

## Interprofessional learning to enhance Spanish communication skills in Latinx pharmacy students

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### ABSTRACT

**EN** This case study focuses on an interdisciplinary educational experience in which university Pharmacy and Humanities early and late Spanish-English bilinguals were paired to translate questions related to sociobehavioral aspects of medication use. This work describes the personal and professional benefits reported by the translators and the prevailing themes from verbal negotiations. The participants were an undergraduate in Spanish, seven pharmacy professional doctorate students, and five Hispanic studies graduate students. After completing individual translations, students were paired and met virtually to create a final, collaborative version of their translation. Participants were subsequently invited to answer open-ended questions about their experience. Translators' transcribed interactions and questionnaire responses became the basis for this article. Results show that the main reported perceived benefit was the participants' improved language skills. The findings also suggest that length, quality, and richness of interactions depended on whether the members of the pairings exhibited mutual respect, curiosity, and empathy.

**Key words:** INTERDISCIPLINARY INSTRUCTION, L2 SPANISH FOR PHARMACY STUDENTS, COMMUNITY-ORIENTED LEARNING, COLLABORATIVE TRANSLATION

**ES** Este estudio de caso investiga una experiencia educativa interdisciplinaria en la que participaron 13 estudiantes universitarios, bilingües tempranos y tardíos en inglés y español, pertenecientes a las áreas de farmacia y humanidades. La investigación se centra en el proceso que siguieron los participantes, en parejas interdisciplinarias, para traducir un cuestionario sobre aspectos sociales y comportamentales concernientes al uso de medicamentos. Los participantes incluían una estudiante de licenciatura con especialización en español, siete estudiantes en un programa doctoral de farmacia y cinco estudiantes de posgrado en estudios hispánicos. Luego de realizar sus traducciones individuales, cada pareja de estudiantes se reunió virtualmente para crear una versión colaborativa final de la traducción. Al finalizar la tarea, se invitó a los participantes a responder una encuesta sobre su experiencia. Este artículo utilizó como datos las respuestas a la encuesta y las transcripciones de las interacciones de cada pareja. Los resultados indican que el beneficio principal fue la mejora de sus habilidades lingüísticas, y que la extensión, calidad y riqueza de las interacciones colaborativas dependía de si las parejas mostraban respeto mutuo, curiosidad y empatía.

**Palabras clave:** INSTRUCCIÓN INTERDISCIPLINARIA, ESPAÑOL COMO SEGUNDA LENGUA PARA ESTUDIANTES DE FARMACIA, APRENDIZAJE ORIENTADO A LA COMUNIDAD, TRADUCCIÓN COLABORATIVA

**IT** Questo studio si basa su un'esperienza formativa interdisciplinare in cui 13 studenti universitari bilingui precoci e tardivi di spagnolo-inglese sono stati accoppiati per tradurre domande relative ad aspetti socio-comportamentali sull'uso dei farmaci. Questo lavoro descrive i vantaggi personali e professionali riportati dai traduttori e i temi prevalenti delle loro negoziazioni verbali. I partecipanti erano uno studente universitario di spagnolo, sette dottorandi in farmacia e cinque studenti laureati in studi ispanici. Dopo aver completato le traduzioni individuali, i discenti si sono incontrati a coppie online per creare una versione finale e collaborativa delle loro traduzioni. In seguito gli stessi hanno risposto a domande a risposta aperta riguardo alla loro esperienza. Le trascrizioni delle interazioni e le loro risposte al questionario costituiscono i dati di questo articolo. I risultati mostrano che il beneficio principale riconosciuto dai partecipanti è stato il miglioramento delle competenze linguistiche; inoltre la lunghezza, la qualità e la ricchezza delle interazioni è dipesa anche dal fatto che i partecipanti abbiano mostrato rispetto, curiosità ed empatia reciproci.

**Parole chiave:** ISTRUZIONE INTERDISCIPLINARE, SPAGNOLO COME LINGUA SECONDA PER STUDENTI DI FARMACIA, APPRENDIMENTO ORIENTATO ALLA COMUNITÀ, TRADUZIONE COLLABORATIVA

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## 1. Introduction

Hispanics/Latinx make up the second-largest ethnic group in the United States (US), having surpassed 60 million in 2019 to constitute 18.5% of the population (United States Census Bureau, n.d.). While their proportional growth has slowed in recent years, they still represent 52% of the demographic increase over the last decade (Noe-Bustamante, Lopez, & Krogstad, 2020). As the share of US-born Hispanics/Latinx has increased, their English proficiency has grown concomitantly. Even so, it is estimated that about one-third of them lack proficiency in the majority language (Magaña, 2020), and this percentage jumps to 60% for those who are foreign-born (Krogstad, Stepler, & Lopez, 2015).

For Spanish monolinguals, lack of services in their language constitutes an important barrier to access, and nowhere is this clearer or the stakes higher than in healthcare (Flores, 2006; Martínez, 2010). The disparities in outcomes for this population are well documented, and include less frequent doctor's visits (Yu et al., 2006), lower patient satisfaction (Carrasquillo, Orav, Brennan, & Burstin, 1999), longer hospitalizations and higher rates of readmission (Karlner, Kim, Meltzer, & Auerbach, 2010; Lindholm et al., 2012), lack of comprehension of treatment (Crane, 1997), and suboptimal adherence (Manson, 1988). While structural and financial constraints are some reasons for this constellation of disparities (Olenik, Gonzalvo, Snyder, Nash, & Smith, 2015), language barriers are also an important hurdle. For example, in a qualitative study of Spanish-speaking patients from California (Magaña, 2020), the interviewees emphasized the importance of Spanish language services to build trust and establish personal connections before and during the professional encounter.

