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THEORY DRIVEN TECHNOLOGIES: FRAMEWORKS FOR INDIVIDUAL LANGUAGE LEARNERS

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Abstract

Second language (L2) pedagogical practices and computer-assisted language learning (CALL) should be connected to relevant theory and empirical research (Brantmeier, 2003; Chapelle, 2001; Cubillos, 1998; Doughty, 1987). In a study conducted while teaching a graduate seminar on the integration of technology into language instruction, Brantmeier (2003) reported that instructors who are informed about theories and research concerning CALL embrace the challenge of using new technologies to support curriculum-rich activities. On the other hand, the author also found that informed L2 instructors proceed with caution when integrating technology-based activities in the L2 curriculum mainly because of the time commitment, the rate of technological change, and technical/system difficulties. The present article reports on two different CALL projects created for Spanish classes that consider the above assertions. The projects were driven by relevant theory and research in Applied Linguistics and Second Language Acquisition (SLA), and they attempt to serve as templates for designing future CALL materials.

Introduction

The projects began during a graduate seminar entitled *Second Language Acquisition and Pedagogy: Integrating Technology into Language Instruction*.¹ The focus of the course is to transform knowledge about SLA and pedagogy into practice while focusing on the impact of technology. This course is an elective taken by PhD students from the Spanish, French, and German literature departments. Some of the students enroll in the class as an elective for the

¹ This course is taught by Assistant Professor Cindy Brantmeier at Washington University in St. Louis. The course syllabus was based on but modified substantially from similar courses taught by Assistant Professor David Wright at University of Texas at Austin and Susan Rava at Washington University in St. Louis. See Brantmeier's website for the syllabus: <http://artsci.wustl.edu/~cbrantme/CBwebsite.htm>

Graduate Certificate in Language Instruction, while others take the course in preparation for the competitive and ever-increasing demands of the job market. The seminar fosters professional development as participants formulate critical skills for assessing and integrating technology into the classroom. It begins with a review of SLA theory and research, and focuses on how CALL fits within these frameworks. Some topics include language learning contexts, language and culture, and acquisition processes. The course emphasizes teaching and learning and how CALL has been used in L2 acquisition environments. Students evaluate published CALL materials by examining their usefulness and quality. The last part of the class focuses on the design and implementation of computer software, and students create their own pedagogically-effective activities based on current SLA theories.

CALL and the Individual Language Learner

The existing literature on individual differences (IDVs) in second language learning is well-documented and cited. Yet, to date, it appears that only a few books are devoted entirely to individual differences in language learning (Dornyei, 2005; Skehan, 1989). The variables included in review chapters of IDVs in some books on second language acquisition are summarized in Table 1. It appears that Dornyi's (2005) new book is the most comprehensive, up-to-date book devoted entirely to IDVs in language learning, and he includes the following variables: personality, language aptitude, motivation, learning and cognitive styles, learning strategies, learner beliefs, and more. Given the plethora of research and attention given to IDVs in language learning, it is palpable that instructors attend to this matter. For good reason, this assertion may seem daunting and overwhelming to some L2 instructors. Attending to individual learner differences is often set aside because of the daily pressures of teaching and a justifiable goal of maintaining overall course objectives. Still, Oxford and Ehrman (1993) contend that L2 instructors need to identify and understand significant IDVs in order to provide the most effective teaching practices.

