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Research has shown that the implementation of service-learning (SL) in language instruction promotes language learning. However, little is known about how SL mediates specific linguistic outcomes such as vocabulary learning. The purpose of the study discussed in this article was to first examine whether vocabulary learning occurred in SL, then to determine how potential gains compared to those resulting from traditional classroom practices, and finally to explore the SL learning context in order to identify how and where vocabulary learning occurred. The case study relied on data from 20 participants enrolled in an advanced Spanish conversation course who translated lesson plans for a nonprofit organization that runs after-school programs. While quantitative data (in the form of pre- and post-tests) demonstrated learning in both SL and the classroom, qualitative interview data highlighted how SL mediated vocabulary learning. Key findings suggest that the inclusion of SL doubled lexical gains for learners enrolled in the course, and that gains resulting from SL in particular resulted from learners' active involvement in meaning-rich activities, which were conducive to spontaneous retention of vocabulary.

Keywords: vocabulary learning, service-learning, sociocultural theory, Spanish

Experiential education has been conceived as the conscious and intentional integration of classroom academic objectives and practical experience. This pedagogical approach is rooted in Dewey's (1938) philosophy, which highlights connections between education and personal involvement within the community. Building on Dewey's writings, Kolb (1984) maintained that experiential learning is knowledge created through transformations that arises from experience. He elaborated on four components of the learning process: concrete experience, reflective observation, abstract conceptualization, and active experimentation. More specifically, in order for learning to take place in experiential education, learners must be involved without reservation or bias, observe and reflect on their experiences from various perspectives, and transform their observations into concepts and theories, which are then used to make decisions and solve problems (Kolb, 1984).

For this study, we defined service-learning (SL) as a type of experiential learning characterized by an exchange between service to the community and academic learning (Furco, 1996) in which both students and the community give and receive, and benefit from partnering with each other. Service-learning activities occur within a continuous cycle of action and reflection (Jacoby, 2003) in which students create connections between their service and academic objectives, broadening their perspectives and becoming more invested in society (Barreneche, 2011). Because of this type of experience, students can not only meet learning objectives (Chambers, 2009) but also increase their understanding of the theory and practice of social justice and gain a sense of citizenship through civic engagement, potentially impacting their participation in social causes after graduation (Askildson, Kelly, & Mick, 2013; Kilgo, Pasquesi, Ezell Sheets & Pascarella, 2014; King de Ramírez, 2016).

Regarding the link between SL and language learning—which was the focus of the current investigation—previous research has supported the pedagogy's implementation in language courses. For instance, studies have found that second-language learners (L2Ls) benefit from first-hand experience and contact with native speakers (NSs). Such benefits include increased proficiency (Barreneche, 2011; Thompson, 2012) and pragmatic and cultural knowledge (Abbott & Lear, 2010; Grabois, 2008; Zapata, 2011). For heritage speakers (i.e., learners who grew up speaking a language other than English in the

home; Valdés, 2001), SL has been shown to increase self-confidence in relation to their heritage language, among other findings (Tocaimaza-Hatch & Walls, 2016, 2017).

Nonetheless, questions remain about the application of SL in language learning and teaching. For instance, it is unclear how learners engage in SL-based activities in which what they need to do determines what they learn, as opposed to classroom environments, where what students know determines what they do (Overfield, 2007). Consequently, with the exception of a few studies that have focused on learning outcomes (e.g., Wurr, 2002, 2009), much remains to be investigated about how SL supports specific language learning goals and SL's efficiency in promoting these objectives compared to traditional language instruction.

In light of this gap, the purpose of this case study was twofold: It aimed to investigate one pedagogical goal common (and central) to language instruction—vocabulary learning—and to compare how SL and traditional classroom instruction promoted this goal. For this investigation, learners enrolled in an advanced Spanish conversation course engaged in two types of activities. First, for the SL portion of the course, students translated lesson plans into Spanish that a nonprofit organization had requested for their after-school program, and an initial set of target words was drawn from these lesson plans. Second, learners participated in traditional class activities from which a second set of target words was gathered. As a preliminary step in the analysis, we assessed vocabulary learning for the two sets of words (i.e., SL words vs. classroom words) to determine if vocabulary learning had occurred. While prior research has explained how vocabulary learning unfolds in the classroom (e.g., Swain, 1998; Swain & Lapkin, 1995, 1998), few studies have explored how vocabulary learning occurs in SL. Therefore, we then conducted a qualitative analysis of how retention of SL target words had been afforded through SL, illuminating learning processes inherent to this context.

In the next section of this article, we address the theoretical framework of our study, sociocultural theory (SCT), which provides a suitable means for analyzing learning in a dynamic and interactive setting such as SL (Boyle & Overfield, 1999). A literature review follows, providing an overview of topics relevant to the current investigation, namely SL and language learning, and vocabulary learning, particularly as it pertains to current classroom practices. The literature review is followed by an introduction of the research questions that guided this study.