When it comes to medication use, the gap in Spanish services is comparable. For example, in their study on pharmacists' communication with Spanish-speaking patients, Gonzalvo, Schmelz, and Hudmon (2012) found that only about one third of the 923 US participating pharmacies had personnel that could assist customers in Spanish, leading to a considerable unmet need. Nevertheless, over 70% of the pharmacists surveyed in Gonzalvo et al.'s work agreed that communicating in Spanish with clients was important. A more recent qualitative study of Spanish-speaking pharmacy patients (Olenik et al., 2015) confirmed the negative consequences of the gap in language-concordant services, including patients' dissatisfaction with communication in Spanish, and their inability to take advantage of the full range of services provided. Predictably, many patients reported negative interactions with pharmacy personnel, which they attributed to language barriers and discriminatory attitudes.

These results are important if we consider that for many Spanish-speaking patients, the pharmacist is often a substitute for prohibitive and time-consuming doctor's visits (Olenik et al., 2015). In fact, there is empirical evidence that offering language-concordant pharmacy services improves care. For example, in a cardiovascular risk reduction clinic managed by a bilingual pharmacist (Gonzalvo & Sharaya, 2016), the outcomes were comparable for Spanish- and English-speaking patients.

The issues identified in the aforementioned studies reinforce findings from an earlier systematic review of the literature carried out by Dilworth, Mott, and Young (2009) that acknowledged a dearth of research on pharmacist training for and communication practices with Spanish-speaking patients. Suggestions for future research included, among others, investigation of interventions that can enhance pharmacists' self-efficacy in providing care for such patients.

Recognizing the importance of Spanish instruction for medical personnel, many institutions of higher learning have increased such course offerings both in language departments and as electives in the curriculum of medical schools. For pharmacists, this need is recognized, but the process seems to be more incipient. For example, over 70% of the participants in Gonzalvo et al.'s (2012) study expressed interest in Spanish courses and suggested such courses should be offered in pharmacy schools. However, only 21.9% of respondents thought they should be required. Unsurprisingly, in another recent survey conducted by Mospan and Griffiths (2016), only 22 of 61 responding colleges of pharmacy reported teaching medical Spanish. These findings suggest that medical Spanish for pharmacy students is offered in a minority of programs, given that 138 colleges were initially surveyed.

The two most common barriers reported for offering Spanish courses appear to be a lack of personnel and room in the curriculum. In pharmacy programs that did report offering medical Spanish, the most common forms of delivery appeared to be elective courses and/or introductory and advanced experiential opportunities (Mospan & Griffiths, 2016). Short of a wholesale commitment to curricular revision, additional innovative pedagogical approaches are needed to facilitate both formal and informal medical Spanish integration into pharmacy curricula.

The purpose of this work is to present such a pedagogical intervention, based on a collaborative translation initiative. In this work, we propose that the type of activity we will present could facilitate the teaching of Spanish in Pharmacy programs, as well as interdisciplinary collaboration between the sciences and humanities. In the first section of this paper, we review existing literature on medical training in pharmacy programs and collaborative translation. The sections that follow provide information about the study's design, methodology, and participants. This is followed by the presentation and discussion of results and pedagogical implications. In the final two sections, we describe the limitations of the study and we conclude the article.

## **2. Curricular and pedagogical approaches in medical training for pharmacy students**

A variety of curricular approaches to providing medical Spanish training have been described in the pharmacy literature since 2011. Reports have detailed comprehensive Spanish language and culture courses, service learning initiatives, Spanish language and cultural immersion trips, and advanced pharmacy practice experiences (VanTyle, Kennedy, Vance, & Hancock, 2011); stand-alone courses (Griffiths & Mospan, 2016; Mueller, 2017); the incorporation of a medical Spanish module in an introductory pharmaceutical care lab (Dinkins & Sclaro, 2012); and advanced pharmacy practice experiences (Werremeyer & Skoy, 2012). More recently, a co-curricular approach to learning medical Spanish has been described (Garavalia, Chan, Ortiz, Muniz-Delgado, & Martinez, 2017). Collectively, these approaches demonstrate the flexibility needed, given the varied institutional and/or programmatic capacities for providing medical Spanish education.

Studies that focus on the teaching of medical Spanish such as the ones discussed in the previous paragraph generally do not report the specific learning activities that students engage with in those courses, making them difficult to replicate. This gap in information poses challenges for other programs that wish to implement similar pedagogical practices, but lack the resources to develop their own, and would benefit from detailed examples that can be readily deployed. From the limited information available, one strategy common in medical Spanish training programs for pharmacists appears to involve the translation of medical terminology into Spanish, whether verbally or in writing (Dinkins & Sclaro, 2012; Mueller, 2017; VanTyle et al., 2011). Other examples include group activities focused on medication labeling and administration, patient information, counseling and side effects, and scenarios that involved filling and counseling on a prescription in Spanish. Evidence shows (e.g., Dinkins & Sclaro, 2012) that these types of activities can significantly increase learner confidence and competence in Spanish communication, and they can develop students' ability to translate common pharmacy label instructions.

## **3. Collaborative pedagogies and translation**

Existing studies (e.g., Goodwin & Jiménez, 2016; Puzio, Keyes, Cole, & Jiménez, 2013) have focused on the role of in-class and out-of-class pair and group translation activities as a means to a pedagogical end. For example, translation has been proposed as an instructional approach for English learners in elementary and middle school. According to these researchers, creating opportunities for English language learners to translate texts collaboratively into their first language (L1) develops metalinguistic awareness and improves reading comprehension in the second language (L2), English. Rather than starting from a deficiency perspective, this strategy recognizes the students' many linguistic resources, which can be deployed to co-construct meaning with peers in their L2.

