



Knowledge and interaction in on-line discussions in Spanish by advanced language learners

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ABSTRACT

This article provides results of analysis of data collected from online Spanish-medium subject courses taught in Spanish by the same teacher to students whose first language is English. The students are at a high-intermediate to advanced level (B2-C1), and are enrolled at an American university in Madrid in courses centring on topics of Spanish language and language teaching. The teacher categorized the discussions as more or less successful, mainly depending on the amount of interaction perceived as taking place, but also on the participants' ability to express the vertical knowledge of the disciplinary concepts they are studying. The study reported on in this article uses functionally oriented models of evaluative language and of knowledge to analyse a "problematic" on-line discussion, along with two other discussions which serve as points of comparison. Quantitative results, in the form of descriptive statistics, are presented in order to underpin a qualitative discussion of where the difficulties lie in students' ability to create an interactive discussion about course knowledge, leading to some suggestions for setting up on-line discussion in content-based courses, especially for students studying through an additional language.

KEYWORDS

Engagement; interaction; knowledge; asynchronous discussion; appraisal; legitimation code theory

Introduction

Asynchronous on-line discussion forums in educational settings involve learners in discussing course knowledge while interacting through writing with their peers. Research supports the collaborative role of on-line discussion in learning, drawing on Vygotsky (1978) as theoretical support for the role of interaction in creating deeper knowledge, in addition to constructing an identity as a member of an on-line community (Delahunty, 2012). On-line discussions are also seen as sites of community building, which is "vital to students' language and literacy development" (Potts, 2005, p. 138). Furthermore, on-line discussions afford opportunities for students to "rehearse discipline-based debates" (Coffin &

Hewings, 2005, p. 33). In sum, this type of computer-mediated communication (CMC) offers space for students to engage with others in order to establish their identity within the course community, while also expressing understandings of and taking stances on the course content under study.

However, on-line discussion forums are not without their challenges. In this context, especially when the content course is taught in an L2, students can struggle with interacting as peers, on one hand, and as legitimate knowers of the disciplinary field of study (in this context the applied linguistics concepts in Spanish-medium courses), on the other; that is “[i]t is hard to foster a focused, interactive and in-depth asynchronous discussion in traditional threaded forums” (Gao, Zhang, & Franklin, 2013, p. 470). As students engage in on-line discussion, some may see its role as “a space for socioemotional interaction” (Rourke & Kanuka, 2007, p. 116), seeking community building contributions over knowledge building ones. Furthermore, with respect to knowledge, sometimes distinctions between course knowledge and everyday knowledge are not made clear, as students draw on personal experience and narratives to illustrate concepts, leading in some cases to confusing understandings of what counts as legitimate knowledge in the educational context (Chen, Maton, & Bennett, 2011). Thus, researchers have questioned the ability for on-line discussion to allow participants to “engage in knowledge co-construction through collaborative meaning making” (Rourke & Kanuka, 2007, p. 121).

The research presented in this article was motivated by a teacher’s concerns about a particular on-line discussion in an MA course on second language acquisition taught in Spanish to mainly English L1 speakers at an American university. Maria’s¹ concerns about this discussion were that it showed more tension and less collaboration than two other discussions, which, she felt, showed “good interaction.” In an interview, María explained that good interaction referred to when students have interchanges with each other while at the same time debating the topic. A further concern with the “problematic” discussion was that students were not articulating an appropriate understanding of the course knowledge. Like many on-line teachers, Maria wanted the students to interact while expressing knowledge in a way which showed depth of understanding, yet the desire for these two different goals can create tension, as it is difficult for students to interact with each other, and perhaps more so in an L2, when the content is not yet a part of their knowledge framework.

In the study reported on here, interaction was operationalized and analysed through the linguistic choices the writers made to encode their meanings and intentions from the options available within the interpersonal system of discourse semantics (Martin & White, 2005), a descriptive framework of language located within systemic functional linguistic (SFL) theory. Knowledge was operationalized and analysed drawing on the semantic dimension of legitimation code theory (LCT) (Maton, 2013a, 2013b), a theoretical framework for analysing knowledge practices in disciplinary contexts. These two theoretical frameworks, SFL and LCT, have been shown to work well together in shedding

light on disciplinary writing (Martin, 2011), and, in this analysis of how students encode interaction and disciplinary content through an additional language, combine effectively to illuminate the effect of their encodings and thus to provide specific ways teachers can focus students' attention on their language choices in an on-line disciplinary context. Data from undergraduate and graduate levels are included in order to compare expectations of abilities to discuss course content across these levels; this comparison sheds further light on the dual purpose of on-line discussion in creating community while also displaying, and ideally enhancing, understandings of course content. Student identities as part of a community and as legitimate knowers of the disciplinary field are often challenged as they move from one level of study to a higher one, a challenge that may be heightened when the medium of instruction is an additional language.

The research questions guiding the analyses of the posts were

- (1) In successful discussions, what forms of language do participants use to engage with their peers, with propositions, and with course knowledge?
- (2) How do the results from (1) compare with those of a less successful discussion?
- (3) What implications for teachers can be gleaned from the comparison?

With respect to the analytical framework used, the research question was

- (4) Can a combined analysis of interpersonal linguistic resources, as theorized from within the appraisal framework (Martin & White, 2005) and of disciplinary knowledge, as theorized from the semantic dimension of legitimation code theory, point to differences across more or less highly rated discussions, differences which can be operationalized by on-line teachers teaching through an additional language?

Interaction and knowledge in asynchronous on-line discussion

Interaction in an educational context can be roughly divided into three types: student–teacher, student–student and student–content (Schrire, 2006), the latter two being of interest to the study reported on here. With respect to student–student interaction, a number of studies focus on the amount and quality in asynchronous on-line discussions, which can be measured in varying ways. For example, Zhu (2006) quantified types of interaction taking place in terms of size of the network (number of participants), centrality (how frequently one point, or member, connected with others) and density (the general level of connecting going on amongst all members). Bali and Ramadan (2007) study student engagement in terms of number of postings, with an increased total number of postings, as well as an increase in the average number per student, suggesting an increase in student engagement through interaction.

