A ‘mixed methods’ approach for investigating aspect in a second language

Evidence from the SPLLOC project

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A leading hypothesis in the study of the L2 acquisition of aspect-related verbal morphemes is the Lexical Aspect Hypothesis (LAH) (Andersen, 1989, 1991; Andersen & Shirai, 1994) which claims that learners’ use of these forms is determined by the lexical properties of events. Reviews of major studies reveal that data from one single task, usually an open-ended oral task, have often been used to support this hypothesis. I discuss copious evidence from the acquisition of Spanish to argue that when studies use a ‘mixed methods’ approach (e.g. combining oral production and experimentally elicited data) they are able to test existing hypotheses such as the LAH more reliably and can offer more valuable insights. Existing evidence from the SPLLOC project (Domínguez, Tracy-Ventura, Arche, Mitchell, & Myles, 2013; Mitchell, Domínguez, Arche, Myles, & Marsden, 2008) is used as supporting evidence for this approach and to raise questions about the appropriateness of some research methods widely used in our field.

Keywords: aspect, Spanish, imperfect, research methods, corpus, tasks

1. Research design in the L2 acquisition of aspect: Why it matters

Although the acquisition of aspect is a major area of research, we are still not close to a full understanding of how aspect-related morphology develops in a second language. In this article, I focus on the fact that some studies, those investigating the acquisition of Spanish in particular, have not always employed the appropriate research methodology to test leading hypotheses in this area as already noted by several authors (Domínguez et al., 2013; Camps, 2005; Comajoan, 2006; Montrul & Salaberry, 2003; Salaberry, 2008; Salaberry, Comajoan, & González, 2013). In particular, I discuss the explanatory limitations of studies which employ one single task, often an open-ended narrative to investigate the validity of Andersen’s

(1989, 1991) Lexical Aspect Hypothesis (LAH). Instead, I argue that studies which use a combination of oral production data and carefully-collected data through closed tasks and comprehension tests can provide better insights and more reliable evidence to investigate this hypothesis (Domínguez, Tracy-Ventura, Mitchell, Myles, & Arche, 2009; Domínguez et al., 2013; Mitchell et al., 2008; Tracy-Ventura & Domínguez, 2009). The same rationale applies to investigating other hypotheses in our field.

Aspect is a semantic category which informs about the temporal structure of an eventuality (whether an event is finished, about to start, or in progress).¹ Perfective aspect refers to the finished status of events, whereas imperfective aspect refers to unfinished events. For instance, in English ‘-ed’ expresses past tense but it can also express imperfective (habitual) aspect (see Example (1a)) as the action of playing tennis took place more than once during a set period of time in the past. The same morpheme expresses perfective aspect in Example (2a) as the sentence describes an event which took place just once.

- (1) a. Oscar played tennis as a child. (imperfective, habitual)
 b. Óscar jugaba_{IMP} al tenis de pequeño
 Oscar played to-the tennis of child
- (2) a. Oscar played tennis last week. (perfective, one-time event)
 b. Óscar jugó_{PRET} al tenis la semana pasada
 Oscar played to-the tennis the week last

In contrast, Spanish marks the imperfective/perfective distinction with two distinctive verbal endings known as Preterit (for finished events) and Imperfect (for unfinished events). In Example (1b) the verb is marked with Imperfect morphology (-aba) and it expresses both past tense and imperfective aspect. A different morpheme, the Preterit, is used to express perfective aspect in Example (2b) (see details in Montrul & Slabakova, 2002, 2003). This shows that in Spanish these semantic aspectual distinctions receive an overt morphological expression; that is, there is a direct mapping between perfective and imperfective aspect onto a distinctive morphological form (Preterit or Imperfect). In English, this semantic-morphology mapping is not as straightforward, as the same morphological form (i.e. -ed) can be used in both perfective and imperfective contexts as the examples above show (Arche, 2014a, 2014b). It is important to note that

1. I am assuming that aspect situates events in a particular timeline (i.e. the speech time, the event time etc.). Since providing a formal analysis of aspect is not relevant for the present study, I refer the reader to work by Demirdache and Uribe-Etxebarria (2000) and Arche (2006, 2014a) which analyse tense and aspect as relational categories and relations between temporal intervals following seminal work by Stowell (1993) and Klein (1994).

despite crosslinguistic differences in the expression of aspect, the same semantic interpretations associated with imperfective aspect exist in English and in Spanish. The key difference lies on how the semantic meanings of perfective/imperfective aspect, which are the same in both languages, are mapped onto the available morphology (Domínguez, Arche, & Myles, 2011, 2017).