Collaborative translation has also been used as a methodology to study decision-making processes in pre-professional translators. For example, Pavlović (2009, 2010) employed a collaborative translation protocol to investigate how translators choose the optimal rendering of a text. By comparing students' negotiations as they translated from their L2 into their L1 and vice versa, these works showed that there were no great differences in the justifications the participants gave for selecting a specific translation option.

Another strand of pedagogical research pertinent to the current study is the literature on the role of collaborative service-learning in the development of translation skills. For both individual courses (Ebacher, 2013) and entire curricular sequences organized as certificates (Rueda-Acedo, 2021), adding a service-learning component engages students with their community and develops their linguistic skills, intercultural appreciation, civic engagement, and empathy (Rueda-Acedo, 2021). In addition, when service-learning includes peer editing and group work, students come to appreciate the diversity of skills they bring to the table, thus honing their professional ability to work collaboratively (Ebacher, 2013).

Some studies have focused more specifically on translation collaboration as a professional skill. Huertas Barros (2011) measured the development of translator competencies in a study that explored

students' experiences with collaboration (preferences, levels of motivation, perceived benefits, and challenges). In Olvera-Lobo et al. (2009), students collaborated in remote teams throughout the semester, as each participant took different professional roles (e.g., documentalist, terminologist, etc.). These two works showed that students believed collaboration to be a useful skill, although one of the most important findings was that most students had not received specific training on how to conduct successful collaborations.

Explicitly or implicitly, the implementation of collaboration as a pedagogical practice in the translation classroom is based on a constructivist approach to learning (Kiraly, 1997, 2005, 2012, 2013). In this approach to translator education, skill development is not reducible to the transmission of a set of pre-established strategies, but rather involves the dynamic development of a "holistic bundle" of competencies (Kiraly, 2013, p. 201) dependent on unpredictable individual experiences. In other words, the model is not static, nor does it conceive of learning as the acquisition of static or isolated skills, i.e., translation competencies (e.g., linguistic, cultural, strategic), personal competencies (e.g., autonomy, responsibility), and social competencies (e.g., teamwork). Instead, the approach acknowledges that authentic translation tasks are exponentially more complex, infinitely variable, and context-dependent than artificial tasks. Knowledge about translation is thus not a stored product, but rather, a process that needs to be actuated. Because real professional translation is riddled with unpredictability and unforeseen circumstances, the only way the classroom can prepare translators effectively is to allow students to face new problems. Central to this pedagogy is the authentic group translation project, a context that allows students to develop an array of personal, social, and translation-specific competencies through their interactions (knowledge co-emergence), to reach not merely competence, but also self-confidence.

Given this background, we describe and report the results of an interprofessional activity that was deployed to reinforce technical translation ability among pharmacy students using interdisciplinary collaborative translation teams.

## 4. Methods

### 4.1. Design and research questions

A case study design was used to describe the translation experiences and linguistic negotiations of Texas A&M University Irma Lerma Rangel College of Pharmacy (PHAR) and Department of Hispanic Studies (HISP) undergraduate, professional doctorate, and graduate students who participated in a collaborative translation activity during the summer of 2018. This project specifically investigated the following research questions:

- (1) What personal and professional benefits do PHAR and HISP students report after participating in a collaborative translation project?
- (2) What themes prevail in the interaction between student translators belonging to different scholarly fields when negotiating their linguistic choices?

The participants, collaborative translation project activity, measurements, and analysis are described below. The project was approved by the participating university's Institutional Review Board and the 13 student participants provided written consent for participation.

### 4.2. Participants

Thirteen students enrolled in the College of Pharmacy or Hispanic Studies courses or program, and who had a minimum of an intermediate-mid level of proficiency in both English and Spanish, were invited to participate in the project.<sup>1</sup> One student was an undergraduate Spanish major, and seven were Pharmacy majors in a professional doctorate program. The remaining five students were graduate students in Hispanic Linguistics (n=2) and Literature (n=3), who also worked as graduate teaching assistants in the Spanish Basic Language Program in their department. All participating students were provided with a stipend based on university rates for student payment for their translation work. None of the participants had previous experience with translation projects like the one reported in this study. Because the final tally of chosen translators was uneven (seven students from PHAR and six from HISP—five graduate students and one

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<sup>1</sup> A possible list of participants was identified by the researchers, who had either had the students in their classes or had supervised their work as graduate teaching assistants. Therefore, the investigators had knowledge of the students' proficiency level in both English and Spanish, and considered them ideal to undertake the translation work that the project would involve.

undergraduate), one HISP student was assigned to work with two PHAR participants in a triad. This resulted in six interdisciplinary teams: five dyads and one triad—each with representation from both PHAR and HISP programs.

Although all participants were invited and consented to be part of the research project, only five (four professional doctorate Pharmacy students and one graduate student from Hispanic Studies) completed the questionnaire describing their experiences in the project. Of those, four identified as female and one as male, with a mean age of 32.2 years. The four Pharmacy participants were Spanish-English early bilinguals who had grown up in Spanish-speaking households in South Texas: They had started learning both languages before the age of five but had received all their education in English (Bolger & Zapata, 2011). Thus, English was their dominant language, and they characterized their Spanish proficiency as intermediate, with the exception of one, who described it as advanced. The remaining translator, the HISP graduate student, was from a Spanish-speaking country. This student had received all education through college in Spanish, had learned English after the age of 20, and was therefore considered a late bilingual (Baker & Wright, 2017).

Three of the six translator teams submitted the recording of their interaction for analysis. These translations focused on the demographics, locus of control, and self-efficacy about medication use sections of the translated survey. The translator questionnaire was not intentionally linked to the recorded interactions. Therefore, we were only able to connect one of the graduate students in Hispanic Studies and two Pharmacy participants in the translator questionnaire to two of the dyads analyzed based on the content of the recorded interactions.