There are also varying ways of analysing student–content interaction. For example, Zhu (2006) carried out an analysis of the type of move (question, statement, reflection, mentoring, scaffolding) and its level of cognitive achievement. At the same time, researchers have recognized that, in on-line discussions, interaction with others and with content are inseparable. For example, Yang (2011, p. 182) based her definition of engagement on Cole and Chan (1994, p. 259): “the extent of students’ involvement and active participation in learning activities [...] which will lead to their collaborative knowledge construction and deep learning”. Pawan, Paulus, Yalcin, and Chang (2003) drew on Garrison, Anderson, and Archer’s (2001) practical inquiry model, designed specifically to evaluate collaboration in online learning environments, to analyse data taken from graduate level on-line courses. The model identifies four phases of critical thinking and cognitive presence: first a triggering event which initiates a dialogue; second an exploration, combining reflection and social exploration through exchange of information; third an integration phase, for constructing new meanings and identifying possible solutions; and fourth, the resolution phase, in which the proposed solution is evaluated. Their results after applying the model to analyse three online graduate-level language teacher education courses showed that

over half (152) consisted of Phase 2 (Exploration), which includes personal narratives, descriptions, and facts not used as evidence to defend, justify, or develop the participants’ own positions or that of others. In other words, the participants were primarily sharing information and brainstorming their own ideas in relation to the issues, problems, and questions posed (Pawan et al., 2003, p. 127).

Thus, their study corroborated other researchers who found that “information was shared rather than knowledge constructed” (Pawan et al., 2003, p. 120). While this model of analysing knowledge in discussions is promising, it is not without limitations, as the categorical criteria leave out important moves made through the posts (Pawan et al., 2003, p. 134).

Lander (2013) also noted problems with existing coding schemes for analysing engagement, suggesting that “an analytical tool is needed that is agnostic with respect to pedagogical theories” (p. 47) in order “to describe what happens rather than what should happen” (p. 47). Landers chose a discourse analysis approach, based on the SFL theory of language, which can show how “interaction (interpersonal meaning) and cognition (ideational meaning) are simultaneously enacted through and shaped by language” (p. 47–48). She used several discourse analytic tools from SFL, such as the appraisal framework and the system of negotiation, to uncover ways in which moderators and students interact while discussing the knowledge of the course (Lander, 2013, 2014, 2015). Others that have drawn on SFL frameworks for linguistically analysing how students construct interaction through posts in CMC include Painter, Coffin, and Hewings (2003), who found that an activity which required justification of views used a more written formal style, with a marked decline in interaction, and

Piriyasilpa (2009), who found that students used linguistic features of a more spoken mode to create solidarity, and those of a more written mode when writing about course content. The results of these studies suggest that a linguistic approach to analysing on-line posts can illuminate the ways in which students interact while expressing course content.

The study

Data

The naturally occurring data analysed is taken from three discussion forums from two different courses, one graduate and taught on-line, the other undergraduate (with some graduate students enrolled) and taught mainly face-to-face (FtF). Both are taught in Spanish by the same teacher (not the writer of this article) to students whose first language is English, who have a high-intermediate to advanced level (B2-C1) of Spanish, and who are enrolled in courses centring on topics of Spanish language and language teaching. The teacher created topically-based questions for students to respond to in an asynchronous on-line forum. The discussion is run through the university's learning management system, Blackboard. An interview with the teacher was also carried out, where she classified the discussions as more or less successful. The interview showed that the teacher valued most highly an interactive discussion, with students responding to others' comments. At the same time, a posting of her own in the discussions showed a parallel desire for appropriate understandings of the course content.

During week three of the graduate course on second language acquisition, the on-line discussion prompt was

- ¿Qué opinión te merecen las afirmaciones de la página 74 de Johnson (2008)?
- ¿Crees que son afirmaciones empiristas o mentalistas (Johnson, 2008, p. 90)?
- What do you think about the statements on page 74 of Johnson (2008)?
- Do you think that the statements are empiricist or mentalist (Johnson, 2008, p. 90)?

An example of one of the statements (in translation) is (1) *We learn languages by copying what others say. That's why exercises which ask you to "listen and repeat" are so useful.* The teacher considered this discussion to be unsuccessful, both in terms of interaction and in terms of content expressed.

During week 10 in the same course, the discussion prompt was

Esta semana vamos a debatir los contenidos que Johnson (2008, p. 168, 180) expone en su tema 7. Si el conocimiento declarativo (que transmite la enseñanza y se refleja en el aprendizaje) no sirviera para desarrollar el conocimiento procedimental (que se refleja en la adquisición), ¿qué implicación tendría esto en la enseñanza de idiomas?, ¿son necesarias las clases de L2 para desarrollar una L2?, ¿cuál sería el objetivo de nuestras clases de E/LE?

This week we are going to discuss the contents that Johnson (2008, p. 168, 180) exposes in theme 7. If declarative knowledge (which is transmitted by teaching and is

reflected in learning) does not help to develop procedural knowledge (which is reflected in acquisition), what implication would this have for language teaching? Are L2 classes necessary to develop an L2? What would be the objective of our Spanish as an L2 classes?

The teacher found this latter discussion to be much more productive in terms of interaction and context expressed than the previous. Responses from these two asynchronous discussions are compared to another discussion, one which the teacher deemed highly successful. This discussion took place in a course that was mainly FtF, an upper-level undergraduate, cross-listed as graduate, course titled *Spanish in the World*. The prompt was

El objetivo de este debate no es sustituir a la clase presencial, sino aprender a desarrollar la habilidad de usar la lengua escrita en un entorno virtual, interactuar en español con los compañeros sobre un tema académico relacionado con la vida real, exponiendo una opinión y argumentarla con argumentos académicos. En esta clase virtual vamos a hablar de las variedades lingüísticas que se enseñan en las clases de español como segunda lengua (o extranjera, E/LE).

The objective of this debate is not to substitute the presential class, but to learn to develop the ability to use the written language in a virtual environment, interact in Spanish with the classmates about an academic theme related to real life, exposing an opinion and arguing it with academic arguments. In this virtual class we are going to talk about the linguistic varieties that are taught in Spanish as a second language classes.

This explanation is followed by the teacher's example of her experience with a British flight attendant who corrected the teacher's (American) pronunciation when she asked for water, leading the teacher to conclude that it might be useful for a second language learner to be taught to converge their pronunciation to different dialects (depending on where they happen to be) to avoid being corrected in their interactions. She asks them what they think about her experience and whether they agree with her, and to also consider linguistic ideas from a linked interview. She finally asks them to consider which variety, from those they have been discussing in class, they would be inclined to teach, and whether or not they agree with their classmates.