Sociocultural Theory as a Theoretical Framework

In recent decades, researchers have used SCT as a framework within language studies (Freeman, 2007; Frawley & Lantolf, 1984; Ohta, 1995, 2001; Polinsky & Kagan, 2007). The theory originates from the works of Vygotsky (1978; 1986), who theorized that learning takes place through interaction with the social environment. Specifically, SCT is based primarily on Vygotsky's concept of cultural mediation as observed in human actions directed toward an object, whereby tools are used to accomplish or mediate the outcome of those actions. Central to mediation is the zone of proximal development (ZPD), which Ohta (2001) defined, in the context of language learning, as "the distance between the actual developmental level [of the learner] as determined by individual linguistic production, and the level of potential development as determined through language produced collaboratively with a teacher or peer" (p. 9). Vygotsky framed the ZPD as the mechanism that makes internalization and development possible. This is determined by individuals' dynamic interactions with their environment. In the context of language learning, learners adapt their behavior based on their own needs, desires, and knowledge, and, in so doing, adapt the task and build their own learning.

Actors within this social phenomenon assume roles in order to position themselves in the interaction. The expert, or the more experienced participant, supports the novice by means of "scaffolding." However, studies have shown that, together, learners are able to scaffold each other as they take turns assuming the expert role (Kowal & Swain, 1994; Ohta, 1995; Villamil & Guerrero, 1998). In this way, learners pool their linguistic resources in order to create expertise collectively and create language beyond each individual's current knowledge. With the addition of SL, the language classroom multiplies the ways in which learners'

development is influenced, whether socially, emotionally, or cognitively, thus redefining the learning space and changing the teaching-learning process (Howard, 1998).

Service-Learning and Language Learning

In Hellebrandt and Varona's (2005) seminal work on SL in Spanish, Hale (2005) called for further exploration of the connections between language learning and SL. Several investigations have pursued this line of inquiry, concluding that SL does enhance language instruction (Barreneche, 2011; Bettencourt, 2015). As L2Ls come into contact with NSs and engage in active and authentic language use, they are able to improve their linguistic competence (Bloom, 2008; Caldwell, 2007), deepen their cultural awareness (Heuser, 1999; Weldon & Trautmann, 2003; Zapata, 2011), gain content knowledge (Abbott & Lear, 2010; Heuser, 1999), and develop professional skills (Askildson, Kelly, & Mick, 2013; Eyler & Giles, 1999; Gascoigne Lally, 2001). Moreover, learners are able to participate in the civic life of their communities (Caldwell, 2007), allowing the individual to develop new insights on social justice and diversity as well as an increased sense of citizenship through civic participation (Askildson et al., 2013). For heritage speakers (HSs), in addition to improving their linguistic skills, SL can validate their current abilities in the language (Kim & Sohn, 2016; Leeman, Rabin, & Román-Mendoza, 2011; Pascual y Cabo, Prada, & Lowther Pereira, 2017). It can also ameliorate minorities' college experience since SL legitimizes students' individuality, creates supportive networks, and promotes necessary skills to succeed academically (King de Ramírez, 2016; Uehara & Raatior, 2016). Furthermore, SL can empower HSs as they learn about sociolinguistic and sociopolitical issues and participate in causes relevant to them and their community (Lowther-Pereira, 2015; Pascual y Cabo et al., 2017).

Indeed, as a pedagogical approach, SL offers L2Ls and HSs authentic and contextualized opportunities for language learning. Contributing to SL's success, Pak (2007) argued, are several key components, including: hands-on experiences, learners' acknowledgement of the need to improve their linguistic skills in order to provide effective service, and an understanding of expectations for high-quality work. Thus, the SL experience motivates learners to work harder than they would ordinarily in the traditional classroom, as indicated by their commitment to the project both inside and outside the class and their cooperative and collaborative attitude toward each other, resulting in a sense of ownership of the course and the SL program (Pak, 2007).

Despite the growing interest in SL in language courses, however, most studies have taken a broad perspective in surveying learning outcomes, and discussions about vocabulary learning have been secondary (e.g., Bettencourt, 2015; Martinsen, Baker, Bown, & Johnson, 2010; Sun & Yang, 2015). One exception is Tocaimaza-Hatch and Walls' (2016) study, which examined how components of an SL project mediated vocabulary. Learners translated explanatory materials for a local zoo into Spanish. Lexical gains demonstrated breadth and depth of vocabulary knowledge, which included increased awareness of semantic relationships between high- and low-frequency words and a greater understanding of lexical differences based on register and dialectal variation. The researchers also found that HSs increased their confidence in their linguistic abilities in the heritage language (HL) as well as their commitment to their own community. These findings notwithstanding, much remains to be studied in the area of vocabulary learning in SL.