### **4.3. *The collaborative translation activity***

The primary translation learning activity involved the English-to-Spanish translation of a survey's questions that included sociodemographics and sociobehavioral aspects of medication use. Some of the survey content was obtained from pre-existing data collection instruments commonly reported in the literature, while other content was newly created for this instrument. The survey items covered sociodemographics and self-reported health, health literacy (Morris, MacLean, Chew, & Littenberg, 2006), self-efficacy about medication use (Risser, Jacobson, & Kripalani, 2007), locus of control (Wallston & Wallston, 1978), beliefs about medications (Horne, Weinman, & Hankins, 1999), concepts related to reasoned action/planned behavior (Ajzen, 1991) (developed de novo), and self-reported medication adherence (Morisky, Green, & Levine, 1986). With the exception of sociodemographics, health literacy, and locus of control questions, items were specifically related to the sociobehavioral aspects of medication use. In addition to the questions, the translation exercise also included an introduction with instructions, consent information, and appropriate transitions between questionnaire sections. The text to be translated was distributed equitably among interdisciplinary translator teams (PHAR and HISP) by dividing the questionnaire into related chunks of information as follows: (1) sociodemographics, self-reported health, and health literacy (431 words); self-efficacy about medication use (312 words); locus of control (512 words); beliefs about medications (261 words); questionnaire instructions page, reasoned action/planned behavior, and medication adherence (516 words), and consent information (584 words). Consistent with fair use laws (<https://www.copyright.gov/title17/92chap1.html#107>), a brief sample of student translations is shown in Table 1 to provide a sense for the level and genre of text used.

Table 1  
*Examples of translation tasks and student translations*

| Content area                                 | Sample text (original English)  | Example of student translation  |
|--|---|---|
| Sociodemographics/<br>Background             | I am currently prescribed medicine(s) for either high blood pressure, high cholesterol, heart disease, diabetes, or arthritis)                | Me han recetado medicamentos para la presión alta, el colesterol alto, enfermedad del corazón, diabetes, o artritis.  |
|  | 1. Yes<br>2. No   | 1. Sí<br>2. No  |
|  | In general, would you say that your health is...  | En general, usted diría que su salud es...  |
|  | 1. Poor<br>2. Fair<br>3. Good<br>4. Very Good<br>5. Excellent   | 1. Mala<br>2. Regular<br>3. Buena<br>4. Muy buena<br>5. Excelente   |
|  | Currently, is your income enough to meet your basic needs for food, housing, clothing, and medical care?                                      | ¿Son suficientes sus ingresos para cubrir sus necesidades básicas de alimentos, vivienda, ropa, y atención médica?  |
|  | 1. Yes<br>2. No   | 1. Sí<br>2. No  |
| Health Literacy (Morris et al., 2006)        | How often do you need to have someone help you when you read instructions, pamphlets, or other written material from your doctor or pharmacy? | ¿ Con qué frecuencia necesita que alguien le ayude cuando lee instrucciones, folletos u otro material escrito por su médico o farmacéutico?                                     |
|  | 1. Never<br>2. Rarely<br>3. Sometimes<br>4. Often<br>5. Always  | 1. Nunca<br>2. Raramente<br>3. A veces<br>4. Seguido<br>5. Siempre  |
| Locus of Control (Wallston & Wallston, 1978) | If I get sick, it is my own behavior that determines how soon I will get well again.  | Si me enfermo, es mi propio comportamiento el que determina cuándo se recupere mi salud.  |
|  | 1. Strongly Disagree<br>2. Moderately Disagree<br>3. Slightly Disagree<br>4. Slightly Agree<br>5. Moderately Agree<br>6. Strongly Agree       | 1. Muy en desacuerdo<br>2. Moderadamente en desacuerdo<br>3. Ligeramente en desacuerdo<br>4. Ligeramente de acuerdo<br>5. Moderadamente de acuerdo<br>6. Fuertemente de acuerdo |
|  | My family has a lot to do with my becoming sick or staying healthy.   | Mi familia tiene mucho que ver con si me enferme o me mantenga saludable.   |
|  | 1. Strongly Disagree<br>2. Moderately Disagree<br>3. Slightly Disagree<br>4. Slightly Agree<br>5. Moderately Agree<br>6. Strongly Agree       | 1. Muy en desacuerdo<br>2. Moderadamente en desacuerdo<br>3. Ligeramente en desacuerdo<br>4. Ligeramente de acuerdo<br>5. Moderadamente de acuerdo<br>6. Fuertemente de acuerdo |

Once student translators had received their assignments, they worked individually on their translations. When students had finalized their work, they met virtually via Zoom to compare choices and develop a unified final translation. Participants were asked to record their interactions in Zoom and to submit both their final version and the recordings as part of their task. Translators were given three weeks to complete

these tasks. To ensure that meaning was retained, the final version of the forward translation was followed by a backward translation as recommended in the literature (Swaine-Verdier et al., 2004). The backward translation was performed by a HISP graduate student not involved in the first stage of the translation process. Finally, expert supervision on Pharmacy and Spanish for the Professions was provided by PHAR/HISP faculty, and the final product was verified by a HISP faculty member with certified expertise in translation. Beyond the student learning experience, the resulting translated document was retained for further educational use with students who work with Spanish-speaking communities in South Texas and other parts of the country.

#### **4.4. Measurement of student translators' experience in the project**

The student translator experience in this project was measured using: (1) a questionnaire with open-ended questions, administered after the translations had been completed, and (2) recordings of the virtual interactions between the paired translators as they discussed their linguistic choices.