The data gathered from the three discussions are summarized in [Table 1](#).

Table 1. Summary of the data.

Course (level)	Prompt (name of data-set)	Number of students	Number of postings	Number of words
Spanish in the World (undergrad/grad)	Qué español se enseña? ¿Qué español debería enseñarse? What variety of Spanish is taught? What variety of Spanish should be taught? (QEE)	7	14	2850
Spanish second language acquisition (grad)	Comentario de las afirmaciones del libro, páginas 74 y 90 Comment on the statements from the book, pages 74 and 90 (SLA3)	7	13	3358
Spanish second language acquisition (grad)	Debate about other theories of learning and acquisition (SLA10)	7	8	2567

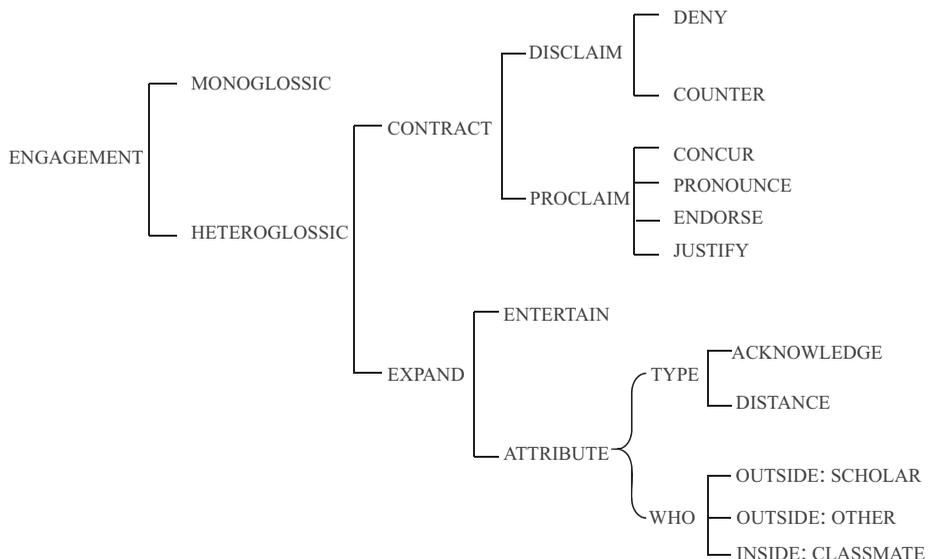
Method

For purposes of measuring engagement, I drew on the appraisal framework (Martin & White, 2005), which models interpersonal choices within SFL theory. In the appraisal framework, the system of engagement is concerned with the linguistic resources that allow for “sourcing attitudes and the play of voices around opinions in discourse” (Martin & White, 2005, p. 35). The network of choices that the engagement system models illuminates how writers put forth ideas as open for negotiation or not, as well as how they position the sources they draw on, including, in this case, their classmates’ words and ideas. From LCT (Maton, 2013a, 2013b), and for purposes of measuring disciplinary knowledge, I drew specifically on the semantic dimension, which models how knowledge is presented as more or less abstract, through the use of more or less dense terms to encode concepts. The analysis for abstraction and density illuminates the extent to which the students engage with disciplinary knowledge while interacting with their classmates.

Engagement

The data were first analysed using an adapted version of Martin and White’s (2005) system of ENGAGEMENT² from within the appraisal framework. The system of ENGAGEMENT (Figure 1) models interpersonal meanings in terms of how a proposition is positioned dialogically.

As Figure 1 shows, a text producer can position an utterance as monoglossic, through a positive declarative statement with no modality, which “encourages



Note: Square brackets indicate either/or choices; curly brackets indicate that choices are made simultaneously.

Figure 1. System of ENGAGEMENT.

the reader to assume that the proposition is unproblematic and that it enjoys broad consensus” (Coffin, 2002, p. 510). Any other linguistic option beyond the positive declarative positions the statement as heteroglossic, that is, as one which can be contested in a dialogic space. There are two choices in this case; writers (or speakers) can choose to open up the dialogic space through the system of EXPAND, showing openness to alternative views, by entertaining other views or by attributing them to others. Or they can choose to rule out the viability of other possible views (thus at the same time acknowledging their existence) through the system of CONTRACT. These systems and their subsystems are exemplified with examples from the data, with further commentary explaining where the subsystems have been expanded to include greater delicacy.

It is important to note that, while monoglossic utterances can be found in the data, they are very rare. One example³ is

Example 1: Esta idea pertinence al conductismo (SLA3 S 3.3)

This idea belongs to behaviourism.

However, this kind of utterance in the data is usually prefaced or followed by some kind of ENGAGEMENT resource from the systems of EXPAND or CONTRACT; that is, the vast majority of statements, especially those related to disciplinary knowledge, are heteroglossic, and, therefore, monoglossic utterances are not included in the presentation of results.

Expand

As Figure 1 shows, the system of EXPAND has two main choices, ENTERTAIN and ATTRIBUTE. Most cases of ENTERTAIN were versions of “I think” in Spanish, such as “(yo) creo”, “pienso”, “opino” and “(a mí) me parece”.

Example 2: A mí me parece que los dialectos son una cosa que dan variedad, y por lo tanto belleza a nuestro jardín lingüístico. (QEE S2.1)

To me it seems that dialects are something that give variety, and thus beauty to our linguistic garden.

Other wordings include “en mi opinión” (in my opinion), “probablemente” (probably), modals, such as “debería” (should) and the subjunctive, as in Example 3.

Example 3: ... los estudiantes puedan aprovechar de la clase mucho más (SLA10 S6.1)

... the students can [Subj] take much more advantage of the class.

With respect to ATTRIBUTE, Martin and White (2005) distinguish between ACKNOWLEDGE and DISTANCE, the former being a more neutral form of attributing words and ideas to a source, through typical reporting verbs such as “decir” (say), “explicar” (explain), “contar” (tell), “mencionar” (mention), and other expressions, such as “según” (according to). To construct the latter, distancing, the most common way is to use one of these attributing expressions, and then to express disagreement. Another resource used to create distance is scare quotes.

Example 4: ... porque ellos tienen la idea que solo necesitan usarla si “los mexicanos toman control de EEUU.” (SLA10 S7.2)
 ... because they have the idea that they only need to use it if “the Mexicans take control of the US”.

