Just-in-Time Teaching: A Tool for Enhancing Student Engagement in Advanced Foreign Language Learning

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Abstract

Scholars have indicated a need for further research on effective pedagogical strategies designed for advanced foreign language courses in the postsecondary setting, especially in light of decreased enrollments at this level and the elimination of foreign language programs altogether in some institutions (Paesani & Allen, 2012). This article seeks to contribute to the growing discussion regarding instruction in upper-level foreign language courses. The authors present how the pedagogical technique “Just-in-Time Teaching” (Novak, Patterson, Gavrin, & Christian, 1999), which has been successfully implemented in a wide array of academic disciplines for over a decade (Simkins & Maier, 2010a), could be integrated in different upper-division foreign language classes. Preliminary analysis reveals that Just-in-Time Teaching not only facilitates the learning of content material in advanced foreign language courses, but also can help create more opportunities for oral and written language production, which are often lacking at the advanced level (Darhower, in press; Donato & Brooks, 2004).

Keywords: Just-in-Time Teaching, foreign language, pedagogy, content-based instruction, learning management system.

Advanced Foreign Language in Higher Education

Engaging students in a foreign language (FL) classroom in the postsecondary setting can be challenging at any level. Adult FL learning is different from the study of other academic subjects, such as history, biology, or mathematics, in that it requires students to adopt “patterns and behaviors of a cultural community other than that shared by the student” (Tse, 2000, p. 70, based on Gardner, 1985). In addition to considering the host of factors unique to FL acquisition, many successful FL instructors incorporate general educational philosophies that have been effective across many disciplines. As such, there are numerous pedagogical resources on FL instruction that inform instructors on how to establish a fruitful FL experience for students, as well as empirical research on language acquisition. A large portion of these materials is centered on the learning and instruction

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that takes place in beginning and intermediate language FL classes; there appear to be fewer resources that focus exclusively on advanced-level FL instruction and learning, despite expressed concerns about the conspicuous gap between lower-level language and upper-level content courses in FL curricula (Redman, 2005, p. 135), and the demand for effective upper-level FL instruction to ensure FL program maintenance and survival (Paesani & Allen, 2012, p. S55). Therefore, to contribute to the discussion on how best to instruct advanced FL students and to provide suggestions on how to ease the transition from lower- to upper-division FL classes, we present a pedagogical strategy that has proven successful in several academic disciplines in higher education: “Just-in-Time Teaching,” henceforth “JiTT” (Novak, Patterson, Gavrin, & Christian, 1999; Simkins & Maier, 2010a). After delineating what constitutes effective FL instruction and the specific challenges of advanced FL courses, in this article we will explain the key concepts of JiTT, how educators can incorporate JiTT in advanced FL courses, and why the strategy can be particularly effective at this level. We will also discuss specific JiTT activities in one particular upper-level FL course, as well as some common challenges that might arise in a FL classroom when using JiTT. To conclude, we will offer some recommendations intended to assist first-time JiTT users as they implement the strategy.

Effective Foreign Language Instruction

As in all other academic disciplines, FL instructors who are dedicated to effective teaching constantly reevaluate and refine their craft in order to reach their students, who have diverse levels of motivation, aptitude, and prior experience with course material. In addition to other successful pedagogical frameworks, most effective FL educators adopt a learner-centered approach (National Association of District Supervisors of Foreign Languages, 1999)—an overarching teaching philosophy that places more importance on what a student does rather than the practices of the teacher (Mostrom & Blumberg, 2012, p. 399)—to promote deep learning of course content. Three essential characteristics of learner-centered instruction, as described by Mostrom and Blumberg (2012), are that students (1) assume responsibility for learning, (2) are actively engaged in the material in and outside of class, and (3) complete multiple formative assessments before a summative assessment (p. 399). Learner-centered classrooms are essential in FL instruction, as students need ample opportunities to interact with the material in a multitude of formats for language learning to occur (Haley, 1999).

The key characteristics of learner-centered instruction are compatible in many ways with seminal theories in the field of second language acquisition (SLA). For instance, Sociocultural Theory (SCT) as applied to SLA (Frawley & Lantolf, 1985; Vygotsky, 1978, 1986) sustains that since language is a socially and culturally embedded phenomenon, FL learning must take place in an environment rich with opportunities for communication; students learn much more through interaction and assistance from others in comparison to what students they can learn without mediation (Shrum & Glisan, 2010, p. 24). The distance between what students can do alone and what they can do with assistance is known as the zone of proximal development (ZPD) (Swain, Kinnear, & Steinman, 2011, p. 16). In addition to SCT, the Interaction Hypothesis (Long, 1983, 1996) maintains that FL learners achieve linguistic gains through plentiful experience.
“negotiation of meaning,” or the succession of conversational exchanges that allow both speakers to understand one another (Pica, Holliday, Lewis, & Morgenthaler, 1989); this can only happen when students are active learning agents as opposed to passive receivers of information. Furthermore, proponents of the Output Hypothesis (Swain 1985, 1995) contend that learners must not only receive plentiful amount of comprehensible input (Krashen, 1982), but also they must have ample opportunity to produce the language in meaningful communicative contexts (Met, 2004). As one can see, the learner-centered approach and the aforementioned SLA theories value and encourage numerous opportunities for students to interact, participate, and negotiate meaning in the FL, all of which are key characteristics of a FL classroom that fosters language acquisition (van Lier, 1991, as cited in Antón, 1999, p. 304). In the later sections of this article we argue that JiTT is highly compatible with the characteristics of a learner-centered classroom and promotes the environment required to activate students’ ZPD and to support FL learning.