Aspectual interpretations are also determined by the inherent lexical-semantic properties of the verbal predicate (i.e. the verb and its complements) (Comrie, 1976; Dowty, 1986; Smith, 1991; Tenny, 1994; Verkuyl, 1993). Most L2 studies have followed Vendler's (1967) classification of events into four lexical classes (states, activities, accomplishments and achievements). States (e.g. *be*) are events that do not require an input of energy, do not have an inherent endpoint and have no internal structure; activities (e.g. *work*) are events that have duration but lack an inherent endpoint; accomplishments (e.g. *read a book*) are events that have duration and an inherent endpoint; achievements (e.g. *jump*) are events that have an inherent endpoint but do not have duration. It is also possible to group accomplishments and achievements together in a telic class, as these events have an inherent endpoint (Depraetere, 1995; Smith, 1991); in contrast, states and activities are part of the atelic class. Apart from telicity, other lexico-semantic features which are relevant are dynamicity (accomplishments, activities and achievements are dynamic events as they have an input of energy, unlike states) and duration (only achievements happen instantaneously and have no duration).

We can see that aspect is a complex linguistic phenomenon (Bardovi-Harlig, 2000; Salaberry, 2008; Slabakova, 2001) which lies at the interface between syntax, semantics and the lexicon² as both linguistic and lexical properties determine the morphological expression of aspect which, in turn, varies across languages. L2 studies, however, have not always presented a unified account of aspect and often focus on investigating lexical aspect, ignoring that learners need to figure out cross-linguistic differences in the representation of aspect as well.

A review of the existing literature shows that a good number of studies, in particular those investigating the L2 acquisition of lexical aspect in Spanish, have relied on oral, (semi-)spontaneous data elicited mainly through one task. The choice of task is non-trivial as it determines the type of evidence elicited and the type of questions researchers can answer. Studies which rely on evidence elicited mainly through oral production tasks can inform about how learners are able to use the target forms in contexts where 'free' use of the target language is

2. Some researchers have argued that discourse structure, in particular notions such as foreground and background (Dry, 1992; Givón, 1987; Fleischman, 1990; Reinhart, 1984), also influence the use of target forms by learners. See Bardovi-Harlig (1992, 1995), Bergström (1995), Reid (1980) and Wallace (1982).

encouraged. These data, however, cannot inform about learners' mental representations, i.e. what they know about the L2 grammar (Domínguez et al., 2013; Slabakova, 2001).

This opposing view on the choice of methods (and the benefits they bring) can be illustrated by the following two quotes from two leading researchers in the L2 acquisition of aspect. On the one hand, Bardovi-Harlig (1999, p. 375) claimed that "approaches have gone far in revealing how adult second-language learners construct an interlanguage temporal semantics." In contrast, Slabakova (2002, p. 186) argued that "[i]n spite of the rich data and the obvious attractiveness of the topic for the language acquisition research community, we are still far from a definitive explanatory model. The traditional appeal 'further research is necessary' needs a new twist this time: only hypothesis-testing, prediction-comparing research is necessary." Although other authors have also pleaded for the development of more rigorous methodologies for the study of aspect in a second language (Salaberry, 1999; Salaberry & Montrul, 2003; Salaberry et al., 2013), we are still far from a unified approach which can be implemented across the various theoretical frameworks. In the reminder of this paper, I will discuss the SPLLOC project as a case study for the implementation of the rationale that a mixed-methods approach is useful for testing hypothesis in second language acquisition (SLA) and for the study of aspect in particular. I will show how some level of manipulation of so-called open-ended oral tasks can be useful to elicit target forms in key infrequent contexts. Furthermore, the combination of different task types can provide better insights than data elicited by one single task (Domínguez et al., 2009; Domínguez et al., 2013; Domínguez et al., 2017; Mitchell et al., 2008; Tracy-Ventura & Domínguez, 2009).

2. Choosing the right methodology for investigating aspect in a second language

Two main theoretical and methodological traditions exist in the study of the acquisition of aspect in a second language: some researchers are interested in investigating how learners use aspect-related forms in a (semi-)naturalistic setting (e.g. counting how many times the Spanish Imperfect form '*-aba*' is used during an interview with a learner) whilst there are those who want to find out what learners know about those forms (i.e. whether learners know that '*-aba*' is an imperfective marker with three semantic interpretations (habitual, continuous and progressive) which cannot be used in perfective contexts). A review of the methodology used in some of the leading studies reveals that researchers interested in language use tend to use data elicited through spontaneous, open-ended

oral tasks, whereas researchers interested in learners' understanding of those forms rely on quantitative data elicited through carefully-designed comprehension tasks.