This student reinforces the meaning of the scare quotes as she goes on to say “Por favor entiendan que esto no es mi idea.” (Please understand that this is not my idea).

Given that a main interest in this project was to gauge the extent to which the student writers engaged the voices of their fellow classmates, as well as those of outside sources, a parallel subsystem was added to the system of ATTRIBUTE. That is, at the same time that writers could choose to present a mental or verbal projection as neutral (ACKNOWLEDGE) or as something doubtful (DISTANCE), they chose whether the words or thoughts were attributed to one of three classes of people; the first is some kind of scholarly attribution, such as the book, specific researchers or theorists, general groups (e.g. “empiricists”), their teacher, etc. The second is a fellow classmate, and the third an outside person who is not a scholar, such as a friend or people in general. All ATTRIBUTE meanings were coded for the source in one of these three ways.

Contract

While ENTERTAIN and ATTRIBUTE are ways of expanding the potential viewpoints, CONTRACT options do the opposite. As can be seen in Figure 1, the first set of meanings, DISCLAIM, has two options, DENY or COUNTER. While the positive declarative indicates a single reading of the world, through the negative declarative writers let readers know that there is another option available, so it provides a heteroglossic reading which is then rejected in some way.

Example 5: No “desaparecen con el tiempo.” (SLA3 S3.2)
 They do not “disappear with time”.

In Example 5, the student refers to the argument that errors “disappear with time”, which she dismisses through negation (“no”). Here we see an example of two dialogic meanings working in tandem, that of DENY, through the use of negation, and of ATTRIBUTE: DISTANCE, where the use of scare quotes allows another voice into the dialogic space. In addition to DENY, another resource for closing the dialogic space is COUNTER, which is typically linguistically realized through such conjunctions, subordinators and connectives as “pero” (but), “aunque” (although) and “sin embargo” (however), which “invoke a contrary position which is then said not to hold” (Martin & White, 2005, p. 120). Example 6 illustrates this type of meaning.

Example 6: ... aquí la gente habla con distinción, pero también es correcto hablar con seseo. (QEE S1.2)
 ... here people speak with “distinction” [distinguishing the phonemes /s/ and /θ/], but it is also correct to speak with “seseo” [pronouncing them both as /s/].

In Example 6, the student writer suggests that in her current location it is correct to speak with *seseo*, countering (similar to denying) the possibility that it might not be seen as correct.

In addition to the system of DISCLAIM, another overall way of shutting out other points of view is that of PROCLAIM, with its subsystems of CONCUR, PRONOUNCE, ENDORSE and JUSTIFY. Through CONCUR, a writer upholds a position by positing it as natural or given, with expressions such as “claro” (of course), “obviamente” (obviously) and “sin duda alguna” (without a doubt). Through PRONOUNCE, writers provide “authorial interpolations and emphases which are directed against some assumed or directly referenced counter position” (Martin & White, 2005, p. 129), by using locutions such as “realmente” (really), “en realidad” (in reality) and “la verdad es que” (the truth is that). Through ENDORSE, outside formulations are put forth as valid and correct, mostly achieved in the data through overt agreement with the source, although also used are verbs such as “demostrar” (show), as in Example 7.

Example 7: Pero Chomsky, el gran mentalista, nos ha demostrado que... (SLA3 S6.2)

But Chomsky, the great mentalist, has shown us that...

White (2003, 2012) includes JUSTIFY as a further system of meanings for contracting the possibilities for (dis)agreement with a proposition. Statements with connectors “like”, “because”, “for this reason” and “therefore”

construct the textual voice as engaged in persuasion and some other communicative participant (typically the immediate addressee) as being in the role of “persuadee”, as holding a viewpoint which is to some extent different from that of the textual voice and against which the textual voice needs to mount an argument (White, 2003, p. 274–275).

This type of argument follows Toulmin’s (1969) structure of “claim + backing”, as in Examples 8 and 9 (the linguistic marker of justification is underlined).

Example 8: la comprensión de las funciones de una lengua es muy útil porque me ayuda entender porqué algo no se dice asíthe understanding of the functions of a language is very useful because it helps me to understand why something is not said this way (SLA3 S1.1)

Example 9: tenemos que estudiar, porque si no, sólo tenemos un medio pequeño. Por eso, estoy de acuerdo con Sally en que no podemos dividir el organismo y el medio (SLA3 S2.3) we have to study, because if not, we only have a small environment. For this reason, I agree with Sally that we cannot divide the organism from the environment.

Semantic gravity and semantic density

The concepts “semantic gravity” and “semantic density” are taken from the semantic dimension of LCT (Maton, 2013a, 2013b), which is a framework for

the study of knowledge in educational praxis. Semantic gravity refers to the degree of context-dependency of meaning, which is on a continuum with poles of weak and strong. Where semantic gravity is stronger (SG+), meaning is more dependent on the context, and where it is weaker (SG-), meaning is less dependent on the context. That is, when semantic gravity moves from weak to strong, “abstract or generalized ideas are made more concrete” (Martin, 2011, p. 50) and when it is weakened, “one’s understanding is lifted above the concrete particulars of a specific context or case” (Martin, 2011, p. 49). Semantic density refers to the degree of condensation of meaning within a term, also on a continuum of strengths. Where semantic density is strong (SD+), a great deal of meaning is condensed (e.g. technical terms), and where it is weak (SD-), meaning is less condensed (e.g. everyday terms). Maton (2013b) explains that in educational contexts, teachers often take technical terms (SD+), explain them through everyday language with examples (SG+) and then pack them back up into more technical explanations with abstractions (SG-), so that students can understand the term in its fully condensed meaning. An example of such a “semantic wave” (Maton, 2013b) can be seen in Example 10 (within Figure 2) from the data.