**Challenges of Advanced FL Instruction**

Students learn the necessary building blocks of communication in most beginning and intermediate FL courses. Relevant cultural information and other interdisciplinary content are also often incorporated per the *Standards for Foreign Language Learning (Standards)*, which are the discipline-specific guidelines involving communication, cultures, comparisons, connections, and community promoted by the American Council on the Teaching of Foreign Languages (ACTFL) (ACTFL, 2006) that should be followed in any FL classroom. By and large, FL instructors of these levels are concerned with developing students’ communicative competence, which Celce-Murcia, Dörnyei, and Thurrell (1995) defined as the combination of the necessary linguistic, discursive, sociocultural, and strategic knowledge to make oneself understood in the FL (p. 10) - than are instructors of advanced FL classes that involve academic material. Additionally, in the lower levels, FL instructors typically are more cognizant of creating a nurturing, non-threatening atmosphere in order to reduce students’ anxiety levels (cf. Krashen’s (1982) Affective Filter hypothesis) for language learning to occur (Redmann, 2005). In contrast, advanced FL courses are usually content-based courses - focusing on FL literatures, cultures and civilizations, film studies, or linguistics - in which lowering students’ anxiety is not always a conscious goal for instructors. In these classes, FL learners must interpret and communicate in the FL in order to complete complex assignments and to master course content, some of which might be challenging material regardless of the language of instruction. Even though learners in upper-level FL classes are expected to demonstrate higher levels of linguistic proficiency, it is common for classes to represent a range of abilities, from students who have only reached intermediate proficiency to students who can communicate at a superior or near-native level (Paesani & Allen, 2012, p. S55), all of which can affect students’ engagement and participation.

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2 As in Paesani & Allen (2012), we define “advanced-level” FL classes as those beyond intermediate language classes. Typically, but not always, these classes are designed for students pursuing a major or minor in the FL.
For decades, scholars have written about the gap between language and content courses in FL programs, or between lower-division and upper-division courses (cf. MLA Ad Hoc Committee 2007). A number of authors have made significant contributions on how to fully engage students in advanced courses that focus on FL literature, (e.g., Barnes-Karol, 2003; Eigler, 2009; Paran, 2008; Scott & Tucker, 2002; Vogely, 1997), FL linguistics (Correa, 2011; Knouse, Gupton, & Abreu, 2013; Villa, 2004), FL film studies (Stephens, 2001), and FL culture (Mittman, 1999; Reeser, 2003). Although Pae sani and Allen (2012) affirmed that great strides have already been made to address the conspicuous gap between lower-level (language) and upper-level (content) courses in FL curricula, they also asserted that “continued diligence, communication, and scholarly engagement” are nonetheless required to ensure a full understanding of the necessary pedagogical practices required to “increase the intellectual relevance of collegiate FL programs” (p. S71). For instance, instructors of FL advanced-level content courses must be careful not to dominate class time with lecture or teacher talk, which Donato and Brooks (2004) found to be pervasive, despite students’ presumed increased linguistic proficiency. Instead, instructors of advanced FL courses should exchange the traditional teacher-centered classroom for one focused on learner-centered activities and practices, such as JiTT. This type of environment allows teachers to engage students in “extended discourse” to reinforce fundamental concepts and to provide them with more opportunities to execute “advanced speaking functions” (Zyzik & Polio, 2008, p. 58) that are often lacking in advanced FL classes (Darhower, in press; Donato & Brooks, 2004).

In order to provide advanced-level FL instructors an additional technique that can engage students, as well as to decrease the tendency for teachers to dominate class time, we present JiTT as a “best practice” to accomplish these goals. In the following section, we will provide an overview of JiTT, its record of success in higher education, and how it can be implemented in advanced FL courses.