Vocabulary Learning and the Language Classroom

Vocabulary knowledge, or *the lexicon*, has been variously defined as the store of words in long-term memory that are used to build phrases and sentences through grammar (e.g. Jackendoff, 2002), a mental system that includes representations of sounds and meanings (Ouellette, 2006), and a multiple domain system of mental representations encompassing the phonological, orthographic, and pictorial lexicon (Coltheart, 2004). The units that compose the lexicon can be single-word units of meaning or word clusters, which operate as a unit in relation to meaning and function (Schmitt, 2000). Because of its complexity and range, vocabulary learning represents a challenge to language learners, especially when compared to other aspects of language learning, such as phonetics, which comprise a more limited scope (Gass, 1989; Wagner, Muse, & Tannenbaum, 2006).

Sociocultural research has turned to the question of how language learning is mediated and afforded in the language classroom (Donato, 2000; Kowal & Swain, 1997; Norris & Ortega, 2000; Swain, 1998; Swain & Lapkin, 1995, 1998). For instance, Huong (2007) investigated how students learning English as a foreign language interacted in groups either by themselves ("unassisted" groups) or with the intervention of a more knowledgeable learner or expert ("assisted" groups), and the learning outcomes resulting from those experiences. Huong's analysis demonstrated that in the assisted group, the expert fulfilled various functions: organizing work, ensuring everyone's participation, and explaining new vocabulary. These findings demonstrated how group processes unfold with the presence (or not) of an expert, thus changing the ZPD characteristics for each interactive group. In the context of the present study, these results highlight how vocabulary learning can be afforded through the support of a more knowledgeable peer when learners interact with each other.

In a study conducted by Swain and Lapkin (1998), students completed a jigsaw task, organizing pictures in order to compose a story. The main purpose of the task was to target reflexive verbs in French. The researchers found that learners (whose interactions were recorded) turned their attention to the lexicon and grammatical forms, which later positively influenced their post-test results. In the same way, Storch (2002) analyzed dyadic interaction in an English as a Second Language course and found evidence of knowledge transfer of items learners had previously discussed. Thus, these studies illustrated how learners' engagement in linguistic interaction can enable the emergence of connections among meaning, form, and function, thus promoting linguistic development.

In addition to gaining an understanding of how language learning is mediated through interaction, studies have also examined how particular variables affect the collaboration and its outcomes. Bowles (2011) concluded that in mixed (i.e., HS-L2L) dyads, HSs turned the discussion to questions on orthography, while L2Ls were more concerned with vocabulary. Tocaimaza-Hatch (2017) also studied how mixed (i.e., HS-L2L) and matched (i.e., L2L-L2L and HS-L2L) dyads mediated vocabulary learning through interaction, positing that learners targeted word meaning but did not explore other layers of vocabulary knowledge such as register or frequency.

Finally, McCafferty, Roebuck, and Wayland's (2001) study demonstrated ways in which vocabulary learning was impacted by needs, which ultimately determined behaviors and cognitive gains. In their study, participants in a control group were instructed to compose an essay including a number of target words, which were mostly unknown to the participants. Those in the experimental group were instructed to interview their peers, a task during which they were able to request assistance from the instructor regarding unknown words. These unknown items became the target words for this group. Based on the results of post-tests on the target items for each group, the researchers concluded that words in the experimental group were better retained than those in the control group. The authors argued that because the words were central to and necessary for task completion, they led to behaviors that contributed to their retention.

In summary, the study of language learning, including vocabulary learning, from a sociocultural perspective attempts to understand how variables, such as features of the learning setting, and the participants come together to afford (or not afford) learning. Namely, this includes focusing on how mediation fosters learning in the classroom and the importance of needs as a driving force in peer interactions.

Research Questions

Service-learning experiences have proven instrumental to achieving language learning goals, specifically in relation to the development of communication and cultural knowledge, and the creation of connections with communities that speak the target language (Caldwell, 2007). However, relatively little is known about SL's efficiency in affording specific language learning goals such as vocabulary. Therefore, the main goal of this study was to ascertain whether vocabulary learning occurred in SL and how. With this in mind, learners engaged in two types of activities within a Spanish SL course. First, for the SL portion of the course, students translated lesson plans for a nonprofit organization, and a first set of target words (i.e., SL words) was selected from these plans. Second, learners participated in traditional class (CL) activities, from

which a second set of target words was gathered (i.e., CL words). In the quantitative analysis, we ascertained vocabulary learning for the two sets of words. Additionally, because ample research has shown how learning occurs in the classroom (e.g., Donato, 2000; Kowal & Swain, 1997; Norris & Ortega, 2000), this investigation explored, through qualitative analysis, how vocabulary learning occurred in the SL environment and how SL as a system made learning possible. The following research questions guided this study:

(1) Does SL afford vocabulary learning?
(2) If so, how does the SL setting afford that learning?

Although we report on vocabulary learning of classroom words, we do so as a comparison of the effectiveness of the SL context in promoting vocabulary learning. It is worth noting that we do not claim that practices within the classroom differ extensively from SL activities; after all, both contexts provide a rich social environment.

Method

In this case study, we employed a mixed-methods approach in addressing the research questions. As Watanabe (2008) argued, quantitative analysis measures learners' behaviors, while qualitative examination provides insights into individual learning processes; thus, we deemed the implementation of multiple methods useful. The study's quantitative analysis determined if learning had occurred (first research question), and the qualitative analysis described the complexities of the SL environment that produced learning (second research question).