Harry begins with weak semantic gravity (SG-), writing about abstract decontextualized concepts. The terms encoding those concepts (which translate to English as “declarative knowledge” and “metalanguage”) have high semantic density (SD+). He then proceeds to unpack those concepts using more concrete examples which locate the reader in a specific space, thus strengthening the semantic gravity (SG+). Terms such as verb and subject, at the same time, are less semantically dense (SD-) than is the term metalanguage. Thus, this

Ex. 10: He visto en vuestras respuestas unos argumentos que enfatizan la importancia del conocimiento declarativo. Lo que nadie ha mencionado es el peligro del enfoque en la metalenguaje; es decir, el lenguaje que se utiliza para caracterizar cada palabra de un enunciado. Cuando aprendices utilizan una LE en una tienda de móviles, por ejemplo, no deberían estar pensando en, “¿Como se pregunta ‘usted es el gerente?’ en inglés? Vale, pues el verbo de segunda persona va al principio. ¿La segunda palabra? Ah, el sujeto de segunda persona. ¿Las siguientes palabras? Deberían ser el artículo definido y el objeto, creo. Vale, ahora estoy listo para hablar.” SLA10 S 5.1

I have seen in your answers some arguments that highlight the importance of declarative knowledge. What nobody has mentioned is the danger of a focus on metalanguage; that is, language which is used to characterize each word of an utterance. When learners use an L2 in a cell phone store, for example, they shouldn't be thinking about “How do you ask ‘are you the manager’ in English? Ok, well the verb in second person goes at the beginning and the second word? Ah, the subject in second person. The next words? They must be the definite article and the object, I think. Ok, now I am ready to speak.”

Figure 2. Example of a partial semantic wave.

example illustrates the kind of unpacking of field-specific terms that demonstrates understanding of the concepts represented by the terms. Of course, for the wave to be complete, Harry would need to pack the concrete ideas back up into the more abstract course knowledge, showing understanding of the terms. Indeed, in his next paragraph he goes on to do this.

Los métodos de enseñanza que se enfocan en el conocimiento declarativo fracasan en producir hablantes con fluidez como resultado de esta razón. Un conocimiento científico de una LE no resulta necesariamente en enunciados naturales y apropiados. La meta final de una lengua es transmitir información relevante e inteligible, no una cadena de formulas lingüísticas. Asimismo, explicaciones largas de gramática roban al estudiante la oportunidad de explorar la lengua. Por tanto, arguyo en favor de lo que Johnson ha denominado PRODEC, lo cual trata de un enfoque en el conocimiento procedimental con lo declarativo como apoyo lingüístico (Johnson 177).

Teaching methods that focus on declarative knowledge fail in producing fluent speakers because of this reason. Scientific knowledge of an FL does not necessarily result in natural and appropriate utterances. The final goal with a language is to transmit relevant and intelligible information, not a chain of linguistic formulas. At the same time, long explanations about grammar take away from the student the opportunity of exploring the language. For this reason, I argue in favour of what Johnson calls PRODEC, which involves a focus on procedural knowledge with declarative as a linguistic support (Johnson 177).

In this follow up from his very concrete example, Harry leads back to the semantically dense term PRODEC. This leading back takes place through abstract consideration of teaching methods, scientific knowledge, and the goal of language learning. Also, the student slightly unpacks the term PRODEC, explaining what it involves, although still at a fairly SG— level, as it is an abstract explanation. Thus, what we see is that the student follows a wave of semantic gravity, using high semantic density of terms at the higher peaks of the wave (see [Figure 3](#)).

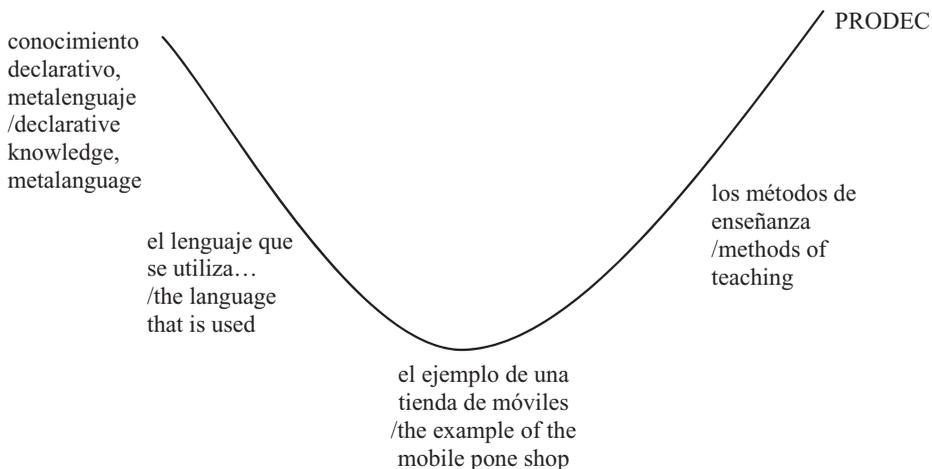


Figure 3. Example 10 as a semantic wave.

Procedure

Using the UAM CorpusTool (O'Donnell, 2016), the texts were tagged for each instance of a meaning expressed from the system of ENGAGEMENT; thus the unit of analysis within this discourse semantic stratum of language was the linguistic realisation of the meaning, as illustrated in Examples 2–9. Therefore, some utterances were double-coded as they exhibited more than one linguistic resource encoding ENGAGEMENT meanings (see Example 5). The texts were also analysed for knowledge; each expression of course (or formal) knowledge was coded as having weak semantic gravity (SG–) and the students' personal examples, which were more highly contextualized, were coded as having strong semantic gravity (SG+). Semantic density was not coded, and is only drawn on in explanation of instances of SG–, as can be seen in Example 10. Given the need for careful scrutiny of each of the texts, and for manual analysis, the data-set is small, and thus does not lend itself to a pure quantitative analysis; at the same time, counts were taken of the instances of both ENGAGEMENT and semantic gravity as the resulting descriptive statistics can reveal differences across the discussions which can help to shed light on the kinds of linguistic resources and their consequent meanings that created the more successful discussions. These results are considered in light of more qualitative results in the subsequent section.

Quantitative results

Table 2 provides the comparison results of the ENGAGEMENT analysis across the three discussions QEE, SLA3 and SLA10. Both raw numbers and frequencies

Table 2. ENGAGEMENT comparison of three discussion groups.