**Just-in-Time Teaching**

**Overview of Just-in-Time Teaching**

Just-in-Time Teaching (Novak et al., 1999) is a pedagogical technique that was first implemented in the late 1990s in an introductory physics course to address nontraditional students’ needs. Around the same time, higher education was experiencing a paradigm shift in which instructors began to critically evaluate the effectiveness of the traditional auditorium-style class lecture as the default pedagogical strategy (cf. Johnson, Johnson, & Smith, 1991; King, 1993; Laurillard, 1993, p. 108). Many professors were growing dissatisfied with students’ level of mastery of key concepts upon exiting introductory courses; consequently, instructors began to examine the quality of pedagogical techniques implemented in the classroom.³ Throughout the academy, a variety of innovative, learner-centered strategies began to replace the traditional lecture (cf. Herman, 2012, p. 1), and JiTT was among the practices introduced to captivate university students with diverse learning styles and a variety of academic and social backgrounds.

³ Some scholars argue that an engaging lecture can be effective and can facilitate learning gains (cf. Daniel, 2012).
The JiTT originators designed their strategy based on constructivist theory: all students enter the classroom with background knowledge and all students use this knowledge to construct more knowledge. Under this perspective, the JiTT team considered it imperative to use students’ previous knowledge in order to enhance the learning of course material (Guertin, Zappe, & Kim, 2007, p. 508). In addition, since educational research has convincingly shown that students learn more and are more motivated in a course in which they are active participants as opposed to passive learners (Darcy & Henderson, 2010; Halpern & Hakel, 2003; inter alia), the JiTT originators wanted to create a strategy that engaged students, prepared them for class discussion, motivated them in and out of class, and stimulated curiosity about course content. Furthermore, since Web-based technology had become readily available, the creators capitalized on these technological tools in order to increase communication between students and instructors outside of class; this feedback would provide instructors vital information regarding students’ performance, progress, and remaining concerns.4

The JiTT technique starts with a pre-class activity (or “JiTT”), which is a Web-based exercise. The JiTT activity contains two or three multiple-choice questions or short-answer questions that target essential concepts. As described in Novak and Middendorf (2004), the two most integral forms of JiTT exercises are warm-ups (designed to introduce new concepts and stimulate class discussion) and puzzles (designed to integrate various concepts and to assess student learning following their working with material), though JiTT questions can exist in a variety of forms, depending on the academic discipline and the specific topic of study.5 Regardless of their form, “[w]riting good JiTT questions is one of the most important and challenging aspects of implementing JiTT pedagogy” (Marrs, 2010, p. 84). Effective JiTT questions are ones that “yield a rich set of students responses for classroom discussion, encourage students to examine prior knowledge and experience, require an answer that cannot easily be looked up,” evoke an emotional response, connect previously learned material and newly acquired information, and require students to use their own words (Novak & Patterson, 2010, p. 7). Students must complete the questions approximately two to three hours before class time and turn them in through a learning management system (LMS) (e.g., Blackboard or Moodle) or another Internet-based program. It is highly recommended for the JiTT exercises to factor into students’ grades on some level, and instructors can use a variety of scoring rubrics to assess students’ performance on JiTT exercises (cf. Marrs, Blake, & Gavrin, 2003). The instructor receives students’ answers to the JiTT activity just in time to fine-tune his or her lesson based on this feedback, hence the name of the technique. The teacher can then decide how to use class time in order to best address specific misconceptions, gaps in learning, and students’ concerns about content (Camp, Middendorf, & Subiño Sullivan, 2010, p. 26).

4 Even though JiTT utilizes Web-based technology, Novak (2011) warns that the strategy should not be confused with “distance learning or computer-aided instruction,” since “all JiTT instruction occurs in a classroom with human teachers” (p. 65).

5 See Novak and Patterson (2010) for sample JiTT questions from various academic disciplines (p. 9), as well as the different categories of JiTT questions (p. 15).

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On the same day that students complete the JiTT, the instructor begins the class by projecting a representative sample of open-ended responses or the distributions of answers to multiple-choice questions for the entire class to see; these responses serve to stimulate class discussion and are a point of departure for the teaching of key topics. Subsequently, instructors can choose to implement cooperative learning activities in class based on the JiTT questions and responses, which can decrease the amount of time spent lecturing to students and help them learn from one another, thus activating the ZPD.

The “teaching/learning feedback loop” (Figure 1) facilitated through the pre-class JiTT activity is the crux of JiTT pedagogy (Novak & Patterson, 2010, p. 6). Since students come to class prepared with the course material already activated, they participate more in class discussions and learn more from in-class assignments. From an instructor’s point of view, JiTT practitioners are more aware of students’ progress and can appropriately dedicate class time to the specific concepts or material with which their students need assistance. From a student’s point of view, learners have multiple chances to receive formative feedback before a major assessment, which in theory should inform their study habits outside of class as well as enhance learning (Cookman, 2010). When implemented correctly, JiTT is a highly successful technique.

Figure 1. The JiTT Feedback Loop (Novak & Patterson, 2010, p. 6).