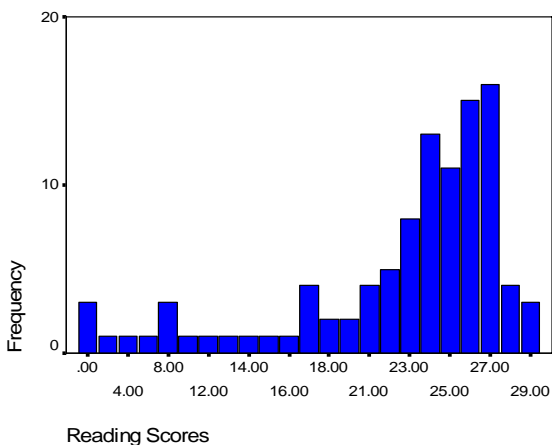
One way for instructors to discover and classify IDVs concerning specific language knowledge and linguistic competence gained in courses is through language assessment exams administered across levels of instruction in the language program. At some universities across the USA, students are assessed upon completion of each level of L2 instruction, and these assessment reports often support and emphasize the need for more individualized instruction. At a private university in the Midwest, for example, an online exam is used for language assessment purposes. As a course requirement, this online exam is completed by each student the week before the course ends. The exam includes sections on grammar, vocabulary, reading and listening. The composite scores, as well as specific section scores, are used to help assess individual student progress and improve the existing curriculum. Graphs 1-3 depict the distribution of scores achieved on different sections of this outbound exam taken by students who have completed intermediate Spanish. The data reveals important insights into how learners differ in these abilities, and the findings underscore the need for more attention to individual learner differences. This data is of significant practical value for language instructors. It is evident that learning is essentially personal and individual, despite the fact that all instructors in all sections followed the same syllabus and utilized the same methodology. Few of the students gained the same knowledge from the same learning situation across sections and within the same class.

Table 1. SLA and Methodology Books that Include Chapters on Individual Learner Differences

Author	Title	Individual Variables Reviewed
Ellis, R. (1997)	<i>The Study of Second Language Acquisition</i>	Learner's beliefs Affective states Age Aptitude Learning style Motivation Personality
Cook, V. (1991)	<i>Second Language Learning and Teaching</i>	Motivation Aptitude Learning strategies Age Others: sex differences, intelligence, level of L1, empathy
Larsen-Freeman, D., & Long, M. (1991)	<i>An Introduction to Second Language Acquisition Research</i>	Age Language aptitude Social-psychological Personality Cognitive style Hemisphere Learning strategies Gender
Hadley, O. (2001)	<i>Teaching Language in Context</i>	Learner styles Learner strategies Personality differences
Lightbown, P., & Spada, N. (1999)	<i>How Languages are Learned</i>	Intelligence Aptitude Personality Motivation and attitudes Learner preferences Learner beliefs Age of acquisition
Ramirez, A. (1995)	<i>Creating Contexts for Second Language Acquisition: Theory and Methods</i>	Learning strategies Learning styles Attitudes Motivation Anxiety

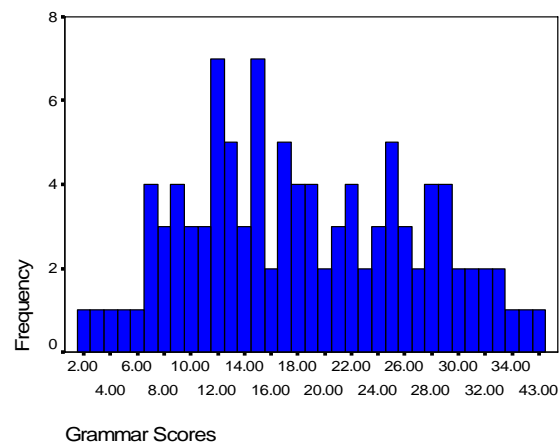
Modified from Brantmeier, C. (2003a). Beyond linguistic knowledge: Individual differences in second language reading. *Foreign Language Annals*, 36 (1), 33-44.