	QEE		SLA3		SLA10	
	<i>N</i>	Per 1000 tokens	<i>N</i>	Per 1000 tokens	<i>N</i>	Per 1000 tokens
CONTRACT-TYPE						
disclaim	73	22.52	83	21.15	78	<u>27.37</u>
proclaim	37	11.42	81	<u>20.64</u>	24	<u>8.42</u>
Total CONTRACT:	110	33.94	164	<u>41.79</u>	102	35.79
DISCLAIM-TYPE						
deny	36	11.11	51	13.00	51	<u>17.89</u>
counter	37	11.42	32	8.15	27	<u>9.47</u>
PROCLAIM-TYPE						
concur	3	0.93	11	2.80	5	1.75
pronounce	16	4.94	27	6.88	5	1.75
endorse	2	0.62	9	2.29	9	3.16
justify	16	4.94	34	<u>8.66</u>	5	1.75
EXPAND-TYPE						
entertain	47	14.50	72	<u>18.35</u>	33	11.58
attribute	25	7.71	54	<u>13.76</u>	25	8.77
Total EXPAND:	72	22.22	126	<u>32.11</u>	58	20.35
ATTRIBUTE-TYPE						
acknowledge	16	4.94	43	<u>10.96</u>	21	7.37
distance	9	2.78	11	<u>2.80</u>	4	1.40
ATTRIBUTE-WHO						
outside-informal-other	12	<u>3.70</u>	3	0.76	0	0.00
outside-scholar	2	<u>0.62</u>	44	<u>11.21</u>	13	4.56
inside-classmate	11	3.39	7	<u>1.78</u>	12	4.21

Table 3. Semantic gravity values.

	QEE		SLA3		SLA10	
	N	Per cent	N	Per cent	N	Per cent
GRAVITY						
weak	37	27.41%	106	54.36%	66	39.52%
strong	98	72.59%	89	45.64%	101	60.48%

per 1000 tokens (which include graphic symbols such as punctuation marks) are provided; underlining indicates those meanings which, because of their greater comparative frequency, are touched on in the discussion.

In terms of the greater differences in comparative frequencies, the more “problematic” discussion, SLA3, drew far more frequently on the ENGAGEMENT resource PROCLAIM, across most of its subsystems, and especially JUSTIFY. Also more prevalent in SLA3 than in the other two groups are the EXPAND resources, both ENTERTAIN and ATTRIBUTE, in the case of the latter, mainly due to the high number of attributions to outside scholarly sources. QEE showed a higher number of attributions to outside sources which are not scholarly, but rather informal (friends, family), and SLA 10 had a higher frequency of the CONTRACT subsystem of DENY.

With respect to the semantic dimension of knowledge, Table 3 presents the results of all three discussions. The counts are not presented per number of words or tokens, but rather as percentages of the total knowledge orientations encoded (thus for each group, the total adds up to 100%).

The undergrad/grad QEE group stayed far more at the level of SG+ through the many examples of their own experiences with dialects in Spanish. SLA3, on the other hand, had far more encodings of formal, course knowledge (SG–) than the other two groups, and SLA 10 swung back towards more concrete experience, but with more abstract course knowledge than the QEE group.

Qualitative results and discussion

Key to creating a stance within academic writing is the nature of the balance between expanding and contracting resources (Ryshina-Pankova, 2014; Swain, 2007, 2010). Over all of the discussions analysed here, the contracting resources are far more prevalent than the expanding ones (in each case per 1000 tokens, contracting/expanding): QEE: 110/72; SLA3: 164/126; and SLA10: 102/58), a major difference from both Swain’s (2010) study of high- and low-scoring argumentative essays and of Ryshina-Pankova’s (2014) study of blogs in an academic course, where more expanding than contracting systems were used to effectively position students’ argumentative stances. In the on-line discussion forums analysed here, students have different goals, to interact with others and to display and discuss course knowledge. In QEE, the contracting resources mainly demonstrate disagreement with intolerant attitudes towards different varieties of

Spanish, a disagreement that creates solidarity amongst the students, as in Example 11 (ENGAGEMENT values are tagged, CONTRACT in bold).

Example 11: George, realmente[*pronounce*] no he pensado[*deny*] en eso. Me da mucha sorpresa y me siento triste leer lo que has oído[*attribute-classmate*] porque[*justify*] soy una de las personas que quiere sonar como una madrileña. Nunca[*deny*] me ocurrió que un español pensaría que yo o cualquier otro pretende “imitar” o “actuar” como si fuera “muy fina”. En mi experiencia, nunca[*deny*] he oído comentarios así tan negativos en cuanto al habla de hablantes no nativos, pero[*counter*] puede ser[*entertain*] que no he dado cuenta[*deny*] o que realmente[*pronounce*] no me ha pasado [*deny*]. Normalmente[*pronounce*] cuando hay comentarios de gente de Madrid sobre mi habla o el habla de otro hablante no nativo, son positivos, o al menos me parecen[*entertain*] positivos. Pero[*counter*], lo que dices[*attribute-classmate*] me suena un poco de la actitud de la gente en los Estados Unidos sobre hablantes no nativos del inglés. En general, hay poca paciencia con gente que no habla perfectamente el inglés[*deny*] o que habla con un acento fuerte (chino, mexicano, o cualquier otro) aunque[*counter*] se pretenden de hablar muy bien. Me parece[*entertain*] algo muy común rechazar un hablante de inglés como lengua segunda, y lo que has contado[*attribute-classmate*] no me parece[*deny+entertain*] tan diferente aunque[*counter*] sea[*entertain*] en otro país con otro idioma. (QEE S7.2)

George, really I have not thought about that. It surprises me and makes me sad what you have heard because I am one of those people who wants to sound like a Madrileña. It's never occurred to me that a Spaniard would think that I or anyone else wanted to “imitate” or “act” as if I were “very refined”. In my experience, I have never heard such negative comments about the speech of non-native speakers, but it could be that I have not realized it or that really it hasn't happened to me. Normally when people from Madrid make comments about my speech or the speech of another non-native speaker, they are positive, or at least they seem positive to me. But, what you say sounds a bit like the attitude of people in the United States towards non-native speakers of English. In general, there is little patience for people who do not speak English perfectly or who speak with a strong accent (Chinese, Mexican, etc.) although they want to speak well. It seems to me something very common to reject a speaker of English as a second language, and what you have said doesn't seem very different to me although it is in another country with another language.

This student mainly uses countering resources to align with her classmate, George. Even though she has not experienced what he has experienced (expressed through DENY), she strives to show how she understands his experience through a parallel experience in the United States, as well as expressing her sadness that something like this could happen to him. This kind of alignment is typical of QEE3.

The students in both discussions on the SLA graduate course use the systems of DENY and COUNTER to position their understandings of the course knowledge through negation and counter-expectancy – that is, through what they understand concepts do NOT mean. This kind of alignment to propositions can be seen within Example 10, from SLA10, repeated here as Example 12.