JiTT in Higher Education

Over the past two decades, instructors from several academic disciplines in postsecondary education have incorporated the JiTT strategy (Simkins & Maier, 2010a). Even though the majority of JiTT practitioners are housed in the sciences (e.g., physics, biology, chemistry), JiTT has been implemented in a wide array of classes, such as

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psychology, anthropology, education, computer science, accounting, economics, history, and more (Patterson, 2004), due to its flexible nature and its design based on seminal theories in educational research (Simkins & Maier, 2010b, p. xvi). JiTT adopters have reported many benefits of using the strategy, such as increased student participation and preparation (Gavrin, 2010; Marrs & Novak, 2004), deeper learning of material (Formica, Easley, & Spraker, 2010; Guertin et al., 2007; Pace & Middendorf, 2010, p. 159; Marrs, 2010, p. 81; Martinez, 2012), improved motivation (Camp et al., 2010), improved critical thinking skills (Cookman, 2010), improved grades (Cookman, 2010), frequent formative feedback before major assessments (Marrs & Novak, 2004, p. 56-7), and decreased student anxiety (Edwards, Mehring, & Murphey, 2006). Since JiTT has been successfully integrated in a variety of academic subjects, we believe that FL instructors can also reap the same benefits by including JiTT in their classes, especially at the advanced level.

While there are several convincing arguments that support the integration of JiTT in higher education courses, it is important to stress that JiTT is not a panacea for all instructors facing significant classroom challenges, nor does its implementation come without its own share of difficulties. When using the strategy for the first time, many JiTT instructors have confronted a sizable learning curve (Camp et al., 2010, p. 26; Cookman, 2010, 173-6); frustrations are to be expected, especially during the first few iterations of a course that implements JiTT pedagogy. Specifically, instructors have observed student resistance to the JiTT exercises, considering them too time-consuming and demanding (Cookman, 2010, p. 172-3). Students also have been known to wait until the last minute to complete the JiTTs or to find out the answers from other students in earlier sections before completing an assignment (Camp et al., 2010); both of these behaviors defeat the purpose of implementing the JiTT strategy. However, after fine-tuning JiTT questions, incorporating student feedback on the JiTT practice, and explicitly explaining to students the purpose of JiTTs and how to study using the strategy, instructors have been able to successfully utilize the technique to enhance student learning in their classes.

The good news is that since JiTT has been used in higher education for almost twenty years, many resources are readily available for the potential JiTT adopter. We highly recommend that instructors read about how to design a JiTT lesson plan (Novak et al., 1999; Novak, 2011, p. 66-8), what to consider when implementing JiTT (Maier & Simkins, 2010, p. 135-138), and how to develop effective JiTT questions (Novak, 2007; Novak & Patterson, 2010, p. 7-9) when preparing to implement JiTT for the first time. Many helpful online resources exist as well; for instance, the JiTT originators maintain their own website exclusively dedicated to JiTT pedagogy, and the Science Education Resource Center provides electronic resources and sample JiTT questions.

**JiTT in Foreign Language Instruction**

For all of the benefits described in the previous section, we believe that JiTT can be particularly advantageous in advanced-level FL classes: JiTT is flexible, facilitates an engaged, learner-centered classroom, and stimulates student participation and motivation. Though upper-level FL classes range in content from the humanities, as in a FL literature class, to the social sciences, as in a FL linguistics course, what these advanced classes
have in common is that they focus on simultaneously teaching concepts to students and leading them to communicate about those concepts in the FL.

Regarding JiTT in FLs, one publication reported on the implementation of the strategy in a FL classroom. Edwards et al. (2006) affirmed that JiTT was highly effective when teaching English as a Foreign Language (EFL) in Japan. Specifically, students were less anxious, and they came to class more prepared, asked more questions, and learned more from classmates (p. 10), because JiTT helped lower their affective filters (Krashen, 1982).

Apart from the Edwards et al. (2006) article on the effectiveness of JiTT in EFL classrooms, previous work that has been done with JiTTs in FLs appears to consist solely of various activities submitted by Franklin (2009) to the Multimedia Educational Resource for Learning and Online Teaching (MERLOT), where she is a founding editor. These include materials for teaching mostly French, though there is one activity for heritage speakers of Spanish to work through a module on identity and bilingualism in America. The four activities for French include videos on culture in the Francophone world, a newspaper reading assignment, and a postcard creation exercise, all intended as warm-ups and designed for learners at various levels of proficiency. The activities seem to require that the instructor be familiar with JiTT pedagogy in order to understand how to fit them into the JiTT model. With the exception of one of the activities, “Cartes Postales de TV5 Monde,” and possibly one of the videos, “Learn French through Gastronomy,” there does not appear to be a way for the instructor to assess comprehension prior to class, which is the fundamental element of JiTT pedagogy.