Participants

This investigation included 20 learners enrolled in an advanced Spanish conversation class at an urban university in the midwestern United States. The class included 11 Spanish L2Ls, five Spanish NSs from Mexico and El Salvador, and four HSs. There were four males and 16 females ranging in age from 19 to 45. Students' participation in the translation and creation of lesson plans represented 15% of their final grade. After the study received approval from the university's Internal Review Board, we recruited students to participate, and every student who was invited agreed to be part of the study.

No data were gathered regarding the participants' Spanish language proficiency; however, typically, students' abilities in this course ranged from Intermediate-Mid to Advanced-Mid on the ACTFL speaking scale (the second author is a certified ACTFL rater). Because the analysis was not based on ethnicity, this information was not gathered.

Procedure

As part of the course, learners participated in an SL project in partnership with a local nonprofit agency that offers after-school programs. The organization serves nearly 2,000 children, of whom 72% are Hispanic and 82% are younger than 12 years of age. The agency had expressed a desire to support the maintenance of Spanish, the home language of a majority of the children who participate in their programs. Thus, the main goal of the SL component was to promote language maintenance in the bilingual children attending the after-school programs. With this goal in mind, the community partner and the course instructor developed an SL program that encompassed three major tasks, each accompanied by reflection:

1. The creation of a weekly reading program in which learners read books and engaged in other interactive activities, in Spanish, with the children. Learners worked in dyads and took turns leading the reading sessions at the agency twice a week over one academic semester. (A complete report of this portion of the SL experience can be found in Tocaimaza-Hatch, 2018.)
2. The translation of existing lesson plans (the focus of the current research), which the agency's staff would use during their regular after-school programs. These lessons were not implemented by learners.

3. An end-of-semester party at the university where learners interacted with the children and their parents.

Our analysis focused on lexical learning resulting from learners' participation in the translation of lesson plans—the second component. Although the methodology did not center on the first or third components (i.e., the reading program and end-of-semester celebration), it was through these events that learners came in close contact with the Latino population that the program aimed to serve.

For the translation assignment, the instructor divided the lesson plans into five sets of nine. Learners formed groups comprising four students each and were assigned a set of lesson plans to translate. Most translation work was completed during class time. The classroom was mixed, and students were evenly distributed in each group according to language background. Table 1 specifies group make-up.

Table 1. Learner Type per SL Group

Group	Native Speakers	Heritage Language Speakers	Second-Language Learners
Group 1	1	1	2
Group 2	1	1	2
Group 3	1	1	2
Group 4	1	1	2
Group 5	1	0	3

Because the translation project was divided into five lesson plan sets, the researchers selected 16 words from each. Service-learning words were chosen on the assumption that they would be unknown to the learners since most were related to the context of early childhood education (e.g., to sit *criss-cross applesauce*, *bingo dauber*). Though students worked extensively with SL words during the translation process, they were not asked specifically to learn them.

The 16 CL items comprised Spanish words and phrases (e.g., *business branch*, *handicapped*, to *run for office*), which originated from a larger list developed by the instructor with the purpose of providing learners in this advanced conversation class a lexical guide for discussing current events. Both the SL and CL lists included five nouns, nine verbs, and one adjective. This ratio corresponded to the approximate occurrence of these parts of speech in natural language (Tocaimaza-Hatch, 2014).

Instruments for Quantitative Analysis

The vocabulary-knowledge scale (VKS) was adapted as a tool to assess participants' knowledge (Wesche & Paribakht, 1996) in pre- and post-tests. Learners were given a target word in English and then self-reported how well they knew its counterpart in Spanish. Table 2 reproduces the VKS as utilized in this research; category I was added in order to account for learners who were unable to respond to the prompts due to their lack of knowledge of the English terms.

When scoring the assessments, self-reported categories I, II, and III received a score of 0, 1, and 2 points, respectively. For item IV, a score of 3 was awarded if the word/term was correct, even if it contained minor spelling errors; however, if the wrong part of speech was given, the student received a score of 2. For item VI, if the answer demonstrated that the student was unfamiliar with aspects innate to the term (e.g., orthography), the learner received a 4. Participants earned a 5 if their translation was pragmatically and grammatically correct within the context of the sentence they provided. The researchers scored every test independently and agreed in 95% of cases. Afterward, the researchers reviewed their work together, and reconciled any difference in order to reach 100% interrater reliability. Any disagreements were resolved jointly. Moreover, because the aim was to determine whether SL would

result in vocabulary gains and, if so, whether would they be comparable to gains made during regular class activities, learners were also asked to complete a VKS test for CL words. These tests were scored as described earlier.

Notably, this study design did not include a control group. However, because a comparison was made of pre- and post-tests for each individual, each student represented his or her own control (Negueruela, 2003).

