EVIDENCE-BASED MEDICINE & MEDICAL INFORMATICS | RESEARCH ARTICLE

Student acceptance of clinical conversational Spanish in medical curriculum

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Abstract: There is little in the literature on the impact of student acceptance of receiving medical training under a different language other than English. In order to address a steady growing minority population, this requires a shift in the delivery of training. Training in Spanish can also serve as an ad hoc to cultural competency, language concordance, and health literacy for that particular population. The State of Texas population projects that Hispanics will likely surpass the Anglos by 2020; therefore, the need to train the future healthcare workforce in Spanish should be considered. In response to this, the author designed a course where students build on their exiting Spanish proficiency by acquiring medical terminology relevant to a Full Medical History and practice staged patient-encounter videos. The present manuscript provides a description of the online course and secondly, it describes the findings of student acceptance of the course. This course may provide a resource and basis to future curricula seeking to train students not only interested in mastering Spanish communication during clinical encounters, but also indirectly improves language concordance, cultural competency, and health literacy for Spanish-speaking patients.

Subjects: Health Communication; Multicultural Education; Bilingualism/ESL; Medicine; Medical Education

Keywords: online; language training; cultural competency; clinical Spanish; student acceptance

ABOUT THE AUTHOR

Dr. Norma A. Pérez is faculty in the School of Medicine at the University of Texas Medical. Her research focusses on career program development, medical education, minority premed recruitment, and curricular design. The course is a career development elective that is offered as a stand-alone course or as a credit course toward completing the Bilingual Health Track (BHT), which is an area of scholarly concentration in the medical school curriculum. Dr. Pérez developed the BHT for all students, native or non-native, to provide training opportunities to improve oral proficiency in Spanish. Her ultimate goal is to build culturally competent and linguistically appropriate physicians to better serve the healthcare needs of the population.

PUBLIC INTEREST STATEMENT

The rise of the Hispanic population, which is expected to surpass the Anglo population in Texas by 2020, is a call for medical educators to train medical students to communicate with the Spanish-speaking patient population. This perspective article describes the design of a course and student acceptance of being trained in conversational Spanish in the context of a clinical encounter. Understanding how students perceive the instruction and its application to a growing public concern can improve future medical education curriculum. Seeking other medical Spanish curricula can also help academic institutions in adopting the most beneficial style of delivering training programs in languages other than English.

Cultural competence among healthcare professionals has been recognized for over two decades as an important component in improving health in minority populations (Anderson, Scrimshaw, Fullilove, Fielding, & Normand, 2003; Brach & Fraserirector, 2000; Braveman, 2006; Burch, 2016; Fernández & Pérez-Stable, 2015; Pérez-Stable, Nápoles-Springer, & Miramontes, 1997). Dr. Hayes-Bautista referred to the climate in addressing cultural competency as "still lacking" and emphasized the need to train our future healthcare professionals in diverse communities (Brach & Fraserirector, 2000; Hayes-Bautista, 2003). Similarly, lack of language concordance in the patient–physician interaction predominates in populations where English is not the patient's first language and has a recognized negative impact on health outcomes (Betancourt, 2006; Betancourt, Green, & Carrillo, 2002; Betancourt, Green, Carrillo, & Owusu Ananeh-Firempong, 2003; Cheng, Chen, & Cunningham, 2007; Clarridge, Fischer, Quintana, & Wagner, 2008; Fiscella, Franks, Doescher, & Saver, 2002; Moreno, Walker, & Grumbach, 2010; Sentell, Shumway, & Snowden, 2007).

There is a clear association between cultural competency and language concordance in the physician–patient interaction. Both concepts play an important role in effective communication, enabling healthcare professionals to play a key role in the reduction of health inequities. Effective communication fosters a mutual understanding between the patient and the physician, improving health literacy and, consequently, health outcomes (Anderson et al., 2003; Campinha-Bacote, 2002; Fassaert, van Dulmen, Schellevis, & Bensing, 2007; Jagosh, Boudreau, Steinert, MacDonald, & Ingram, 2011; Schillinger et al., 2002). Sanchez et al. in 2015 reviewed the California Latino and non-Hispanic white physician workforce over a 30-year period and reported an increase per 100,000 in the number of non-Hispanic white physicians and a drop in the Latino group (Sanchez & Nevarez, 2015).