Reviews of existing studies (see e.g. Bonilla, 2013; Comajoan, 2005; Montrul & Salaberry, 2003; Shirai, 2004) show that a high number of studies, in particular those investigating the acquisition of lexical aspect, have relied on oral, (semi-)spontaneous data elicited mainly through one task, typically an impersonal narrative. Domínguez et al. (2009) and Tracy-Ventura and Domínguez (2009) show that the types of oral tasks most commonly used in studies testing leading hypotheses are personal narratives, impersonal narratives based on pictures or short video clips, role-plays, interviews and free conversations. Written tasks include personal narratives, impersonal narratives, essays/compositions, multiple choice, fill-in-the-blank, appropriateness judgments and sentence conjunction tasks (see e.g. Díaz, Bel, Ruggia, Bekiou, & Rosado, 2003; Díaz, Bekiou, & Bel, 2008; Sun, Díaz, & Taulé, 2018). Bardovi-Harlig (2013) presents a strong argument for the use of open-ended tasks listing some of its benefits as that they focus on communication and that learners can show what they can produce naturally without tapping on learners' explicit knowledge (see also Noyau, 1990). She also argues that these types of tasks allow learners to avoid being able to memorise the test answers and that, by avoiding repetition, learners' interest in the task is maintained (Bardovi-Harlig, 2013, p. 220).

Open-ended tasks such as narratives, descriptions, and conversations are commonly used and are good examples of tasks where researchers can excerpt a light-touch approach to the collection of useful evidence. Studies using oral data elicited by impersonal narratives are abundant (e.g. Bardovi-Harlig, 1998; Comajoan, 2006; González & Quintana Hernández, 2018; Housen, 2002; Liskin-Gasparro, 2000; Lubbers-Quesada, 2006; Salaberry, 1999). Earlier studies (e.g. Bergström, 1995; Comajoan, 2001; Hasbún, 1995; Salaberry, 2000) used impersonal narratives based on a short movie clip. Camps (2002) investigated the acquisition of the Spanish Imperfect by fifteen English speakers enrolled in a second semester at a US university. The data were collected through five different oral tasks using a combination of impersonal tasks based on discussion of topics or picture-based stories.

It is important to note that most of these studies do not include data from native controls which makes it difficult to set any expectations in terms of what verb types can be elicited and with which frequency by each task type. Furthermore, the researcher does not typically control for the contexts and the range of verb types that can be elicited by an open-ended oral task. However, it has been argued that the type of task does influence the choice of learner forms (see Bonilla, 2013; Comajoan, 2005). For instance, the type of task influenced

the results of use of Imperfect in Camps's (2002) study (but not the Preterit) as learners showed a limited use of Imperfect in the picture-based narratives. Other researchers have argued that personal narratives provide more background which facilitates the use of the Imperfect (Bardovi-Harlig, 2005; Comajoan, 2001, 2005; Liskin-Gasparro, 2000). The type of task can also affect the amount of lexical diversity as film-based narratives, for instance, offer a much higher percentage of achievement verbs than the three other lexical aspect classes (Bardovi-Harlig, 2000).

On the other hand, other researchers are interested in examining the internal and implicit knowledge of the grammar in the mind of a speaker. This knowledge is currently known as "I(nternalized)-language" and it is similar, although not completely identical to linguistic competence (Chomsky, 2005; Hauser et al., 2002). In this framework, I-language, which represents linguistic mental representations, or implicit knowledge, is a different area of study to E(xternalized)-language, which covers aspects of language use. Researchers interested in understanding how relevant features of the L2 grammar are represented in the mind of speakers, collect data through comprehension tasks, grammaticality judgements, acceptability tasks and other carefully-designed tasks. These tasks are used in studies interested in examining L1 effects when acquiring aspectual verbal morphology in a second language. For instance, Slabakova & Montrul (2002) and Montrul & Slabakova (2002, 2003) employed controlled tasks such as a 'Sentence Conjunction Task' to investigate English speakers' understanding of the meanings of the Spanish Imperfect and Preterit. Montrul and Slabakova (2002) asked the participants to evaluate whether two conjoined clauses as shown in (3) are possible together:

- (3) La clase era_{IMP} a las 10 pero empezó_{PRET} a las 10:30
 "The class was at 10 but started at 10:30"

In another study, Gabriele, Martohardjono and McClure (2005) used an interpretation task developed by Klein, Martohardjono and Valian (1999) to test intermediate and advance Japanese learners of English knowledge of the interpretation of activity and change of state verbs in both past progressive and simple past contexts. Learners had to read two sentences such as (4) and (5) and judge whether the second sentence was a possible continuation of the first sentence.

- (4) My niece sang 2 Christmas songs at church. She left church after the first song (incorrect)
- (5) My niece was singing 2 Christmas songs at church. She left church after the first song (correct)

More recently, both offline and online comprehension have been tested in a study by Roberts and Liszka (2013). A self-paced reading task was used to investigate whether German and French L2 speakers of English show sensitivity to tense/aspect mismatches between a fronted temporal adverbial and the inflected verb that follows (e.g. *Last week, James has gone swimming every day). This study is one of the few to apply psycholinguistic research methods to the study of aspect in a second language.