The first part of the translator questionnaire consisted of six questions that focused on the participants' gender, age, field of study, L1 and L2, and self-reported proficiency level in their L2 (i.e., basic, intermediate, or advanced) to describe the sample of participants. The second section of the questionnaire included eight open-ended questions for the student translators to describe their experience. These questions attempted to elicit responses related to the following domains:

- 1) The reasons why they had decided to be part of the translation project;
- 2) How they had approached the translation process;
- 3) The most challenging aspects of the individual translation work;
- 4) The easiest aspects of the individual translation work;
- 5) The most challenging aspects of their collaborative work with a partner from another field;
- 6) The most rewarding aspects of their collaborative work with a partner from another field;
- 7) How their participation in the project had contributed to their overall training as health care providers; and
- 8) How their participation in the project had contributed to their L2 knowledge (either Spanish or English).

The recorded Zoom interactions of the student translators were transcribed by a graduate research assistant for analysis and these transcriptions were checked for accuracy by one of the authors.

#### **4.5. Analysis**

Descriptive statistics were used to profile student translator characteristics, whereas the data from the open-ended questions and the transcribed translators' interactions were analyzed qualitatively by the first author of this work with the software *MAXQDA 2020 Analytic Pro* (VERBI Software, 2020). The first step of the analysis consisted of categorical aggregation, which involved the researcher's careful reading of the participating translators' responses and interactions to identify themes. The unit of analysis was an interaction between the two translators that centered on the discussion of a specific topic. Each emerging theme in the unit of analysis was coded and a list of categories and exemplifying statements was created for each theme. In the next step, themes, categories, and statements were cross-examined applying Glaser's (1965) constant comparative method to ensure that there were no discrepancies in the initial analysis. In the final stage of analysis, the number of themes was calculated, and connections among them were established. The results for survey questions 1, 3, 6, 7, and 8 and the interactions of dyads 2, 4, and 5 are reported. The questions chosen elicited the most comprehensive answers, and hence the reason they are the focus of this article. All of the interactions submitted by the participants were analyzed.

## **5. Results**

### **5.1. Student translators' perceptions of their experience in the project**

The main reason why the students decided to participate in the project was their desire to help the communities to which many of their families belonged. This reason was provided by three of the five participants. Other reported reasons included their wish to learn more about the research process and the opportunity to improve their Spanish proficiency and interact with students from other disciplines.

The most challenging aspect of the translation reported by both the early- and the late-bilingual participants was vocabulary. That is, while completing their individual translations, all participants appeared to have encountered challenges finding the most accurate Spanish words to convey the concepts in the English version of the patient survey. To solve their difficulties, they resorted to a variety of sources, including bilingual dictionaries, Google translate, and medical documents (e.g., articles in online journals). Early bilinguals also had difficulties with the formal language of the original English questions. These translators only had experience with Spanish use in informal contexts (e.g., the home), and thus felt unsure about the “appropriate way” to translate the stylistic nuances of the text. Their statements revealed a lack of linguistic self-confidence in Spanish, which was also evident in their interactions with their peers during the collaborative translation. To address their difficulties with formal Spanish, three of the four early-bilingual participants said they had asked their Spanish-speaking parents for help.

Interestingly, language was also the main focus in three of the four early-bilingual participants' answers when asked to describe the most rewarding aspects of their collaborative work. For example, they made reference to the fact that they had enjoyed working with someone “who [was] more knowledgeable than [them] in the Spanish grammar, [and could] correct [their] grammar, spelling, use of tenses” (Participant #1). Respondents also mentioned that they had felt more confident in their efforts knowing they were working with someone who could “make sure [the] translations were in patient-friendly language” (Participant #2). Other aspects of the collaboration highlighted were the mutual respect and camaraderie in the teams, the partners' shared views and background, and their similar ways of approaching the task at hand—all of which might have contributed to the reported “agreement and compromise” (Participant #4) that characterized some instances of the collaborative task.

When asked how their participation in the project had contributed to their overall training as health care providers, the four PHAR students' responses were again tied mostly to linguistic aspects. For example, Participant #2 made reference to the opportunity that the project had provided to practically apply the vocabulary previously learned in a Spanish for Pharmacists class, while Participant #4 felt that the experience had been good preparation to work as a translator in an upcoming health fair in South Texas. Participant #1 provided a comprehensive response that both summarized some of the points mentioned by the other three participants, and pointed out the importance of bilingual healthcare providers and research instruments in Texas:

My participation in this project greatly contributed to my overall training as I was able to bridge the gap between English and Spanish in terms of health care providers. In certain places such as South Texas, people seeking to improve their health may come into contact with providers that either do not speak Spanish or have Spanish extremely limited. Having our translations being used for a greater purpose in terms of breaking language barriers, I find myself more open to speaking Spanish more frequently in my daily life particularly with my community pharmacy internship this summer in South Texas. Having these translations for the healthcare field can hopefully encourage other prospective health care providers to expand their language base to include Spanish or any other language to reach their respective patients.

The role that language might play in the relationship between patients and providers was also the focus of Participant #3, who felt that the project had created awareness of the importance of communication in healthcare. That is, through the translation work, there was a realization that communication “...is not only a transfer of information between two people, but it also entails understanding such information. Thus, very special consideration must be placed on how we, as health care professionals, communicate to teach/counsel a patient on medications.”