Table 2. Vocabulary Knowledge Scale

Category	Possible score	Meaning of score
I	0	"I don't know the meaning of this word in English."
II	1	"I don't remember having seen the Spanish word for this English term before."
III	2	"I would recognize the Spanish word or term for this if I saw it."
IV	2 or 3	"I have seen this word or term before and I think its Spanish translation is (Write the Spanish word or term)."
V	2 or 3	"I know this word or term in Spanish. Its translation is (Write the Spanish translation for this word or term)."
VI	4 or 5	"I can use the Spanish word in a sentence (Write a sentence in Spanish that includes the word. If you do this section, please fill out the previous option, 'I know this word or term in Spanish,' as well.)"

Instruments for Qualitative Analysis

At the conclusion of the course, learners were invited to participate in a semi-structured debriefing interview (see Appendix for interview questions,) for which they received a $10 gift card. Ten learners—seven L2Ls, two NSs, and one HS—participated. During the interview, learners were encouraged to reflect on their vocabulary learning over the semester, what motivated their learning, and how they studied vocabulary in general. Learners were also presented with the lists of SL and CL words and asked if they recognized the items; if they did, they were asked if they recalled how they became familiar with them.

Following the interviews, a thematic analysis of learners' commentaries was carried out. We did not approach the qualitative data with predetermined categories in mind; rather, these categories emerged through the analysis, which was first conducted individually and later jointly.

During the first analysis, we identified salient topics in each of the learners' interviews, which were also tallied to confirm first impressions. The second analysis consisted of determining the overarching themes that connected learners' individual comments. Finally, we analyzed how these themes exposed vocabulary learning in SL. Thus, in conducting several analyses of the data, we achieved 100% interrater reliability.

In order to maintain qualitative rigor in data handling, we made several considerations based on Lincoln and Guba's (1985) model of trustworthiness. Four components of the verification process were implemented, namely credibility, transferability, dependability, and confirmability. Credibility measures included triangulation, negative case analysis, and referential adequacy. Triangulation was possible through the analysis of two data sources: interviews and memoing. Memoing included the notes taken by the researchers during the interview process and throughout the progressive and systematic analysis of interviews. Through memoing, we detailed descriptions of participants' reactions, patterns, attitudes, and

experiences as they emerged in the interviews, which enhanced our understanding of the interview data. As a result, memoing also supported transferability.

Negative case analysis occurred when we identified deviant data, which appeared to contradict overarching findings and patterns. These data allowed us to reconsider and revisit general findings. Referential adequacy was made possible through the data parsing and analysis over an extended period of time (two years). Revisiting data over time allowed us to reconsider findings and compare them across data batches in order to promote consistency and validity in the process.

We accomplished dependability by working individually and later checking our findings jointly, thus creating an external auditing process. The feedback that we offered to each other kept the data-analysis procedure in check. Confirmability was fostered by means of the elements described earlier, including triangulation, reflexivity (accomplished through memoing), and external auditing (as we worked together). This process augmented trustworthiness and reduced bias, particularly for the researcher who was also the course instructor (the other author had no part in the course or the SL experience).

Results

Research Question 1: Does SL Afford Vocabulary Learning?

Table 3 lists learners' VKS average scores in the pre- and post-tests for CL and SL vocabulary items. As measured by the pre- and post-tests, learners on average made gains in vocabulary knowledge of both CL (3.05-2.64 = .41, *SD* = .56) and SL words (2.81-2.32 = .58, *SD* = .44). Paired *t*-tests revealed that these gains were statistically significant for CL ($t = 3.28$, $df = 19$, $p < .01$, *CI.95* = .15-.67) and SL words ($t = 5.81$, $df = 19$, $p < .01$, *CI.95* = .37-.79) separately. However, neither of the two learning approaches provided a relatively greater difference than the other ($t = 1.44$, $df = 19$, $p = .17$). Effect sizes associated with these learning-gains *t*-tests were modest for both CL words (Cohen's $d = .61$) and SL words (Cohen's $d = .62$), translating to a roughly .6 increase in a standard deviation in VKS from pre- to post-tests.

Thus, the evidence shows that the participants learned both SL and CL vocabularies. The learning gains were higher for SL words on average; however, the difference was not large enough to indicate significant differences in learning for the SL items in comparison to CL words.

Research Question 2: How Does the SL Setting Afford Vocabulary Learning?

In this section, we report on learners' commentaries regarding the themes that emerged about vocabulary in SL. We also flesh out all of the themes described in Table 5, providing illustrative comments from learners.

Learners perceived the SL experience as a set of tasks that did not focus specifically on any one aspect of language, so they initially conceded that they had learned less SL than CL vocabulary. Reasons cited for learning SL words included real-life applications of the vocabulary and its relevance to their future careers. Learners also explained that their work would be used in a real-life context, which pushed them to do their best. IH (an L2L) commented on how she weighed the importance of each set of vocabulary words. She identified SL as a better setting because of the pressure learners felt to learn the material involved in their translations:

> SL was more helpful than class because there was a stronger pressure on me to adequately learn and comprehend material … Others were relying on me, so it's important that I learn [these words] better. It's applied…. With the kids it's very important, even beyond the education part of it, that they are aware someone respects them enough to be prepared, and somebody finds them important enough to be prepared.