Graph 1. Distribution of Reading Scores for Students of Intermediate Spanish



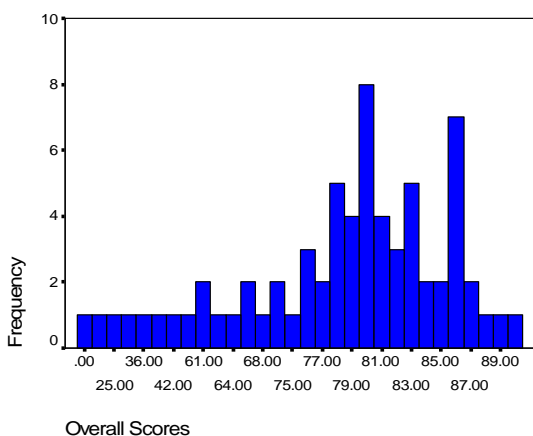
N=105

Graph 2. Distribution of Grammar Scores for Students of Intermediate Spanish



N=105

Graph 3. Distribution of Overall Scores for Learners of Intermediate Spanish



N=105

Grammar, Culture, and Reading

Of particular interest to the present article is the range and distribution of reading scores achieved by the intermediate learners. The intermediate course serves as a bridge between the language levels and the advanced literature classes, and the main objective is to prepare students for the level of reading and writing required in the literature courses. Most language instructors would agree that the vast store of knowledge and culture that is preserved in foreign language (FL) texts is invaluable to understanding others. The acquisition of grammar features and culture through the reading of authentic, literary texts is a topic that merits review. Met (2004) directly supports the use of authentic texts so that students learn about L2 culture and gain “intercultural

competence” through reading (p. 12). Hernández-Herrero (2001) provides a review of Bardovi-Harlig’s research on the acquisition of tense and aspect through authentic texts. She contends that authentic texts offer students and teachers the opportunity to make form-meaning-use associations that are not always apparent in traditional classroom discourse. Nunan (1998) provides further insights into the contextualized teaching of grammar and concludes that a more effective teaching of grammar should contemplate exposure to authentic texts and culture. Authentic texts also provide the opportunity of “recycling” language forms, and help the learner structure his/her own discourse “through inductive learning experiences” (p. 108). Pennington (2002) echoes the assertion that grammar should be contextual. Weaver (1998) maintains that research has shown that mere practice of grammar points does not correlate with acquisition, and that the teaching of grammar that is incidental, inductive, or in the shape of minilessons is the key. The incidental and inductive teaching of grammar may be achieved by the use of literary texts. Weaver (1996) specifies the need to read authentic literature that is particularly interesting or challenging syntactically in order to improve grammar acquisition.

In an effort to account for individual learner differences, the following CALL projects were designed for intermediate language learners. At this stage of acquisition the emphasis is on reading and writing, and the CALL materials attempt to meet this objective while attending to individual student needs.

Leyendo a Cortázar: Example of a CALL Project for Advanced Grammar and Composition

“Leyendo a Cortázar,” a CALL project, was developed for an intermediate grammar and composition Spanish class at the university.² This CALL material targets the acquisition of grammatical features through exposure to authentic, literary texts (a short story by Julio Cortázar). Though this CALL software has not been empirically-tested, the theoretical background and prior research that informed its development suggest it would enhance learners’ reading skills, as well as their acquisition and practice of the preterit and imperfect forms embedded in authentic texts. Lee and VanPatten (2003) provide guidelines for the development of structured-input activities. They suggest to present one thing at a time, to keep meaning in focus, to move from sentences to connected discourse, use both oral and written input, have the learner do something with the input, and keep the learner’s processing strategies in mind. All of these guidelines were considered when developing this CALL project.

It is well-documented that prior knowledge and topic familiarity of individual learners does play a significant role in the L2 reading process. Brantmeier (2003) stresses the importance of activating the reader’s existing mental framework in order to have students better comprehend the new information in an authentic text. She states that the use of hyperlinks, graphics, and other visuals may effectively activate a reader’s schemata. The present CALL project attempts to do this. The materials start with a brief introduction to Julio Cortázar and a link to his biography and works. Learners are given the title and date of publication of the short story they are about to read, plus some general instructions as to the mechanics of the program (see Figure 1). They are also reminded that they can repeat exercises as needed.

² This CALL project was created and written by Gabriela Romero-Ghiretti.

Learners are told afterwards that they will work on some words that appear on the text. There are two vocabulary activities with words that seem difficult for the students and crucial to their understanding of the short story. They are provided with an incomplete sentence and they have to choose the best fit out of four options. Although the four alternatives are possible, there is only one correct option as far as comprehension is concerned (see Figure 2³). Sometimes, the students need to pay attention to the gender and/or number of the word needed so as not to pick an incorrect one. This exercise serves the purpose of introducing new vocabulary and building schemata for later reading of the text.