Example 12: Un conocimiento científico de una LE no resulta necesariamente en enunciados naturales y apropiados[*deny*]. La meta final de una lengua es transmitir información relevante e inteligible, no una cadena de formulas lingüísticas[*deny*].

A scientific knowledge of an FL does not necessarily result in natural and appropriate utterances. The final goal with a language is to transmit relevant and intelligible information, not a chain of linguistic formulas

Thus, we can see the role of these contracting resources in creating engagement with others and with course content.

With respect to the system of ATTRIBUTION, it is most illuminating to examine its use along with the knowledge orientations that students encode through their responses. In QEE, almost all begin with an anecdote showing how their variety of Spanish has been corrected (or not, as in Example 11) in a context where it is not the norm (SG+). That experience leads most of them to conclude that we should be tolerant of dialects both inside and outside the classroom, often using somewhat more semantically dense references to sociolinguistic and educational concepts, so moving towards SG–. One student begins by encoding course knowledge through suggestions from the book about teaching dialects (SG–), and then moves to unpacking that knowledge through a specific example from her own teaching experience. She concludes by arguing at a more abstract level that it is best to teach dialects to students who are at an advanced language level (SG–). Thus, QEE shows mainly SG+ through anecdotes that demonstrate the students' own or others' mainly negative experiences with how their way of speaking has been received (as in Example 11); these anecdotes are punctuated with the attributions to non-scholarly sources – what family, friends or unknown others have said. There are some references to course knowledge and sometimes a more general, abstract statement, leading towards SG–, at the end of their contributions. Overall, rather than a wave of abstraction–concrete experience–abstraction, as exemplified through Example 10 and illustrated– in [Figure 3](#), this group stays much more at the level of concrete experience leading to some abstraction at the end of their posts. Out of the 14 postings, there are a

total of 11 references to another post; this interaction is to mainly express solidarity with a previous poster's experience in receiving outsiders' remarks on his/her pronunciation of Spanish, thus creating a sense that students are listening to each other and using each other's experiences both in society and in the classroom, with some mention of course knowledge, to build up a response to the prompt.

SLA3, on the other hand, shows contributions which mainly begin with one of the statements from the book (SG-) related to language learning. Some go on to say why they find the knowledge encoded in a given statement useful in their own language teaching or learning, and thus they unpack the statement into their own personal example (SG+); they do the same with statements they disagree with. However, they do not then go on to tie the personal example back to the abstract ideas, even when they do go back to course knowledge, which usually involves bringing in a new point from the book. Thus, rather than a wave of related information consisting of abstraction-concrete example-abstraction, there is more of a disjointed discussion of the list of items from the book punctuated by anecdotes which do not clearly illustrate the point. One student takes on the second part of the SLA3 task, which was to classify the statements as empiricist or behaviourist, staying at the level of SG-. However, she finds it difficult to classify some of the statements, and subsequent posters attempt to help, admitting that they also share the doubts about the classification, while also staying at the level of SG-. At the same time, during their attempts at classifications, they heavily justify why they think a statement belongs to one camp or another. The justifications are more SG+, drawing on their own experience. Example 13 illustrates a student justifying an opinion about one of the propositions from the book.

Example 13: ... la afirmación (f) “pensar en cómo funciona el idioma es una parte muy importante del aprendizaje. Esta comprensión puede ser un herramienta muy útil” me parece[*entertain*] muy interesante. Cómo lingüista y estudiante de lenguas, la comprensión de las funciones de una lengua es muy útil porque[*justify*] me ayuda entender porqué algo no se dice así
 ... the statement (f) “thinking about how the language works is a very important part of learning. Understanding can be a very useful tool” is very interesting to me. As a linguist and a language student, understanding the functions of a language is very useful because it helps me understand why something is not said that way. (SLA3 S1.1)

In Example 13, the student quotes from the book, which is thus considered SG-, given that it is course knowledge, and then she paraphrases using language that is very close to the original. She then justifies it by unpacking it into very SG + language, as it is highly context dependent: “why something is not said that

way”. To illustrate the kind of interaction that takes place about knowledge – mainly at the level of SG+, Example 14 is used as it takes up the thread from Example 13 (SG+ is underlined).

Example 14: Estoy de acuerdo con lo que dice Alice[attribute-classmate] en su primer párrafo; es importantísimo para los estudiantes saber porque algo es como es, para que[justify] ellos puedan aplicar estas reglas en el futuro en otras partes de su aprendizaje de su L2... Por otro lado, cuando no pienso[deny] en el idioma, o mejor dicho, cuando permito mi cerebro funcionar en manera más innata o de “manera automática” no[deny] me preocupa mucho de cometer errores en mis LE. Solamente intento a pensar en la LE directamente como fuese[entertain] mi L1. Por eso[justify], estoy de acuerdo[proclaim] generalmente con la afirmación A. Nosotros adquirimos nuestra LM por necesidad y como aprendemos caminar o “cualquier otro hábito”, ¿porqué no[deny] podemos adquirir una L2 como así? Yo creo[entertain] que aprendemos las L2 mejor cuando sabemos que vamos a necesitarlas de verdad o que sabemos que vamos a usarlas en el futuro. Eso es la razón[justify] que creo que[entertain] es muy importante relacionar con los estudiantes y recordarles que la L2 es útil e importante a ellos. (SLA3 S2.1)

I agree with what Alice says in her first paragraph; it is very important for students to know why something is how it is, so that they can apply these rules in the future to other parts of their L2 learning...On the other hand, when I don't think about the language, or better said, when I let my brain function in a more innate way or “automatic” way I don't worry very much about making mistakes in my foreign languages. I only try to think in the foreign language directly as if it were my L1. Because of this, I generally agree with statement A. We acquire our mother tongue by necessity and just as we learn to walk or “any other habit”, why can't we learn an L2 that way? I think that we learn the L2 better when we know that we are going to truly need them or when we know that we are going to use them in the future. That is why I believe it is important to relate to the students and remind them that the L2 is important for them.

Example 14 shows a mainly SG+ response to a previous student, meaning that they are not interacting using disciplinary language. The example also shows that the student feels the need to heavily justify her responses while at the same time using values of ENTERTAIN (*creo que*) to underscore that it is her own understanding. Taken together, these values suggest that students are feeling uncertain about their posts, an uncertainty which is expressed on more than one occasion (Examples 15–17).

