. As they explained, it is "not simple activities, like more that you need to open your mind and it interests you to learn things. The

activity interest you […] and this can help you to understand more [and pay more] attention to that thing."

6 Discussion

The analysis shows that, for the most part, the project's aim to use LL-based activities to promote students' HOTS and CT was achieved. Students applied different cognitive skills to complete the task requirements. They did well within the classification process based on Bloom's Taxonomy, and, significantly, a high percentage of them was able to combine both lower and higher order thinking skills that are essential for CT. In the lower order skills, there is evidence they used their previous knowledge to perform the beginning part of the task: selecting pictures, listing, and labelling languages. Furthermore, most students were also able to describe and present their own findings (new knowledge built on prior knowledge) in a clear and concise way. Then they assembled all the parts together with other group members to create one video that summarized their findings (synthesis). However, the majority of the learners did not discuss their findings in detail with other group members (only six did this, as stated in Sect. 5.1), which seems to indicate that the skills of 'evaluation' were not fully achieved.

The last part of the task (evaluation), required students to compare all group members' findings and prepare a video discussing similarities and differences. Several students found it difficult to apply their previous theoretical knowledge related to different types of signs (bottom-up, top-down etc.) as indicated by the low number of groups who attempted to do so in their videos.

Even though several students provided descriptive information about their signs, for example the exact location, only four attempted an in-depth analysis related to these signs. These four students discussed cultural references found on the signs: "It is an Italian restaurant because it's called bota (boot) like the shape of Italy on the map" or the relationship of the language to the community: "We found it interesting that the name of the stores are in French and that some people may even not realize that the names are in French." These attempts seem related to discussions that had taken place in earlier lessons about languages and their role in one's identity, national identity, and language hierarchies. Nonetheless, this knowledge was not completely assimilated, and the students seemed unwilling and insecure about carrying out exhaustive investigation regarding this topic.

Students did better in the parts of the tasks where they could work on their own or with little interaction with other group members. The segments that required more negotiation with partners were only partially completed or were not done at all. Perhaps not surprisingly the activities they found most challenging were the most cognitively demanding ones. There may be different reasons why students found this specific part of the task difficult. There may not have been enough time spent in class practising this type of tasks, there may have been too many people in the group and, therefore, too much data to compare, or perhaps not enough time was provided

in the class to do all the required task parts. It could also have been due to lack of sufficient teacher supervision during the group work. It would be interesting to see if by ameliorating all or some of the above conditions the results would improve.

As regards the interviews, similar to Ying's (2019) findings, students' responses indicate that LL-based projects appeal to teenage learners. Learners in our study have demonstrated their interest in learning about topics directly related to them, such as languages and cultures. Furthermore, as various students pointed out, they enjoyed being challenged with themes that were new to them and required them to reflect and rely on their previous experiences and knowledge, although they needed teacher support and guidance to do so, as was evidenced when analysing students' videos, all of which can be related to the development of HOTS.

The students' interview responses demonstrated that they were aware that they learned more when they participated in activities in which learning outcomes were defined by using measurable verbs. They were able to point out in which situations they had learned the most and what favoured their progress. However, their metacognitive awareness is implicit rather than explicit and that leaves room for the teachers to further train the learners to be more reflective about their learning process and further promote CT. This will also allow them to know what strategies and skills they will need to develop when learning other languages, in case they need them in their future personal and/or professional lives.

We see in the interviews that the students enjoy taking an active role in their learning through becoming ethnographers and documenting languages present in their neighbourhoods. Similar to Lozano et al. (2020) findings, students elaborated on their data, making inferences in order to create their output about their neighbourhoods' LL. They found expressing their opinions and interacting with their peers and teachers gratifying (reasoned discussion and debate are key strategies for CT development), but, at the same time, they were very self-conscious about the effect their words may have on their colleagues' perceptions of them. Due to this, it is proposed that teachers ensure that students feel safe and comfortable with the teachers and classmates before introducing topics that may require them to share personal views or verbalize complex thinking processes.

7 Conclusion

This study's main aim was to measure the extent to which LL-based projects might promote students' HOTS and CT. It was demonstrated that LL-activities can be used successfully not only to promote both CT and HOTS, but that this pedagogical design can also increase students' metacognition related to their foreign language learning. We have seen that through LL-based projects students can learn to critically interrogate and probe the sociocultural environment in which they live. Embedded in a project that promotes ethnographic skills, these young learners gained investigative skills while discovering new aspects of the languages present in their neighbourhoods. Through presentation, comparison and evaluation of each other's work, they learned

to assess their colleagues' accuracy and knowledge claims, which are key starting points for developing HOTS and CT.

Moreover, this LL-based project has proven to be a very useful tool to engage students' interest and consequently improve their motivation and their participation in tasks and lessons. Additionally, providing them with opportunities to learn more about their peers led to deeper interpersonal relationships between them and helped them appreciate the diversity represented by their classmates, and, equally important for teenagers, gave students the opportunity to feel more comfortable sharing their experiences.

It is acknowledged that the results of the study refer to a small sample of students and are constrained to the context of one specific school, and therefore cannot be generalised to other settings. However, we feel that the findings provide a solid basis for further studies to gain more in-depth understanding of learners' perceptions of LL-based projects and provide insight for other teachers regarding ways to use LL-activities in the service of CT and HOTS development in their own classrooms.

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