As Edwards et al. (2006) first noted, there is a dearth of published work on the use of JiTT in FL teaching. We believe that the technique is currently under-utilized in these courses, perhaps due to a lack of information on how it may be employed. Therefore, in order to expand on our knowledge of JiTT in the FL classroom and further encourage FL instructors to consider how they may use JiTT in their teaching, we provide specific examples in the next section from an advanced-level content-based course.

**JiTT in Introduction to Hispanic Linguistics**

In this section we demonstrate how JiTT may be incorporated into an advanced FL class taught at many postsecondary institutions, Introduction to Hispanic Linguistics (IHL), although the technique is easily adaptable for any content-based FL course. IHL has become a frequent offering at many universities in the U.S. (Hualde, 2006) and includes an introduction to the major fields of linguistics of the Spanish language: the sound system (phonetics and phonology), word and sentence structure (morphology and syntax), meaning (semantics and pragmatics), and history and variation of the language (dialectology and sociolinguistics). Since this class is conducted in Spanish, students are expected to communicate in the language in order to participate and complete assignments and assessments, which can prove difficult for those students with lower linguistic proficiency. Students are also challenged by the heavy terminology of the course, as well as the fact that they may never have considered language as an object of
academic study (Knouse, Gupton, & Abreu, 2013; Villa, 2004). As such, JiTT pedagogy can be an appropriate technique for the IHL classroom, especially since the strategy has been successfully employed in many other introductory courses to engage students that initially show little motivation or background knowledge in a topic (Guertin et al., 2007). In addition, even though IHL covers content-specific material, it remains a FL course; JiTT can not only assist students with complex content, but it can also facilitate more opportunities for FL production in both written and oral forms at more advanced levels. In fact, presenting students’ answers anonymously to the class without correcting non target-like forms could give students more incentive to pay closer attention to the linguistic structures they employ as they work with the FL.

Before implementing JiTT pedagogy, and as recommended by other JiTT practitioners (Camp et al., 2010, p. 26), we believe that it is essential to explain to students the goals behind this type of activity, which is new to most of them. Following is an example of language from a handout that was used in one of the author’s IHL classes and shows how JiTT can be described to students.

Just in Time Teaching (JiTT)

Readings are homework and should be completed before every class and done with care, especially since they are in Spanish and about a discipline that many are studying for the first time. In order to assist with the understanding of the readings, our class will, from time to time, complete JiTT questions on Blackboard. JiTT, or ‘Just in time teaching,’ is a proven methodology implemented to facilitate the learning of abstract and technical concepts (see http://jittdl.physics.iupui.edu/jitt/what.html for more information on the topic if you’re interested). JiTT allows me to modify my lesson plan according to the class’ needs.

To complete a JiTT exercise, log on to Blackboard between 12:00-9:00am before class to answer the questions. JiTTs should take you no more than 5 - 10 minutes to complete.7 “Warm-ups” are designed to help me see how well you understood the assigned reading. Therefore, these activities will be evaluated on effort and completeness, not accuracy. “Puzzles” are designed for you to apply knowledge gained through readings and class discussion, and therefore, your answers will either be graded for accuracy or receive extra credit.

Consequently, before participating in the first JiTT activity, students had already been made aware of the rationale behind JiTT pedagogy, as well as the expectations for the exercises.

As mentioned previously, JiTT exercises form the essence of the strategy. The present authors, who have both implemented JiTT pedagogy in IHL, have found that JiTTs can

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7 As the example above shows, a modification was made for this particular class in the time at which the JiTT became available, because many of the students indicated that they did not have enough time to complete the work since they held part- or full-time jobs.
Figure 2. Instructor’s View of a JiTT Warm-Up Exercise on Morphology on Blackboard.  

greatly assist the IHL professor in measuring how the class as a whole understands basic concepts in a reading. For instance, Figure 2 shows an example of a warm-up that students were to complete before coming to class on the first day of the morphology component of the course.

One major benefit of the exercise in Figure 2 is that, though it involved an application of the concepts in the textbook reading to concrete examples, students completed it quickly, and the LMS graded it automatically. The percentages calculated by the LMS from the results allowed the professor to quickly assess student comprehension of morphemes, allomorphs, and closed classes of words—key concepts in that particular chapter. An adjustment was made to the class discussion for that day to eliminate the discussion of open and closed classes of words, since no one had selected the wrong answer to that question, and to use that time to work on the concepts of morphemes and allomorphs, on which the results showed confusion. In class, the instructor showed the distribution of those results and invited debate about the correct answers.

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The three true-or-false questions translate as follows: (1) ‘There are two morphemes in corran ‘they run;’’ (2) ‘/-s/ and /-es/ are allomorphs of the plural suffix in Spanish;’ and (3) ‘Prepositions in Spanish are a closed class.’