Here, IH describes the sense of responsibility toward others, specifically toward the children who would benefit from the project, as a moving force. Therefore, social accountability, that is, responsibility to a larger community, was an important factor in her learning.

Table 3: Learners' Average Scores in Pre- and Post-Tests

Learner ID	Learner Status	Pre-CL	Post-CL	Pre-SL	Post-SL
LM	L2L	2.00	2.13	1.50	1.63
AA	HS	3.25	3.44	4.14	4.14
OH	L2L	3.38	3.44	2.56	3.00
OL	NS	3.13	3.19	3.87	3.73
LE	L2L	2.06	2.25	1.93	2.21
EH	HS	2.50	3.19	1.69	2.25
LO	HS	2.44	3.56	2.53	3.53
OD	L2L	2.00	3.13	1.80	2.80
OO	L2L	2.81	3.20	2.31	3.57
AAA	L2L	3.56	3.88	3.07	3.86
EL	L2L	2.06	3.06	1.13	2.00
AY	L2L	1.69	2.94	1.33	2.47
OI	L2L	1.94	2.31	1.56	2.38
EI	NS	3.38	3.19	1.13	2.00
OE	NS	4.13	4.07	4.20	5.00
AAE	L2L	2.25	3.38	1.81	2.19
HL	L2L	1.50	2.69	1.50	1.94
IL	NS	3.50	2.75	2.31	2.08
RH	HS	2.19	2.13	2.63	2.75
IO	L2L	3.06	3.13	1.50	2.57

Table 4: Mean of Vocabulary Knowledge Scale (VKS) Scores (N = 20)

Word Sets	***M***	***SD***
Classroom Words		
Pre-Test	2.64	.74
Post-Test	3.05	.54
Difference	.41	.56
Service Learning Words		
Pre-Test	2.32	.95
Post-Test	2.81	.89
Difference	.58	.44

Table 5: Learning within SL

Theme	**Item**
Reasons for Learning (60%)	Relevant to career
	Frequency of use
	Real-life applications
	Motivation to earn a good grade
Social Accountability (70%)	Responsibility to the children, parents, community partner, and other stakeholders such as group peers
	Need to save face
Group Interaction as a Means of Learning (40%)	Struggled with non-symmetrical relationship between English and Spanish words
	Held vocabulary-centered discussions
	Peer reviewed partners' translations
Nature of Words (40%)	Breadth and depth of vocabulary knowledge
Learners' Roles (50%)	Collaborative/cooperative learning task
	Peer review
	Novice vs. expert role

Note. Percentages indicate frequency with which each theme emerged in the data.

Learners acknowledged that SL words were more challenging to work with than CL words. The instructor had provided a list of CL vocabulary in Spanish, allowing the students to immediately recognize the target. The SL words, however, were more challenging because the Spanish equivalent of English words represented a moving target since each English term could have several Spanish equivalents. Learners needed to increase their understanding of the limitations and requirements imposed by the context such as specific usage and register. This was true for all speakers—that is, L2Ls, HSs, and NSs—who built upon their own strengths. For example, one NS spoke of her increased awareness of dialectal variability. This concept is reinforced in the following two comments. In the first, OE (an NS) explained how, through participation, she saw a need to neutralize her Salvadoran dialect and incorporate more generalized terms into her lexicon, using bingo daubers as an example of this approach:

> We used to call them *coquitos*, but that was perhaps a colloquial word from El Salvador. "Bingo markers" [*marcadores de bingo*] appears to be a more general term so that people can understand what it means.

In addition to dialectal variability, some participants noted that they retained SL words because they worked together in groups and engaged in dynamic mechanisms embedded in language-centered tasks. IH (an L2L) explained how she encountered and repeatedly manipulated the SL vocabulary—which was true for all learner types as they often negotiated and contributed to word choice:

> The helpful thing about [SL vocabulary] was that there was a lot of repetition. So, when we were doing the lesson plan translations, we were seeing them, some of the words, like multiple times. And then we were going back to the lesson plan several times. Also we were having disagreements [within] our group. Discussions about which word was more effective, or how you should write something. [In our group], we had [L2Ls] and NSs. [We L2Ls] had different words than [NSs] did often times, and we had to find out which one was more accurate.

Here, IH explains that her group often explored various possibilities for their translations. Such collaborative interactions were common.

Some learners also acknowledged that they worked in cooperative as well as collaborative interactions by dividing their load among group members. As EI (an L2L) described:

> Each person had a section of the lesson plan to do. And then, [EL, an NS] was in our group, and then she'd go through it. She had her own section also, but then she'd go through and kind of proofread it and tell us what we needed to change. From that point on, we kind of fixed what we had to fix. She'd run through it one more time and then we'd turn it in.