The final question in the translator questionnaire probed the participants' views on the benefits of the project for the development of their L2. The four PHAR students considered Spanish as their L2, even though all of them were early Spanish-English bilinguals. However, since English was their dominant language, Spanish had been relegated to a secondary role. For these translators, the benefits were clear. They all believed that the project had made them feel more confident about their skills as both Spanish speakers and writers, and had helped them prepare for upcoming summer internships and jobs in Spanish-speaking parts of Texas. Other areas of improvement reported were Spanish grammar and pharmacy- and medicine-related vocabulary. Again, the response offered by Participant #1 summarizes the beneficial effects of the project also highlighted by other participants:

I am a native English speaker and am completely fluent in English, Spanish was always present in my life as I would hear my grandparents, parents, and people in my community speaking this language as I grew up. However, it was not until this project that I became more comfortable with the idea of practicing my Spanish in both health care and informal settings. As a current summer intern in a community pharmacy setting, I find myself speaking 90% Spanish every day due to the demographics of my specific location in South Texas. I am now more fluent in Spanish than I was before doing this project and I hope the effect this project had on me and my linguistic skills, I hope reached my fellow project translators.

The late bilingual translator also expressed benefits from the project, even though Spanish was their first language. For example, they reported that working with a partner belonging to a different variety of the Spanish language had broadened their knowledge of vocabulary and expressions not used in their own dialect.

## 5.2. Student translators' interactions

Some of the themes present in the participants' responses to the translator questionnaire were also found in the recorded interactions between the translators in the three dyads analyzed. That is, even though a direct connection between the questionnaire and the interaction was not originally planned, the analysis revealed the existence of a clear relationship between these two sources of data. For example, the PHAR students in the three pair interactions analyzed expressed doubts about their Spanish choices and their overall linguistic ability in the language, an attitude often seen in US-born early bilinguals like them (Carreira & Beeman, 2014). Additionally, it was clear that the three dyads were aware of the audience they were serving, and of the importance of their work. In fact, audience was the aspect that determined linguistic choices when a term or phrase was negotiated between the translators; in other words, the participants would consider the Spanish language variety spoken by the populations in South Texas. Other themes detected in all interactions were the frustration when they could not find the precise term they were looking for, as well as overall negative feelings towards the difficulty of the process itself. In spite of these similarities, there were also differences among the three pairs in the way in which the discussions and negotiations were carried out.

For example, in dyads #4 and #5, the negotiation was much shorter and less balanced than in dyad #2. In the former two pairs, the late HISP bilinguals seemed to have dominated the dialogue and assumed the role of linguistic authorities. In some instances, they not only corrected the options proposed by the PHAR early bilinguals because they were "grammatically incorrect," but they also tried to impose their own choices, even if they were not sociolinguistically appropriate for the target population and/or they did not share their partners' medical knowledge. This prescriptive attitude could perhaps have resulted from the PHAR participants' explicit self-doubts about their linguistic ability as Spanish speakers, and/or it might have been related to the fact that the HISP translators might have felt that, since they were language instructors and Spanish was their mother tongue, they knew more than their partners. The unfortunate outcome of these exchanges were respectful but business-like short discussions, after which most of the time, the PHAR early bilinguals ended up accepting the option proposed by the HISP late bilinguals. A summary of the themes in both interactions is presented in Table 2.

Table 2  
Summary of themes in dyads #4 and #5

|         | Prescriptive comments | Linguistic variety | Difficulties/ frustration with translation | Audience | Vocabulary discussion | Self-doubts about linguistic ability | SUM |
|---------|-----------------------|--------------------|--|----------|-----------------------|--------------------------------------|-----|
| Dyad #4 | 4                     | 1                  | 1  | 1        | 3                     | 2                                    | 12  |
| Dyad #5 | 6                     | 1                  | 1  | 1        | 4                     | 7                                    | 20  |
| SUM     | 10                    | 2                  | 2  | 2        | 7                     | 9                                    | 32  |

Unlike the interactions in dyads #4 and #5, the conversation in dyad #2 was longer and more balanced in terms of negotiation. Even though the PHAR early-bilingual translator expressed the same doubts about Spanish linguistic ability as the PHAR early-bilinguals in the other two dyads, the HISP late bilingual had a completely different attitude. Whenever the PHAR partner expressed doubts, the HISP translator would offer praise and encouragement, both of which appeared to have legitimized their teammate as a Spanish speaker.

The “self-doubts about linguistic ability” theme often intersected with the “empathy towards co-translator” theme. The empathy shown by the late bilingual resulted in a more relaxed attitude towards the early bilingual’s language use and overall task, and a friendlier exchange. For example, since both translators spoke different varieties of Spanish and had grown up in different linguistic contexts (South Texas vs. a Spanish-speaking country), they spent a great part of their conversation comparing upbringings, education, and identifying cultural/linguistic similarities and differences. Unlike the two other dyads, this exchange was not just business. These two participants also filled out the study’s translator questionnaire, and characterized their experience in these terms: “My partner was very easy to work with” (Participant #4, early bilingual) and “The respect between us. The fact that we were trying to do our best to help. Nobody imposed their ideas. It was a good discussion” (Participant #5, late bilingual). These quotes seem to confirm what was observed in their conversation. The themes in dyad #2 are presented in Table 3.

Table 3  
*Summary of themes in dyad #2*

|                | Discussion<br>on cultural/<br>social<br>aspects | Empathy<br>towards<br>co-translator | Linguistic<br>variety | Difficulties/<br>frustration<br>with<br>translation | Audience | Vocabulary<br>discussion | Self-doubts<br>about<br>linguistic<br>ability | SUM |
|----------------|---|-------------------------------------|-----------------------|---|----------|--------------------------|---|-----|
| <b>Dyad #2</b> | 17  | 15                                  | 14                    | 6   | 9        | 27                       | 10  | 98  |

## 6. Discussion

The results of the written open-ended questionnaire suggest that the main reason for participation in the collaborative translation project was the PHAR and HISP students’ desire to help the communities to which most of them belonged. However, the five participants also reported both personal and professional benefits (research question #1). At the personal level, the translators seemed to have enjoyed working with their partners, whom they did not know ahead of time, and praised both the collaborative and practical nature of the project.