Then, there are four jumbled sentence exercises (see Figure 3). Learners are told that these are sentences extracted from the text, and that they need to put the elements of the sentence in order. This kind of exercise also allows the building up of schemata prior to reading. Once this pre-reading section is done, students are provided with a first part of the short story “Continuidad de los parques.” They are later asked to select the most appropriate summary for the portion just read. Since they have four options from which to choose, they need to have understood the reading very well in order to complete this task successfully. This exercise also brings to the students’ attention the use of learning strategies that enhance comprehension. Having ensured comprehension, the program presents another section of the short story for the learners to read. Afterwards, they are given some short-answer comprehension questions, each of which has four possible answers. This exercise also helps reading comprehension of the second section of the text, since the questions asked are critical to understanding the story. Finally, students are provided with the last part of the short story, plus the possibility of re-reading the story.


Next, learners are presented with some after-reading activities. They have to answer more elaborate questions about the story and are advised that the answers provided are only possibilities that may vary slightly from their own. Having dealt with the content, the tasks move on to grammar. There is a fill-in-the-blanks exercise with the purpose of getting the learners started on thinking about the use of the preterit and the imperfect in the context of sentences taken directly from the short story (see Figure 4).

Learners are then guided to think about the reasons behind the use of imperfect or preterit in the short story. In this last exercise, students get to choose the verb use exemplified by some excerpts from the text (see Figure 5). They need to have successfully understood the use of the preterit and the imperfect in order to pick the correct answers. The final task introduces some writing activities to be done individually and in pairs (see Figure 6).

³ These sections were created using free software that is available online (<http://www.Hotpotates.com>).

Figure 1. Opening Screen: Introduction to Julio Cortázar

"Continuidad de los parques," Julio Cortázar.



- ¡Hola! Este es Julio Cortázar, el escritor argentino del cuento que vamos a leer juntos.
- ¿Quieres saber más sobre él? Pulsa en la opción:
- [Su vida.](#)
- El cuento: fue publicado en 1956, en el libro *Final del juego.*
- ¡Vamos a trabajar con el cuento!

Usa las flechas del teclado o haz click en el ratón para ir a la próxima pantalla o para volver . Recuerda que puedes repetir los ejercicios tantas veces como quieras.

Figure 2. Vocabulary Activity

Elige la opción correcta para cada caso:

Buenas opciones: 100%

Ver todas las preguntas.

Los ambientes de la novela que Se encuentran en una

A problema

B situación embarazosa

C disyuntiva

D problemática

¡Bravo! Una disyuntiva es una situación en la que es muy difícil tomar una decisión y no se sabe qué hacer. Buenas opciones: 100%

OK

Figure 3. Jumbled Sentences Exercises

Ordena las oraciones.

Próximo paso

Debes ordenar la oración. Cuando estáis seguros, selecciona "Revisar". Si tenéis dudas, selecciona la "Ayuda" que te guiará.

Revisar Duda Ayuda

Próximo paso

Y las imágenes de los protagonistas; retiene sin esfuerzo los nombres la ilusión novelesca lo ganó su memoria casi en seguida.

Figure 4. Fill-in-the-blank Exercise with Verbs in Preterit and Imperfect

Completa con los verbos en Pretérito o Imperfecto.

Rellena los espacios

Si no recuerdas las palabras del texto, haz click en "Pista," y luego decide si el verbo necesita Pretérito o Imperfecto

Pista del placer casi perverso de irse desgajando línea a línea de lo que lo Pista y sentir a la vez que su cabeza Pista cómodamente en el terciopelo del alto respaldo, que los cigarrillos Pista al alcance de la mano, que más allá de los ventanales Pista el aire del atardecer bajo los robles.

Revisar

Figure 5. Verb Use Exercise

Elige el uso verbal ejemplificado en los trozos del texto.

Buenas opciones: 100%

Ver las preguntas de una por vez.

1. Gozaba del placer casi perverso de irse desgajando línea a línea de lo que lo rodeaba.

A El imperfecto señala el ambiente de algún evento o acción del pasado.

B El imperfecto indica acciones repetidas del pasado, o acciones que son costumbres.

C El imperfecto indica las características de una persona o evento en el pasado. Sirve para describir.


D El imperfecto se usa para indicar la edad de una persona.