One strategy to address cultural competency/language concordance is the use of interpreters. Professional interpreters are associated with higher levels of care than the use of ad hoc interpreters, typically family or friends (Hsieh, 2015; Karliner, Jacobs, Chen, & Mutha, 2007; Sentell et al., 2007). However, one study found that few physician encounters used professional translators, relying instead on family members or other ad hoc translators (Hudelson, Perneger, Kolly, & Perron, 2012; Vela, Fritz, Press, & Girotti, 2016). In addition, physicians may not have the skills to work effectively with professional translators when they are available (Hudelson et al., 2012). Even professional interpreters may need as much as 100 h of training to avoid medical errors associated with language barriers (Diamond, Tuot, & Karliner, 2012; Flores, Abreu, Barone, Bachur, & Lin, 2012). Alternatively, healthcare professionals can develop language skills competent for this exchange (Chatterjee, Qin, de la Paz García, & Talwalkar, 2015). The healthcare industry is in need of culturally competent healthcare professionals and would benefit from the addition of training in clinical Spanish into the medical school curriculum (Tervalon, Murray-García, 1998; Clarridge et al., 2008; Moreno et al., 2010).

With the rise of the Latino population in the country and in Texas in particular (US Census, 2010; Potter, 2014; Betancourt 2002), Spanish has become the second most commonly spoken language in the United States. Coupled with the low health literacy rate among Hispanics/Latinos, and the drop in the physician–patient ratio for Latinos, a major problem is looming for the health of the Latino population, reflected in the few mandated programs during clinical training among healthcare professionals (Cowden, Thompson, Ellzey, & Artman, 2012; Grall, Panchal, Chuffe, & Stoneking, 2016; Kelley & Klopf, 2008; Santos, Ravn-Fischer, Karlsson, Herlitz, & Bergman, 2013). With Hispanics set to surpass the Anglo population in Texas by 2020, and make up the majority of the State of Texas by 2042, virtually all physicians practicing in the state will have Spanish-speaking patients (Potter & Hoque, 2014)

One approach to addressing this gap is to offer training to all medical students interested in improving their clinical Spanish communication skills (Diamond et al., 2012; González-Lee & Simon, 1987; Hardin, 2015; Reuland, Frasier, Slatt, & Alemán, 2008; Reuland et al., 2009). We describe preliminary experience with providing such a course.

1. The course program objective

The objective of the present course is to present findings of student acceptance of training in Spanish. In 2009, the many medical Spanish resources available were essentially vocabulary lists. The author wanted to provide medical Spanish instruction in a context that would be meaningful to medical students in terms of their Spanish speaking patients and families (primarily from Mexico). the overall objectives included: *Communication*: (1) to communicate clearly and effectively in Spanish using simple and practical vocabulary as well as meaningful medical terminology; and (2) to use appropriate grammar in basic sentence patterns. *Proficiency*: (1) to demonstrate oral proficiency in employing the Spanish language in a full medical history taking and physical exams; (2) to demonstrate proficiency in basic verbal elements of Spanish pronunciation; and (3) to demonstrate an understanding and appreciation of cultural differences in the health perceptions of Spanish-speaking patients.

2. Methods

The course was designed based on the growing patient population that speaks Spanish (US Census, 2013), student demand, and the desire to provide a unique, learner-centered approach available 24/7. The course director designed a multidisciplinary course to help students gain proficiency in conversational Spanish in a clinical setting such that they could make a personal and professional connection with their patients and their families and deliver health education and follow-up instructions in lay language with specific medical terms. The foundational subject matter was clinic-based through clinical vignettes; inline, taped videos; and during videoconferencing with the course director. The approach was asynchronous, enabling students to actively manage their own learning online, so that the material would be available 24/7. This approach allowed the author to accommodate the schedules of busy medical students, to allow flexibility in learning, and to incorporate peer tutors for language support and to serve as patients in the videos students produced. The course director assessed each student individually for language proficiency before entrance into the course. For students to receive complete benefit from the course, only those with basic-advanced to advanced Spanish proficiency were admitted. Students were required to test for oral proficiency with the course director. The author received training and certification by the American Council on the Teaching of Foreign Languages to accurately assess the student's oral language proficiency. The author is a native Spanish speaker that attended medical school and residency training in Mexico where she acquired more than 10 years of clinical experience in the Spanish language.