In these types of interactions, learners took on roles as experts and novices. As EI described, NSs and HSs frequently embodied the expert role in mediating L2Ls. Similarly, OE's comment reveals some of the dynamics within her group:

> Everybody contributed a lot. One person that did a lot of work was LO [an HS], in my group. She always—I'd say something, or somebody else would say something, "Yes but I think that this would be a better way." Then, I think that she was one of the strongest influences in my group. Of course, she and OO [an L2L], also helped us a lot. I think it was OO who found the word for *to connect* [*conectar*] instead of *to tie* [*atar*]. I thanked him a lot because I didn't think about it at all at that moment because I was so focused on the word *to tie* [*atar*].

LO also explained how these interactions contributed to expanding the breadth and depth of her vocabulary:

> In reality I've learned a lot of words. I learned *matutina*, which LO [an HS] explained was early morning routine. Even though I had never heard it before, I have begun to incorporate it into my vocabulary. Also, I didn't know that there is a word for *to trace*. I thought that *calcar* [*to use a carbon copy*] was *to trace* but now I know another word for it. And I had heard *pizarra*, but I thought it only meant *chalkboard*, but I learned that it can also mean *white board*, *black board*, *score board*.

Apparently, such in-depth vocabulary gains were triggered by translating terms that presented a non-symmetrical relationship of lexical items across languages. In these instances, learners considered various definitions and pondered how each translation might fit. For instance, AAA (L2L) explained how difficult it was for her group to translate *get well card*.

> But, that was really hard, a get well card, to try to make that make sense … I don't think we just put *get well card.* We just had to express it in a different way. Like make her a card *deseándola que se mejore* [wishing that she get better].

Not only did learners have to address the non-symmetrical nature of translating, they had to deal with cultural aspects as well, as with AAA recognizing that a get well card is an American concept requiring explanation.

In summary, our data analysis demonstrated that vocabulary learning in SL was comparable to learning in the classroom. Notably, these results suggested strongly that SL provides a setting for incidental learning that augments classroom learning. In this way, learners were able to double their gains. The qualitative analysis demonstrated the various elements that contributed to vocabulary learning in SL.

Discussion

This investigation aimed to explore vocabulary learning in an SL Spanish course. In order to determine if vocabulary learning had taken place, target items selected from SL and classroom activities were evaluated through pre- and post-tests. CL words, which were part of the classroom experience, were used as points of comparison. Score differences indicated that both contexts resulted in gains; one environment did not prove to be better than the other. Findings related to CL vocabulary aligned with the literature on vocabulary learning through classroom practices (e.g., de la Fuente, 2006; Swain & Lapkin, 1998). Results centering on SL vocabulary also supported Tocaimaza-Hatch and Walls' (2016) study, which investigated vocabulary learning through the translation of materials into Spanish, as well as other studies showing overall linguistic gains through SL (e.g., Barreneche, 2011; Bettencourt, 2015; Lear, 2012).

Our analysis of interviews also explored how SL as a learning context facilitated learning. Learners discussed various elements they associated with vocabulary learning outcomes, namely social accountability, or a sense of responsibility toward others (most frequently, the children who would benefit from their translations), and rich and interactive practices with classroom peers, all of whom strove for lexical accuracy. These practices included collaborative work, peer review, and role taking, which have been found to serve as effective tools for language learning in the classroom (Bowles, 2011; Donato, 1994, 2000). Although these findings on how SL facilitated learning echo established classroom practices for successful language learning, two differences appear to distinguish SL from the classroom: motivation, which in this research we have termed *social accountability*, and the spontaneous and unexpected (by learners) vocabulary gains that resulted from the experience.

Social accountability appeared to be an integral factor in vocabulary learning in SL, as discussed by a majority of participants. Once learners came into contact with the community partner and its urgent needs, those needs became paramount to the SL experience, thus creating an incentive for participants to meet the project expectations while increasing their linguistic skills. The ability to put a face to those whom the

project would serve strengthened learners' commitment and deepened their engagement with target texts, thus facilitating vocabulary learning.

Indeed, the value learners placed on the quality of their work permeated the various activities within the translation exercise. Learners referred to the difficulty of the task due to the lack of one-to-one equivalencies from one language to the other. Therefore, they were required to explore the connotations of words in terms of their applicability to the context, register, dialectal differences, and accessibility to the audience. These findings align with Colina and Lafford's (2017) study on translation as a tool for language learning. Indeed, various scholars have demonstrated that translating promotes language learning because it mediates learning from various perspectives (Beaven & Álvarez, 2004; Canga-Alonso & Rubio-Goitia, 2016). Social accountability also manifested as shared responsibility among group members.

Learners assumed roles as experts and novices, with HSs frequently taking on the expert role in mediating L2Ls. Here, the appropriate mediation that was provided was "graduated" (i.e., the expert or peer provided help according to the novice's skills), "contingent" (offered only when needed), and both assessed and delivered through dialogic activity (Aljaafreh & Lantolf, 1994).