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Because students did not need to justify the answers they chose in the LMS on the JiTT in Figure 2, there was a chance that they had simply guessed; if this were true, using the results of the exercise to make last-minute adjustments to the lesson plan might not be successful. To address this possibility, the professor revised the subsequent assigned warm-up exercise to include an explanation of the answer chosen, which carried the added benefit of allowing students to use more advanced-level discourse in the FL. While JiTT activities are a great resource for FL teachers to be able to adjust class time to be used more effectively, these activities may also be used to increase in-class interaction among students. In the example that follows (Table 1), students were asked to prepare the following before coming to class.

Table 1. Example of JiTT Prompt to Increase In-Class Interaction in Introduction to Hispanic Linguistics.

<table>
<thead>
<tr>
<th>JiTT prompt</th>
<th>Selected student answers</th>
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<tbody>
<tr>
<td>¿Cuál de las hipótesis que examinamos en este capítulo te resulta más convincente como explicación de cómo se aprende una L2? ¿Por qué? (Koike &amp; Klee, 2003, p. 42). (Escribe al menos tres oraciones, y prepárate para defender tu respuesta y/o convencer a tus compañeros de clase sobre tu opinión.)</td>
<td></td>
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</tbody>
</table>

Translation: ‘Which of the hypotheses we examined in this chapter seems most convincing to you as an explanation of how a second language (L2) is learned? Why? Write at least three sentences, and prepare to defend your answer and/or convince your classmates about your opinion.’

The learners’ responses display non target-like forms that are not reflected in the English translations, which are provided to help the reader understand the content of the exercises themselves.

Translation, Student 1: ‘En mi opinion, sociocultural es mas convincentes como explicaciones sobre como se aprende una L2. Yo dice porque en sociocultural el contexto es mas valioso con interaccion y haciendo preguntas con sus amigos. En sociocultural un estudiante que esta aprendiendo de sus amigos y no por sí mismo. Sociocultural es mas convincentes como explicaciones sobre como aprender.

Translation, Student 2: ‘La hipotesis interaccionista es mi hipotesis favorita porque el aprendiz no puede aprender una segunda lengua sin hablando en voz con otra gente. He tomado clases de espanol por cerca de 8 anos y hizo mas mejora cuando tome la clase de conversacion en la uni. Aunque he aprendido mucho vocabulario mas en otras clases de espanol, tuve mi comprension maxima de la lengua cuando estuve en la clase de conversacion porque estaba hablando con otra gente todo el tiempo, en la clase y a fuera. Cuando se practica por hablando, se comete errores y arreglarlos. Sin hablando, el aprendiz no sabe lo que puede hacer en actualidad con la lengua.

Translation: ‘In my opinion, the sociocultural hypothesis is more convincing as explanations about how a second language is learned. I say because in sociocultural the context is more valuable with interaction and asking questions with your friends. In sociocultural a students that is learning from his friends and not by himself. Sociocultural is more convincing as explanations of about how he learns.’

Translation, Student 2: ‘The interactionist hypothesis is my favorite hypothesis because the learner can’t learn a second language without speaking (out loud) with other people. I have taken Spanish classes for about eight years and I made more improvement when I took the conversation class at the university. Although I have learned much more vocabulary in other Spanish classes, I had my maximum comprehension of the language when I was in the conversation class because I was talking with other
This activity indeed provoked a lively class discussion in Spanish, as students had made sure to study all of the hypotheses in order to choose the most convincing one and, consequently, had a personal stake in the material. Based on their answers to this JiTT exercise, they were placed into groups in which each member had selected a different hypothesis. Their task was to try to convince the other group members that the hypothesis they had chosen was the most complete one. The professor monitored the groups and served as facilitator. Students became very passionate about their chosen hypotheses, and more than one student even changed his mind, based on the group discussion. This cooperative learning activity was successful in that students were led to go beyond the “telegraphic” FL production that can characterize learners’ speech even in upper-level classes (Donato & Brooks, 2004). In their discussion of these complex ideas, the students made use of Spanish to provide opinions and arguments, explore alternatives, and hypothesize; all of these language functions form part of the ACTFL Proficiency Guidelines for Speaking at the advanced and superior levels (Swender, Conrad, & Vickers, 2012). Moreover, students exchanged linguistic and content knowledge with one another throughout the group task; thus, this collaborative exercise based on the pre-class JiTT activity fostered a positive learning community and allowed students to operate within the ZPD.

The examples shown above of JiTT activities are only two possibilities for a course that covers many different subfields of Hispanic linguistics. Table 2 presents three more sample prompts for other subfields.