Students admitted into the course should have had at least an intermediate level of Spanish oral proficiency. The course was pilot tested for 1 year with 80 students participating. Afterward, it was approved by the School of Medicine Curriculum Committee as the first online Career Development elective course. The course is tailored to the standard 4-week elective format at the institution and includes 6 h per week of contact time with the professor via videoconference.

A series of case-based modules modeling the behavior of taking a clinical history were developed with supplemental modules to assist the case-based modules. The case-based modules included (1) Greeting the Patient, (2) Full Medical History, (3) Review of Systems, (4) Physical Exam, (5) Diagnosis and Patient Medication Instructions, and (6) Special Populations. Each case-based module follows one clinical case through the patient encounter, with vocabulary for each section, based upon the dialogue in the script. The supplemental modules, named Learning Resource Center (LRC) included content on Basic Spanish, Grammar, Anatomy, Medical Terminology, and Culture. The vocabulary was tailored to terms and expressions typical of patients from the Mexican culture. Subsequent course content included 15 module tests (40%), three mini module video assessments (20%), a final full medical history video (20%), and a final overall course posttest (20%). The grading criteria for the video assessments included: sentence structure/fluency (20%), word choice (20%), focus on topic (20%), sequencing 20%, and completion of the video (20%). Students recorded four videos each week, speaking Spanish to a simulated patient following a weekly planner, which helped them manage time working on the online course and producing

the videos. The course contained a pretest, posttest for the entire course, and a program evaluation survey.

3. Course description

The Clinical Conversational Spanish for Healthcare Professionals© focuses its curriculum on providing practice to medical students using lay terminology commonly needed during the clinical encounter. Although the course includes a section on medical terminology, the emphasis is on commonly used phrases and terms used to communicate with the lay public. This article presents student feedback on the acceptance of the course and the impact on overcoming language and cultural barriers, enabling a sound clinical encounter. Unique to the course, students practice Spanish through the learning activities section, which include pronunciation, translation and listening; comprehension activities; and by the video recordings.

4. Course structure

The course consists of two main components: (1) The Clinical Modules and (2) The LRC Table 1. The student is allowed to watch the videos and listen to the pronunciation to words or phrases (content) as many times as needed. The video is a reenactment of a particular segment of a patient encounter. Above the video, the student is provided vocabulary terms and phrases to watch out for in the video. *Learning Resource Center.* Activities within the clinical modules refer students to the LRC when they need more help. The LRC contains Grammar, Basic Spanish, Cultural Tips, Medical Terminology (Health Professionals, OLD CART, Physical Exam Directives, Common Laboratory Examinations, Special Assessments, Chronic and Acute Diseases, Medications, and Patient Instructions), and Anatomy. *Videos for Practice and Peer Feedback.* The practice component of the course required the production of weekly videos. Each student was required to record three mini videos (4 min) tied to the module reviewed for that particular week, and one final video of a full medical history (10 min) on the last week of the course. During the videoconference sessions, videos were viewed and peer feedback was provided Table 2.

Table 1. Overall course layout	
Syllabus Weekly Planner Video Instructions Overall Course Pretest Overall Course Posttest	
Learning Resource Center (LRC)	(1) Grammar—Posttest (2) Basic Spanish—Posttest (3) Medical Terminology—Posttest (4) Culture (5) Anatomy

Clinical Modules	(1) Meet and Greet—Posttest
	(2) Full Medical History
	    Part 1—Chief Complaint and HPI—Posttest
	    Part 2—PMH and Past Surgical History—Posttest
	    Part 3—Family History and Social History—Posttest
	(3) Review of Systems—Posttest
	(4) Physical Exam—Posttest
	(5) Diagnosis and Patient Medication Instructions
	    Part 1—General Treatment, Testing, and Follow—up—Posttest
	    Part 2—Review of Condition and Diagnosis—Posttest
	    Part 3—Medical Therapy and Patient Instructions—Posttest
	(6) Special Populations
	    Geriatrics—Posttest
	    OB/GYN—Posttest
	    Psychiatry—Posttest

Notes: Abbreviations: History of Present Illness (HPI), Past Medical History (PMH), Obstetrics/Gynecology (OB/GYN).