2. Empezaba a anochecer.

A El imperfecto indica las características de una persona o evento en el pasado. Sirve para

Figure 6. Writing Task

ESCRIBAMOS SOBRE EL CUENTO...



1. El cuento de Julio Cortázar plantea la relación entre lo ficticio y lo real, marcado por la tensión. ¿Qué elementos de contenido y de lenguaje agregan tensión a la trama?
2. ¿Qué problemática social plantea el cuento? Piensa en su protagonista y su nivel económico; la presencia del mayordomo; el trabajo de campo vs. los terratenientes; etc.
3. Reúnete con dos compañeros y escriban un final para el cuento.
"La puerta del salón, y entonces el puñal en la mano, la luz de los ventanales, el alto respaldo de un sillón de terciopelo verde, la cabeza del hombre en el sillón leyendo una novela

**Another Example of CALL Project:
Pilsen, Un barrio latino en el corazón de Chicago y El arte mural de Héctor Duarte**

These CALL materials focus on the diverse activities of Hispanic artists, educators, and entrepreneurs living and working in the area of Pilsen in Chicago. It also features the life and work of Héctor Duarte, a Mexican muralist living in that area (see Figure 7). The project is aimed for intermediate or advanced Spanish college courses, and it features pre-reading, reading, post-reading, and writing phases.⁴

The pre-reading phase includes brainstorming and discussion group sessions that can be visually enhanced using Inspiration Concept Mapping (see www.inspiration.com) software to activate relevant schemata (Brantmeier, 2003). One brainstorming session begins with the term ‘immigrante.’ Other related terms are to be generated by the students. Such terms could include language, art, culture, crime, and religion (see Figure 8). There is also a research phase that consists of Internet research to gather relevant information. During the Internet research phase, the students find texts in Spanish dealing with key issues related to this project such as identity, personal characteristics, problems, and achievements of Hispanic immigrants in the United States. Pertinent vocabulary will be covered such as *actor*, *actriz*, *cinéasta*, *chicano*, *director*, *dramaturgo*, *escritor*, and *poeta*. This is an individual activity followed by a group discussion. In the reading phase, the students proceed to work with the text (based on an interview) and images of Pilsen and murals by Héctor Duarte. The students collectively read the text as the instructor guides the students to employ metacognitive strategies (see Figure 9). In the post-reading phase (see Figure 10) the students evaluate themselves by completing comprehension, vocabulary and grammar tests.⁵

In the final phase, the writing phase, the students produce an essay. Using the Internet, or any other source of information, the students conduct research on Hispanics involved in the arts and their work in the USA. Next, based on the model of the artist that the students have researched, a short essay is written. The student places himself/herself in the place of the chosen artist and writes a description or proposal for a new painting, mural, song, poem or novel (depending on the particular artist researched by the student). The description must contain the nature and purpose of the work of art.

Conclusion

This article showcases CALL materials authored by informed instructors faced with the challenge of using new technologies to support curriculum-rich activities. Gabriela Romero-Ghiretti and Luisa Flores found that time commitment and technical/system difficulties were not issues as they both utilized software downloaded free from the Internet. Both projects are driven by relevant theory and research in Applied Linguistics and SLA, and they attempt to serve as templates for designing future CALL materials. A logical step for future research would be to build upon this work by attempting to measure individual uses of these CALL activities and relate this to language learning outcomes. The present article serves as a step in this direction.

⁴ This CALL project was created and written by Luisa Flores.

⁵ Again, these activities were created with HotPotatoes Software Version 6.

Figure 7. Photo of Héctor Duarte Taken by Luisa Flores (2005)



Figure 8. Inspiration Concept Mapping Used for Brainstorming Phase

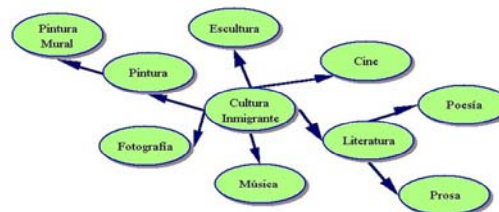


Figure 9. Text and Images Provided to Students

**Gigantes y mariposas:
El arte mural de Héctor Duarte Por Luisa Flores**

Este verano, ante los asombrados ojos de transeúntes del barrio de Pilsen, aparecerá un gigante en la esquina de las calles Cullerton y Wolcott. No se tratará de cualquier gigante sino de “un Gulliver latino” revela su creador, Héctor Duarte, muralista mexicano quien reside en los Estados Unidos desde 1985.