<table>
<thead>
<tr>
<th>Table 2. Possible JiTT Prompts in Introduction to Hispanic Linguistics.</th>
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<tbody>
<tr>
<td><strong>Syntax</strong></td>
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<td><strong>Phonetics/phonology</strong></td>
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<tr>
<td><strong>History of the language</strong></td>
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</table>

13 Translation: Syntax: ‘In the following sentence, decide if the underlined words form a constituent. Explain briefly. My sister listened to music.’ Phonetics/phonology: ‘You are a Spanish professor. Your students, who speak English, want to know what they must do to avoid a foreign accent when they speak. What would you recommend to them? Include two specific suggestions, using the subjunctive and/or the conditional.’ History of the language: ‘You mentioned to a friend that you had studied Latin. Your friend said to you that Latin was a dead language. How did you respond? Write at least two complete sentences, using the past tense.’
In our experience, students have adapted well to the inclusion of JiTT assignments in IHL classes. They appreciate the chance to focus in class on concepts that are problematic or difficult to understand on their own. While some have expressed that it is inconvenient to have to log on to an LMS to answer questions before class, adjustments can be made to the schedule to accommodate students who work or do not have access to technology off-campus, as shown above in the student handout. We have observed that even the most conscientious students have sometimes forgotten to do JiTT exercises at the beginning of the semester; this is part of the learning curve associated with implementing JiTT in the classroom and, as time goes on, students grow more accustomed to logging on to the LMS prior to class.

Benefits and Challenges of JiTT in Advanced Foreign Language Courses

We contend that there are many benefits to implementing JiTT in advanced-level FL classes. Throughout this section it will be shown how JiTT can facilitate a learner-centered classroom and provide assistance to the FL student and instructor alike. First and foremost, students have indicated to us that the JiTT exercises help them prepare for class. Since course content is activated through participation in JiTT exercises just prior to class time, they already have in mind what they want to share about a particular topic and may be more likely to express their ideas appropriately in the FL. Students have to make sure to thoroughly prepare homework assignments and readings in order to complete JiTT exercises. We believe that this preparation in both content and FL expression helps decrease the anxiety that commonly accompanies speaking in a FL at any level (Edwards et al., 2006; Krashen, 1982). As students prepare for and participate in JiTTs, this activity also helps to facilitate one of the essential characteristics of a learner-centered classroom: being actively engaged in and outside of class (Mostrom & Blumberg, 2012, p. 399).

Secondly, since JiTT activities are completed outside of class, students have multiple opportunities to privately indicate to the professor when they feel lost on a topic, which is not uncommon in an advanced-level, content-based FL course. In turn, students’ responses allow the teacher to gather detailed information regarding the level of each individual student’s comprehension and class preparation. Since another crucial ingredient of a learner-centered classroom is multiple chances for formative feedback before summative assessments (Mostrom & Blumberg, 2012, p. 399), JiTT pedagogy undoubtedly provides ample opportunities for informative, non-threatening feedback on students’ progress before a culminating exam or final project. Formative assessments serve two purposes: they inform students on how to make adjustments to their study habits in order to enhance academic progress, and they inform the teacher of which students could benefit from subsequent academic support, whether language- or content-focused. In addition, these formative assessments in FLs are a part of the new assessment paradigm and can empower learners (Shrum & Glisan, 2010, p. 424). Shrum and Glisan also underscore that empowered learners can become more involved in their own learning process, seek assistance when needed, and be part of a FL learning community. Taking responsibility for one’s learning is the third element of a learner-centered classroom, per Mostrom and Blumberg (2012, p. 399).
Thirdly, students enjoy having their responses incorporated into class lessons in the FL. Since they know that their work might be featured at the beginning of a class lesson, we believe they are more inclined to complete the JiTT exercises to the best of their ability in both content and linguistic form in the FL.

Fourthly, a particular benefit of incorporating JiTT in advanced FL classes is that of enabling the practice of receptive and productive skills in the FL. As in Tables 1 and 2, JiTT exercises provide a venue for the development of skills and progression along the ACTFL Proficiency Guidelines for speaking and writing. As many SLA theories have explained, students need multiple opportunities to interact in the FL for gains in acquisition to take place; yet, these opportunities are often underutilized in upper-level FL classes (Darhower, in press; Donato & Brooks, 2004). Therefore, JiTT is a viable strategy that could help remedy the deficit of conversational exchanges in this academic setting, and FL instructors may integrate JiTT to facilitate extending student discourse beyond responses to simple questions in the FL. Darhower (in press) upholds that instructors of upper-level FL classes must conscientiously provide regular opportunities for learners to produce the FL in all major time frames (i.e., past, present, future), but especially in the past, so they can move beyond an intermediate speaking level to advanced oral proficiency (cf. Section 4. “Discussion and Implications”). In order to accomplish this goal, FL instructors can easily frame JiTT prompts in such a way that students focus on these targeted forms through meaningful discussions in the FL about course content (cf. Table 2). Even though this discussion is mostly geared toward non-native speakers of the FL, it is important to note that abundant opportunities to produce the FL could be equally beneficial for heritage or native speakers so that they may practice a different register of discourse and to preserve or enhance their language skills, particularly in writing (cf. Kagan & Dillon, 2004; Peyton, Lewelling, & Winke, 2001; Villa, 2004, p. 94).