This created a network in which learners relied on others to check their performance (e.g., peer review, collaborative knowledge building). These results are in line with prior literature on HS-L2L interactions, indicating that these learners support each other based on their individual strengths; however, as seen in this and earlier studies (e.g., Blake & Zyzik, 2003; Bowles, Adams, & Toth, 2014), HSs mediate knowledge more frequently for L2Ls than vice versa. Overall, the findings around the implications of social accountability also align with Pak's (2007), which demonstrated that SL created a context in which the real-life aspect of the task demanded that learners improve their linguistic skills so that they could meet the high-quality expectation required by SL.

This research also suggested that vocabulary learning in SL complements classroom learning. While classroom learning requires learners to put effort into tasks (i.e., intentional learning), SL gains are reached naturalistically without learners having to exert any extra effort (i.e., incidental learning). Intentional learning involves memorizing word lists, while incidental learning occurs during meaning-focused communicative activities (Ma, 2009). In this study, learners incorporated classroom words that were required for tests and class discussions into their lexicon (intentional) as well as another set of SL words for which they were not directly accountable through classroom assessments, though they were accountable, in a way, to those the SL project aimed to serve (incidental). As a result, the SL classroom provided ample opportunities for vocabulary learning both intentional and incidental, and in this environment, learners doubled their gains. Significantly, classroom words are often selected based on what the instructor finds important, unlike SL, in which learners' lexical needs determine vocabulary learning (McCafferty et al., 2001).

These findings have various pedagogical implications. As seen in learners' involvement in SL tasks, social accountability was a motivating factor in their learning. Therefore, assignments that incorporate this element might advance vocabulary learning. Teachers could ask students to use target vocabulary in public spheres where their work transcends the classroom, such as social media, newsletters, and public presentations since the implementation of such tasks augments the communicative nature of the classroom. Additionally, assignments that require learners to be responsible to each other, perhaps through assigning roles (e.g., reporter, note taker, leader) would add an element of social accountability within groups.

Another component of group interactions was learners' diverse abilities in the target language. Although this could cause some strain in certain contexts, it proved to be beneficial within the SL environment. Such exchanges can be important in validating the skills of HSs, who often feel inadequate with regard to their HL (Martínez, 2003; Potowski, 2004), as well as raising confidence in HSs and L2Ls when working together (Bowles, 2011).

The gains identified in SL vocabulary learning highlight the importance of choosing a project that aligns with the academic and linguistic objectives of a course while also meeting the community's needs. Key features of this project included real-life tasks, a genuine audience, peer mediation, interaction, and opportunities for language production. These components appeared to interact with each other and support learning outcomes. Moreover, social accountability emerged as a by-product of these interacting SL

elements, which served to cement the moving parts. The sum of these interacting elements appeared to make SL conducive to learning.

Although this study yielded important findings with regard to language learning in the classroom and SL, there were some limitations. First, though the case study allowed us to explore interactions in more depth, the results are not generalizable due to the small sample size. Second, because the debriefing interviews were conducted on a voluntary basis, slightly more than half of the participants agreed to be interviewed. More interview data may have provided additional insights into the interacting components of the SL context. Finally, the VKS proved to be another limitation; during the interviews, various learners commented that the test was fatigue-inducing. Future studies should consider different types of assessment.

Future investigations should also examine language background both quantitatively and qualitatively in order to discover how learning occurs for each learner type. This could provide insight into whether one group (i.e., L2Ls, HSs, or NSs) benefits more in SL. Though the present study found examples of the division of labor, affordances provided to and gained from partners, and how feedback was sensitive to the ZPD based on participant reports, audio and video data would have demonstrated the intricacies of these interactions. Such recordings would potentially supply an enormous amount of data from which to draw and provide nuanced details of the learning. Furthermore, since social accountability emerged as an important variable in vocabulary learning in the SL context, future studies could investigate whether it is possible to replicate this variable in a classroom.

Conclusion

This case study investigated vocabulary learning that emerged from classroom (CL) and SL activities in an advanced Spanish conversation class. Learners engaged with CL vocabulary as part of class discussions, readings, and assessments. CL items were introduced to meet learners' needs in the course as they discussed current events. The class also participated in an SL project, which involved translating lesson plans for a community partner that provided after-school services for bilingual children. SL items were selected from the translations. While quantitative data (collected through pre- and post-tests) demonstrated learning of both CL and SL vocabularies, qualitative interview data showed how SL mediated vocabulary learning. Based on the findings, we concluded that SL doubled lexical gains for learners enrolled in the course and that SL gains resulted from learners' interactions in meaning-rich activities that promoted vocabulary retention.

Appendix

Debriefing Interview Questions

(1) Do you recognize these words?
(2) Did you cover them in class? How?
(3) How many do you feel you learned?
(4) What strategies did you use to learn these words?
(5) Do you feel that some words were more than important/useful than others? Why?
(6) How helpful was the SL component for learning new vocabulary?
(7) How did the vocabulary you learned during the SL compare to the class vocabulary? Was one more important/useful than the other? How so?
(8) Which words were most useful to you this semester? In the future?

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