Example 15: Creo que en alguna parte del capítulo me perdí pero no puedo clasificar esta idea en ninguna teoría (SLA3 S5.1)

I think that in some part of the chapter I got lost but I can't classify this idea in any theory.

Example 16: Yo también tenía dudas sobre muchas de las ideas en página 74 (SLA3 S2.2)

I also had doubts about a lot of the ideas on page 74.

Example 17: En realidad, leí de los dos muchas veces y todavía estoy un poco confundida.

In reality, I read about the two many times and I am still a little confused.

Not long after this post, the teacher intervenes to say that she sees problems with their understandings, suggesting that they make an outline of the theories; she further points out that personal examples do not serve as arguments, and that they need to abstract back to the scientific ideas. After this teacher intervention, a couple of students write long posts where it is clear that they are struggling to understand the material, and where they attempt to explain but again stay mainly at the level of SG−. Also, throughout the postings, there is a tremendous amount of reliance on formal knowledge (SG−), as further evidenced by the high number of attributions to scholarly sources; in part, this is due to the prompt, which indeed calls on the students to engage with specific material from the textbook. Along with this seeming inability to move away from the book into their own understandings, there is also little real interaction with the other posts. Out of the 13 postings, 7 include a reference to previous postings: thus, in this discussion, references to classmates only occur in single instances in the posts where they occur, and the reference is usually a general agreement with what someone else says (simply “I agree with X”), without an unpacking into the new poster’s own understanding (an exception is Example 14 where the poster rearticulates Alice’s argument, although in SG+). Overall, what we see in this set of postings is that the students either write about their personal experience or they write about the course knowledge, but they do not create the type of semantic wave that connects their personal experience with the new knowledge, and, at the same time, they have difficulty interacting with each other when they are in SG−.

SLA10 has much more packing and unpacking of course knowledge, with some clear semantic waves running through the discussion, as illustrated by Example 10 in Figures 2 and 3. It also shows greater interaction; out of the eight postings, six include references to the classmates; students are even comfortable expressing their disagreement with the concepts that their classmates present, as in this poster’s response to the post included in Example 10 (Example 18).

Example 18: No estoy de acuerdo con Harry cuando describir el proceso que un aprendiz tiene que usar para crear una oración. (SLA10 8.1)

I don't agree with Harry when he describes the process that a learner has to use to create a sentence.

The student struggles to encode the proposition in fluid Spanish, yet she is successful at packaging up what Harry has expressed (Example 10) into a nominal group “el proceso” with a qualifier “que un aprendiz tienen que usar para crear una oración” which specifies the process, in order to be able to articulate her opinion. Along with direct interaction about knowledge that other students have expressed, the references to outside scholarly works are far fewer than in SLA3, suggesting that at this stage of the course, the students are more comfortable encoding the knowledge as their own and in debating it.

Thus, the analysis of the results shows that the teacher has higher expectations of students at the graduate level to be able to interact confidently and legitimately about course knowledge with their peers. At the undergraduate level, the students interact mainly about their personal experience as related to course knowledge, without using highly technical terms; in the move to the graduate level, students need to learn to unpack/pack these terms and concepts, in order to interact effectively with peers about course knowledge.

Implications

In order to create successful on-line discussions in content courses where the medium of instruction is an L2, and with students at an advanced level of language ability, it is important to provide specific guidelines so that students can comfortably and confidently interact about the course content in ways that allow them to collaboratively deepen their understandings of and ability to articulate course knowledge.

Guo, Chen, Lei, and Wen (2014), p. 203) show that “facilitating feedback has significant effects in enhancing learners’ cognitive engagement in online discussions”; one of their principles for effective feedback is that it should show students how to “use appropriate terminologies and concepts, and to relate their ideas with principles and theories” (Guo et al., 2014, p. 197). Thus, feedback could include “bridging activities”, as suggested by Thorne and Reinhardt (2008, p. 563), which “raise learner awareness of the grammatical and lexical choices that comprise a text and to have the learner critically consider how these linguistic choices combine to realize different textual, interpersonal, and ideational meanings in situational and cultural contexts”. In this sense, it is worth teachers providing some time, especially in the case of advanced language users such as those involved in this study, to reflect on the language choices they use to encode their interpersonal positionings with respect to the propositions, the scholarly sources, and their classmates. For example, making explicit to students that explaining a concept through what it does not mean, through the ENGAGEMENT system of DENY, may allow them to jointly construct their understandings of a concept. Also, Coffin and Hewings (2005, p. 37) argue that “structured tasks

may result in increased student interaction" (see also Painter et al., 2003), providing the suggestion that teachers can give explicit instruction to challenge or endorse something a peer wrote.

With respect to depth of knowledge, and moving beyond simply sharing information, the notion of the semantic wave (Maton, 2013a, 2013b) is highly illuminating in its simplicity of showing students how they can move from anecdotes to course knowledge. In the QEE discussion, the teacher in essence models the semantic wave of abstract concept—concrete example—abstract concept through her example of the British flight attendant, and teachers could further make explicit that students should use their anecdotes and personal examples in this way, helping students, especially at the graduate level, create a more disciplinary identity at the same time, by always packaging back up into the abstract concept expressed through the disciplinary term. In addition to challenging/endorsing what their peers have written, teachers could also show how students can move from a previous poster's discussion through encapsulating nouns, as is seen in Example 11, to create greater interaction about course content as well as building on what others in the discussion have said to lead to joint construction of a greater depth of knowledge.

In sum, it is important for teachers to "direct students' attention to the way in which viewpoints are constructed and exchanged...[as] increased awareness of knowledge construction can have a positive impact on students' ability to communicate and write effectively" (Painter et al., 2003, p. 46). An increased ability to interact effectively about disciplinary knowledge can also have a positive impact on graduate students' identity in L2 content courses as legitimate knowers of the field.

Notes

1. Pseudonyms are used in all instances.
2. To distinguish between technical and non-technical uses of terms, references to ENGAGEMENT systems and their subtypes are in small caps.
3. Each example is followed by the forum it is taken from (see Table 1 for fuller information as to which prompt it refers to) the student number and the turn number for that student.

Acknowledgments

With deep appreciation to Cristina Matute, Rachel Whittaker and Isabel Alonso Belmonte for their review and helpful suggestions.

Disclosure statement

No potential conflict of interest was reported by the author.

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