At the professional level, the main reported benefits for the four early-bilingual PHAR participants appear to have been related to their overall linguistic ability in Spanish. Not only did they report having a higher level of self-confidence as Spanish speakers after being part of the project, but they also made reference to the development of their medical vocabulary and overall linguistic proficiency. Additionally, their translation work seems to have offered them the opportunity to hone their language skills in preparation for their responsibilities in their summer internship assignments in heavily Spanish-speaking areas. These findings are relevant because they suggest that participation in initiatives that involve the use of Spanish for practical purposes, especially in projects tied to the communities early bilinguals belong to, can not only boost their linguistic self-confidence, but also prepare them for language use in Spanish-speaking settings. The importance of this observation is further supported by the results of a study that identified pharmacists’ self-efficacy as a key mediating factor in the provision of medication information when communicating with Spanish-speaking patients (Young et al., 2013). While the late-bilingual HISP participant in the translator questionnaire in the current study did not report any of these benefits, they still felt that by working with their partner they had learned more about Spanish varieties beyond their own.

Also of importance is the heightened awareness of the crucial role of bilingual healthcare in Hispanic/Latinx communities shown by the participants. For example, Participant #1’s characterization of the kind of communication needed between healthcare providers and patients mirrors existing research. Martínez (2010) has explored the negative consequences of language barriers in medical settings in Hispanic/Latinx communities in the United States, and he has shown that barriers such as the dearth of Spanish-speaking healthcare providers and/or the lack of cultural/linguistic empathy towards patients can have detrimental effects on the health of these communities. Additionally, this scholar, like Participant #1, has emphasized the need to “creat[e] language training programs for heritage speakers of Spanish [(like the early bilinguals in this study)] in the health professions and... of financial and professional incentives for health workers who use their heritage language [i.e., Spanish] to provide quality treatment” (Martínez, 2010, p. 73). Perhaps projects like the one reported herein, in which students are involved with work that has a direct benefit for linguistically

minoritized communities, can constitute the first steps towards the kind of education proposed by Martínez (2010).

The second research question sought to discover the themes that prevailed in the interaction between the PHAR and HISP co-translators when negotiating their linguistic choices. The conversation transcripts of the three dyads analyzed point to the existence of vocabulary negotiation and an awareness of the importance of audience and linguistic variety in all of them. However, there were differences in the nature of the three collaborations. In dyads #4 and #5, the interaction was not as balanced as in dyad #2. In #4 and #5, the conversation was shorter and dominated by the HISP late-bilingual translators, who often corrected their partners, stating that the choices the PHAR students were proposing were not grammatically correct. Unfortunately, this prescriptivism often intersected with the PHAR translators' linguistic self-doubts. Even though Participant #1, who was part of dyad #4, characterized being corrected as linguistically beneficial, a prescriptive attitude was not what the researchers in this study expected or promoted. This type of behavior on the part of speakers of prestige dialects has been reported in the literature (e.g., Coryell & Clark, 2009; Torres et al., 2017), and has been shown to have detrimental effects on the linguistic self-confidence of early bilinguals. Therefore, though the PHAR students who experienced their HISP counterparts' prescriptivism did not consider it negative, the findings point to the need for more linguistic training. That is, even though both HISP participants in dyads #4 and #5 were Spanish teachers and they had been trained to work with early bilinguals, they appeared not to have been able to transfer their skills and knowledge to the collaborative translations. Thus, if projects like this one are to be more balanced and result in personal and professional growth for both early *and* late bilinguals, a pre-project training component must be an essential part of it. For instance, it would be important to actively establish clear community rules for collaborative tasks, emphasizing the need for an equitable division of labor, where all linguistic varieties are celebrated, respected, and valued.

Indeed, the transcript for dyad #2, clearly shows that, when linguistic self-doubts are met with encouragement and empathy, and contributions from both translators are valued, the result is a longer, more friendly, balanced, and ultimately, more productive interaction. Negotiation in this dyad often intersected with the participants' discussion of aspects related to their social and cultural background and linguistic variety. Both students showed interest in the information shared, and the resulting camaraderie was palpable throughout the conversation. This resulted in translators' growth both linguistically and interculturally.

The results of the translator questionnaire and the collaborative interactions point to the benefits of academic projects that not only have a clear connection to the community and a practical purpose, but also require Pharmacy students to make active use of Spanish. The findings show that the fact that the translation work was going to benefit the Hispanic/Latinx communities to which most PHAR students belonged acted as a motivating factor for their participation in the initiative. Additionally, their active use of Spanish, both in their individual translations and during their negotiations with their partners, appeared to have resulted in linguistic and, in some cases, intercultural growth, and a higher level of self-confidence as Spanish speakers. Also, for the four questionnaire early-bilingual Pharmacy participants, the translations and interactions constituted a safe environment to rehearse their use of Spanish in anticipation of their upcoming pharmacy roles and responsibilities in Spanish-speaking communities in South Texas.

Projects like the one presented in this case study could also incorporate into pharmacy education some of the goals that have been proposed for the linguistic education of early Spanish bilinguals similar to the students in this study (Martínez, 2010). These goals include the "maintenance of the heritage language [i.e., Spanish]; the expansion of [the] bilingual range [e.g., through translation]; the cultivation of positive attitudes toward the heritage language; [and] the acquisition of cultural awareness" (Beaudrie et al., 2014, p. 42). The inclusion of these goals in pharmacy-related tasks could result in practitioners that are more linguistically and culturally prepared to work in bilingual communities and more confident in their own linguistic capital. Additionally, the type of project proposed in the present work reflects the educational approach recommended for students with the same characteristics as the PHAR participants (e.g., see Martínez, 2016). The results of this case study legitimize collaborative, interdisciplinary translations as a possible component of such an instructional path.