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Table 2. Weekly planner		
	Activities	**Taped interview for Peer Review**
Week 1	Complete pretest. Complete review and tests in LRC sections: • Basic Spanish • Grammar • Medical terminology • Culture • Anatomy Complete Clinical Module 1 Record first mini-video on: CC, HPI, PMH, SH, and FH	Mini-video on: CC, HPI, PMH, SH, and FH
Week 2	Continue to review LRC sections Complete Clinical Module 2 Record second mini-video on three ROS, DX, and patient medication instructions	Mini-video on: • Three ROS pertaining to case • Diagnosis and patient medication instructions
Week 3	Continue to review LRC sections Complete Clinical Module 3, 4, and 5 Record third mini-video on 30-year-old female. MUST include complete OB/GYN history.	Mini-video on: Complete history on 30-year-old female. Must include OB/GYN history.
Week 4	Complete overall course posttest and evaluation Continue to review LRC sections Complete Clinical Module 6 Record full medical history video	Full medical history video. Must include all sections of the history.

Notes: Abbreviations: Chief Complaint (CC), History of Present Illness (HPI), Past Medical History (PMH), Social History (SH), Family History (FH), Learning Resource Center (LRC), Review of Systems (ROS), Diagnosis (DX), Obstetrics/Gynecology (OB/GYN).

5. Clinical modules

As students worked through the course, each module included necessary vocabulary that students must master. The online *Learning Activities* included Pronunciation, Translation and Listening, and Comprehension Activities. *Pronunciation Activity*. Practice Makes Perfect is an interactive audio exercise in which the written prompt in English (How are you feeling today?) is accompanied by an audio response in Spanish (¿Cómo se siente hoy?). The students read the sentence and said the Spanish version aloud, then pressed the button to check their response with the recorded response. Then they practiced pronunciation and inflection. The *Translation Activity* included a variety of activities that tested students' knowledge of the Spanish language. Within the modules, this activity is called "How do you say this in Spanish?" "¿Cómo se dice en Español?" Answer key follows in the module. For "How Do You Say this in Spanish?," a written English prompt is provided of several common phrases used in that particular module. A response button provides the correct translation.

5.1. Listening comprehension

Activities include a video of a patient encounter and brief self-assessment.

The student is allowed to watch the video repeatedly. The video is a reenactment of a particular segment of a patient encounter. Above the video, the student is provided vocabulary terms and phrases to watch out for in the video. Learning Resource Center. Activities within the clinical modules refer students to the LRC when they need more help. The LRC contains Grammar, Basic Spanish, Cultural Tips, Medical Terminology (Health Professionals, OLD CART, Physical Exam Directives, Common Laboratory Examinations, Special Assessments, Chronic and Acute Diseases, Medications, and Patient Instructions), and Anatomy. Videos for Practice and Peer Feedback. The practice component of the course required the production of weekly videos. Each student was required to record three mini videos (4 min) tied to the module reviewed for that particular week, and one final video of a full medical history (10 min) on the last week of the course. During the videoconference sessions, videos were viewed and peer feedback was provided Table 2.

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6. Results

From November 2013 to May 2018, 108 students enrolled in the Clinical Conversational Spanish for Healthcare Professionals career development elective course. At the completion of the course, students were asked to complete a program evaluation survey. Data obtained were anonymous. They were third- and fourth-year medical students and with a broad range of levels of oral Spanish proficiency. Data does not include pilot testing. Table 3 describes the student profile and other variables that reflect the reasons the student enrolled in the course. Almost 90% were fourth years and 60% had intermediate to advanced oral proficiency in Spanish. More than half felt that clinical Spanish should be a mandatory elective. Table 4 provides results for the close-ended questions regarding course content and contribution to learning. The overwhelming majority indicated that content was useful and relevant to clinic and that it contributed to their clinical Spanish skills.

Students were also offered to provide comments to the course director. The most prevalent theme from the comments section was the use of videos. The videos allowed students to practice and to make mistakes without being judged. They were very well liked as they provided a venue for the students to practice their Spanish communication skills and obtain insight to culturally relevant healthcare needs and commonly used terms. The underlying theme was the opportunity to *practice* and the *interactivity* through the video recordings, in addition to receiving immediate feedback during the weekly sessions.

The following quotes are separated by relevance to clinic and relevance to interacting with Spanish-speaking patients. Students expressed how much the course had prepared them for their future hospital or clinical encounters.

I feel more prepared in terms of being able to communicate with my patients in both the hospital and clinical settings.