Este mural es uno de los últimos proyectos del artista cuya obra se encuentra dispersa en la ciudad de Chicago y quien también se dedica a educar a la niñez y juventud a través de su trabajo en las escuelas del área. Para Duarte el aspecto del acceso del pueblo a la educación es primordial: “El mural sirve para educar. Tiene una función de educar. El aspecto principal es que es público y gratuito, eso es indispensable para que sea un mural. Tiene que estar afuera o adentro pero en su dimensión mayor, en una proporción mayor, cualquier pared puede ser importante para ser lugar para un mural.” Fiel a este principio, Duarte contribuyó a la colección de arte público de la ciudad de Chicago con un magnífico mural ejecutado con la técnica de mosaico titulado “Ice Cream Dream” ubicado en la estación Western de la línea azul del tren metropolitano.



Figure 10. Reading Comprehension Exercise

Ejercicio de comprensión sobre: Gigantes y mariposas: El arte mural de Héctor Duarte

La obra de arte que Héctor Duarte creará en la esquina de las calles Fullerton y Wollcot será probablemente...

- A- Una escultura de vidrio
- B- Una fotografía blanco y negro
- C- Una pintura ejecutada en un muro o pared
- D- Un collage hecho de periódicos

References

- Brantmeier, C. (2003a). Beyond linguistic knowledge: Individual differences in second language reading. *Foreign Language Annals*, 36 (1), 33-44.
- Brantmeier, C. (2003b). Technology and second language reading at the university level: Informed instructors' perceptions. *The Reading Matrix*, 3 (3), 50-74.
- Chapelle, C. (2001). Computer-assisted language learning. In C. Chapelle (Ed.), *Computer applications in second language acquisition: Foundations for teaching, testing and research* (pp. 44-94). Cambridge: Cambridge University Press.
- Cubillos, J.(1997).Technology: A step forward in the teaching of foreign languages. In J. Harper, M. Lively, & M. Williams (Eds.), *The coming of age of the profession: Issues and ideas for the teaching of foreign languages* (pp. 37-52). Boston: Heinle & Heinle.
- Dornyei, Z. (2005).*The psychology of the language learning: Individual differences in second language acquisition*. London: Lawrence Erlbaum.
- Doughty, C. (1987). Relating second language acquisition theory to CALL research and application. In W. F. Smith (Ed.), *Modern media in foreign language education: Theory and implementation* (pp.133-168). Lincolnwood: National Textbook Company.
- Hernández-Herrero, A. (2001). Teaching grammar in (con)text. *Revista de filología y lingüística de la Universidad de Costa Rica*, 27 (1), 219-247.
- Lee, J., & VanPatten, B. (2003). *Making communicative language teaching happen*. New York: McGraw-Hill.
- Met, M. (2004). Teaching culture: What and how? In M. Met (Ed.), *Emerging technologies for teaching foreign languages and cultures* (pp.11-16). San Diego: LARC Press.
- Nunan, D. (1998). Teaching grammar in context. *ELT Journal*, 52 (2), 101-109.
- Oxford, R., & Ehrman, M.(1993). Second language research on individual differences. *Annual Review of Applied Linguistics*, 13, 188-205.
- Pennington, M.(2002). Grammar and communication: New directions in theory and practice. In E. Hinkel & S. Fotos (Eds.), *New perspectives on grammar teaching in second language classrooms* (pp. 77-98). New Jersey: Lawrence Erlbaum Associates, Publishers.
- Skehan, P. (1989). *Individual differences in second-language learning*. London: Edward Arnold.
- Weaver, C. (1996). *Teaching grammar in context*. Portsmouth: Boyton/Cook Publishers.
- Weaver, C. (1998). Teaching grammar in the context of writing. In C. Weaver (Ed.), *Lessons to share on teaching grammar in context* (pp. 18-38). Portsmouth: Boyton/Cook Publishers.

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