## 7. Pedagogical implications

The interdisciplinary collaboration reported in this study was facilitated by our institution's emphasis on both research and pedagogical initiatives involving different disciplines. The financial support we received allowed us to compensate the participating student translators for their work, and our access to diverse student

populations gave us the opportunity to create interdisciplinary teams. Nevertheless, we believe that projects like ours could be successfully implemented in other institutional settings in Pharmacy and/or L2/heritage language programs through service-learning initiatives that would involve the collaboration of students and community organizations, such as hospital or clinic pharmacies serving minoritized populations. As discussed earlier, instruction that incorporates translation-based, service-learning activities has been shown to be both academically and socially beneficial. Indeed, an ample body of research (e.g., for recent work, see Rueda-Acedo, 2021; Thompson, 2018; Tocamaiza-Hatch, 2018) has revealed that pedagogy that involves community-based translation can not only develop learners' linguistic and intercultural competence, but also result in "radical changes in students' relationships to their instructors, their fellow students, and the professional community, as well as their understanding of [...] their own self-concept as developing professionals" (Kiraly, 2005, pp. 1102-1103).

To ensure the success of initiatives like the one presented here and/or in service-learning projects, based on the results of this work and existing literature (e.g., Ebacher, 2013; Zapata, 2011), we believe it is important to account for and establish the following pedagogical interventions before and during implementation:

- 1) Determine academic and sociocultural outcomes for students' (service-learning) translation work.
- 2) Provide learners with sociolinguistic/cultural information about the populations (and/or institutions) they will serve (e.g., this could involve classroom visits from community/organization representatives).
- 3) Prepare students (both linguistically and socially) to interact with the populations to be served.
- 4) If translation involves learner collaboration in pairs or groups, develop rules for equitable division of labor and team-member interactions, as well as expected outcomes for cooperative work (e.g., for detailed guidance, see Zapata, in press).
- 5) Check the quality of students' work. This can be achieved in different ways. For example, learners can participate in peer reviews, and revise their work multiple times based on peer and instructor feedback. In addition, community members and/or faculty can be consulted for feedback while the translation work is being completed. Taibi and Ozolins (2016) believe this is an essential step when translated artifacts are expected to be used with target populations. Additionally, these scholars emphasize the need to consider both linguistic (e.g., language variety) and sociocultural aspects pertaining to the community(ies) of focus as crucial elements of the resulting translations.

Enacting these practices could provide instructional support and guidance to students, instructors, and community members, and could address/prevent potential difficulties and misunderstandings like those reported in this study.

## 8. Limitations of the study

The most important limitation of this study originated in the small number of participants. Even though thirteen students were part of this project, only five submitted answers to the translator questionnaire, and only three dyads out of six shared their interaction recordings with the researchers. Thus, even though the findings seem to be indicative of positive personal and professional benefits for the participants, the study is small in size. Another drawback of this work lies in the limited sources of data and measurements. Therefore, in future projects of a similar nature, it would be important to include a greater number of participants and other sources of data, such as interviews and/or think-aloud protocols, to provide more solid evidence for the kind of educational impact that practices like the one proposed in this work might have on PHAR students' professional preparation.

## 9. Conclusion

This study demonstrates that interdisciplinary collaborations focused on translation can be fruitful for Spanish-English early-bilingual Pharmacy students. That said, collaborations can be one-sided, if participants share prescriptive views about which Spanish dialects are inherently superior, instead of viewing different language varieties as appropriate for different audiences and settings. Therefore, it is crucial that linguistic training (e.g., on language varieties), community rules for collaboration, and clear expectations for roles, interactions, and results are offered to students before they undertake the translations.

Also, an important consideration for Pharmacy colleges and schools planning to introduce foreign language instruction is that attention must be paid both to the linguistic identity of their students, and to the features of the US Hispanic/Latinx populations they will serve. For example, in schools with high rates of Hispanic/Latinx Pharmacy students, appropriate instruction must start by affirming their heritage knowledge and expanding repertoires from there (Martínez & Schwartz, 2012). By the same token, the features of the specific US Spanish varieties in an area, and contact phenomena such as the use of borrowings from English, must be understood and respected. In those contexts, the use of standard Spanish medical terminology may in fact be a hindrance to communication.

Above all, students must understand that in medical encounters, linguistic normativity must take a back seat to comprehensibility and contextually appropriate use. The ultimate goal of Spanish training in pharmaceutical professional contexts is not linguistic correctness for its own sake, but communicative competence. It is this that will allow pharmacists to offer patients language-congruent care, which, as Lor & Martínez (2020) have shown, has been demonstrated to lead to better patient outcomes.

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- IT** | **Dr. Michael Miller** è ricercatore presso l'Istituto di Ricerca Kaiser Permanente Mid-Atlantic Permanent. Nel corso della sua carriera, ha prestato servizio come farmacista in ambienti clinici, di gestione e di ricerca in settori privati, governativi e accademici. Ha conseguito una laurea e un master in Farmacia oltre a un dottorato in Sanità Pubblica, ed è un membro della American Pharmacists Association. La sua ricerca si concentra sul perfezionamento dei metodi per identificare le persone a rischio di scarsa alfabetizzazione sanitaria, sulla valutazione dell'influenza dell'alfabetizzazione nei processi e negli ambienti farmaceutici, e sull'identificazione degli interventi volti a migliorare l'alfabetizzazione sanitaria per ottimizzare l'uso di farmaci e la comunicazione del rischio nelle popolazioni più svantaggiate.