Finally, JiTT pedagogy is very compatible with the Standards (ACTFL 2006). In upper-level FL courses, JiTT pedagogy can help instructors incorporate interpersonal and integrative communication activities in class. The “Comparisons” standards lend themselves particularly well to JiTT exercises, as questions can be crafted to lead students to compare their native language to the FL. However, it is the “Connections” standard 3.1 that stands out in particular with regard to JiTT: “Students reinforce and further their knowledge of other disciplines through the foreign language” (ACTFL, 2006). Implementing JiTT in the FL classroom along with the Standards deepens student engagement with upper-level, content-based course material—FL literatures, cultures, film studies, or linguistics classes—and aids comprehension in what are new fields of study for many students.

Of course, the techniques of JiTT are not without discipline-specific challenges. One is the very use of the FL. Some students may not possess the proficiency in the FL to fully comprehend JiTT prompts, which would make it difficult for them to show they understand the content being assessed. Even when students do understand the JiTT prompt, it is possible that they are not able to use the FL to answer in a way that fully shows their comprehension, and this may or may not be obvious to the professor who
reads their responses. However challenging JiTT exercises may be for FL learners, it is clear that providing students with more opportunities to use the FL to complete advanced-level tasks both in and outside of class is an important benefit. It seems that the advantages of JiTT pedagogy far outweigh any difficulties in its actual implementation.

**Conclusion**

As shown throughout this article, JiTT provides a unique opportunity for those who teach upper-division FL classes to adapt to learners’ needs by engaging in the “feedback loop” (Novak and Patterson, 2010) created through the use of technology. By using JiTT warm-ups and puzzles, the FL instructor can assess student preparation and learning. In the FL classroom, warm-ups ensure that students have prepared whatever material they were to cover for class, usually reading assignments. This means that, ideally, students don’t experience terminology for the first time during a lecture, but rather are already primed to engage in discussion and ask for any needed clarifications when they enter the classroom. Puzzles help the instructor check that the students have not only understood the class material, but that they are able to communicate about it appropriately in the FL. JiTT is also a strategy that can provide students with regular opportunities to produce the FL at the “advanced” level, facilitates a learner-centered classroom, and lends itself well to subsequent collaborative tasks so that students may work in the ZPD. Furthermore, JiTT can be implemented to assuage what is often for learners a difficult transition between lower-level language classes and upper-level content classes in FL (e.g., Mittman, 1999; Redmann, 2005).

Of course, JiTT is meant to supplement what is already happening in the classroom and in no way takes the place of instruction. It is another tool for FL teachers to place in their repertoires of instructional methods and should be used strategically, along with other tried-and-true pedagogical techniques. To ensure successful JiTT implementation, we would like to reiterate some suggestions already highlighted in this article. First, we recommend that FL instructors read the readily available JiTT literature thoroughly, access online materials, and consult with other JiTT practitioners before using the technique for the first time. Second, we suggest that instructors explicitly describe to students the purpose of JiTT, what their role is, and how their participation is essential for success; this should be done not just at the beginning of the semester, but repeatedly throughout the course. Students should know that JiTT is designed not only to help them with learning course content, but also with producing the FL at the advanced level and beyond. Finally, and perhaps most importantly, it is critical to monitor students’ progress with JiTT and make adjustments according to what works best for each class. Possible adjustments could include increasing or decreasing the number of JiTT exercises per week or allowing students to turn in JiTT exercises earlier than the typical JiTT time frame (i.e., two to three hours before class), due to commitments outside of class. Minor modifications can help students view JiTT pedagogy as an asset, rather than a burdensome requirement.

We invite other JiTT users in the academic community, as well as interested FL instructors, to join in a conversation about other ways in which JiTT might be integrated
in the FL classroom. We have shared here our experiences and recommendations, based on practice, as well as previously published work on JiTT; however, empirically-driven research into specific gains or benefits for students in classes that use JiTT, as compared to students in classes that do not, would shed more light on how best to implement the strategy. Indeed, research that examines students’ perceptions of JiTT pedagogy would also be helpful. We would be particularly interested in seeing examples of JiTT exercises from classes in FL literatures and cultures, especially as we attempt to address the need for effective pedagogy in upper-division content-based FL classes (Paesani & Allen, 2012). We also have reason to believe that JiTT could have a place in beginning or intermediate language instruction, and we encourage FL educators to devise lesson plans that incorporate JiTT pedagogy at these levels. We look forward to the conversations and collaborations that may result.

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