Table 3. Student profile		
Academic years: 2013–2017		108
Student responses	Total: Medical students year 4 Medical students year 3	65 89.2% 10.8%
Level of Spanish proficiency	Basic Intermediate Advance	40% 36% 24%
Do you believe Clinical Spanish should be a mandatory elective?	Yes No	52% 48%
Why did you choose this course?	Career development Personal interest Time offered	48% 44% 8%

Table 4. Course content and contribution to learning	
Course content	**25 responses**
Course content was useful and relevant to clinic	72%
Course content was organized	8%
Course workload was appropriate	12%
Learning objectives were clear	8%
Contribution to learning	**65 responses**
Contribution of course to your clinical Spanish skills	47.7%
Level of Spanish skills at start of course	3.1%
Level of Spanish skills at end of course	10.8%

Making my weekly 'scripts' will help me very much on the wards, because now I know how to ask specific questions and answer patients' concerns with more confidence.

I feel as though I could carry a medical interview in Spanish quite comfortably now.

It was invaluable in helping me learn about the culture, language, and conversational skills necessary to build rapport with and examine/treat Spanish-speaking patients.

Extremely useful course, I recommend this to anyone and everyone interested in having a better rapport with their patients.

I will carry the knowledge learned in this course into my future practice.

Having these resources for building on and creating a foundation for medical Spanish has been very helpful, especially just prior to starting residency.

The course was very beneficial to learning vocabulary specific to the medical field and in practicing with patient interactions.

This course was extremely useful and I wish we could integrate it or some form of it into our curriculum as many of our patients in Texas speak Spanish.

Parallel with the practice, students felt they were more prepared and more confident to interact with a Spanish-speaking patient population.

I found the required taped interviews... key to mastering Spanish vocabulary and grammar.

It was such a great experience to use and speak Spanish. I feel less shy now about speaking Spanish.

Very interactive with other students.

I feel more comfortable interviewing Spanish-speaking patients.

I think this course is not only helpful for anyone with a Spanish-speaking background, but also would be helpful to all students, since we live in a state with a large Spanish-speaking population.

This course will be of benefit to any medical professional practicing medicine in a population that has any Spanish-speaking patients.

7. Discussion

Official training courses for medical students are few (Ghaddar, Ronnau, Saladin, & Martínez, 2013; Reuland et al., 2008); therefore, a clinical conversational Spanish course was designed to help students improve their oral proficiency in Spanish, learn dialogue to complete a clinical history, and practice their clinical skills by recording videos. A limitation to this course is the lack of nuanced assessment of the students' progress in clinical oral proficiency, cultural competency, and if there are measurable improvements in health literacy in Spanish-speaking patients and ultimately improved health outcomes in the Hispanic population. Future research is needed to address this gap. Partnership with undergraduate premed and language programs with medical schools would help address the oral proficiency and cultural competency component, but not the health literacy in Spanish-speaking patients or health outcomes. To address the latter is beyond the scope of this course.

Cultural competence, language concordance, and health literacy are factors that impact health outcomes for non-native English speakers and in particular, Latinos (Pérez-Stable et al., 1997;

Schillinger et al., 2002; Sentell & Braun, 2012). As the Spanish-speaking population increases, along with the need to better prepare our medical students to communicate with this ever-growing population, it is imperative that we consider students' opinions on training the future healthcare workforce in another language other than English. With student feedback, it will facilitate the design of courses such as these to incorporate in the medical curriculum. The overall goal in designing this course was to obtain feedback from students on training in Spanish and to ultimately standardize a teaching method(s) to equip our future healthcare professionals to properly address the population they will serve.

8. Conclusion

The need to train our future healthcare professionals in Spanish is clear; the continued climb of the Hispanic population in our current sociodemographic and the call for culturally competent and linguistically appropriate bilingual physicians. This problem is now on the radar of several academicians. This article presents early stages on feedback by students that participated in this clinical Spanish course. The author reports feedback on the course content and its application in clinic, which could serve as a starting point to additional pre-clinical courses. Students' opinions about this course provide insight into how the trainees feel about learning clinical encounters in Spanish and improving their cultural competency. This speaks on the students' desire to serve the fastest growing population in Texas, which is also predicted to be the majority in the nation by 2042. As of 2017, the course is open to all medical students across the country through the Association of American Medical Colleges Visiting Students Learning Opportunities. The author plans to improve the course based on students' feedback.

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