Studies using comprehension data are making an important contribution to our understanding of the role of the L1 in the acquisition of the L2 grammar. However, one limitation of employing such methodology is that the elicited evidence is too specific to test a certain variable and cannot be easily generalised to other learning contexts or to evaluate other variables (see Granger, 2002). Furthermore, there are those who have claimed that comprehension tasks should be combined with carefully designed oral tasks when seeking to examine learners' underlying mental grammars (Duffield & White, 1999; Murphy, 1997). It is interesting to note that the benefits of combining evidence from grammaticality judgments with other experimental methods (including frequency data and corpus data) has already been argued for in other domains (see Bard, Robertson, & Sorace, 1996; Featherston, 2007; Schütze, 1996). On the other hand, we must also acknowledge that 'free' production data, although the closest to authentic learner data, can be difficult to use to test particular hypotheses because discriminatory constructions may be sparse. Although some have advocated the use of combined methodologies (see Salaberry et al., 2013) as a way to resolve this tension, this is not an easy task as any change in the methodology would need to involve changes in the underlying theoretical assumptions as well. For instance, a study which was to include both comprehension and production data would need to answer research questions investigating what learners know about the L2 forms as well as how they use it.

It is easy to agree that research is likely to make more useful contributions when the research methodology employed is carefully designed. The challenge for the field is to be able to establish appropriate protocols in the development and application of research designs which exploit the use of mixed research methods. This was the drive for the creation of the Spanish Learner Language Oral Corpora (a.k.a the 'SPLLOC' project) (see Mitchell et al., 2008) which was developed to implement a new methodological approach to the study of the emergence and development of aspect-related forms by English learners of Spanish. A variety of oral and comprehension tasks which included key discriminatory contexts were carefully developed to provide evidence to test some of the main predictions of leading hypothesis, the Lexical Aspect Hypothesis. Some of the main results arising from this novel research design are discussed in the next section.

3. Using a combined-methods approach to test the predictions of the Lexical Aspect Hypothesis

3.1 The Lexical Aspect Hypothesis

The Lexical Aspect Hypothesis (LAH) (Andersen, 1989, 1991; Andersen & Shirai, 1994; Bardovi-Harlig, 1994; Robinson, 1990) proposes that the emergence and use of tense and aspect morphology in a second language depends on the inherent aspectual (lexical) properties of eventualities.³ A second prediction of this hypothesis is that certain form-meaning associations are preferred in learners' early productions: perfective morphology emerges first with achievements and accomplishments (i.e. telic eventualities), whereas Imperfect morphology emerges first with states and then with activities (i.e. atelic eventualities). With time, the use of each target morpheme spreads to the other lexical classes.

In L2 Spanish, Imperfect is expected to appear after the Preterit. Each of these two forms emerge and develop in a sequence of stages constrained by the lexical-semantic properties of eventualities. This is (partly) based on the assumption that learners associate features which are semantically congruent such as telicity and perfectivity (Andersen, 1993; Andersen & Shirai, 1994; Shirai, 1993, 1995). Some of the main assumptions of the LAH can be summarised in the following five points:

1. Learner and native grammars are fundamentally different: the LAH is proposed as a strategy which learners use as they face a learnability challenge;
2. Similarities and differences between the native and L2 grammars play no role in how learners use the target forms or in understanding the types of problems that these learners face;
3. The focus is on investigating language use, so the interpretation of the forms used by learners is irrelevant;
4. It is aimed to explain the distribution of use of target forms so it cannot account for the status of grammatical representations;
5. Prototypical (grammatical-semantic) pairings (i.e. Preterit-telic and Imperfect-atelic) are prominent in early learner productions and constraint the emergence and development of target forms. This is partly determined by the fact that a similar bias in the use of inflections according to different classes exists in the native input (see Andersen's (1988, 1993) 'Distributional Bias Hypothesis').

3. The Primacy of Aspect Hypothesis (Antinucci & Miller, 1976) argues that children first use (past and present) morphology to mark aspect in their first language. It is based on the observation that English progressive '-ing' emerges first with activity verbs and is never incorrectly overextended to states; the past '-ed' morpheme appears first with telic predicates.

Table 1 shows both prototypical and non-prototypical associations between grammatical and lexical aspect as assumed by the LAH.

Table 1. Prototypical and non-prototypical pairings

Event Type	Prototypical grammatical aspect	Non-prototypical grammatical aspect
Achievements(+telic)	Perfective	Imperfective
Accomplishments(+telic)	Perfective	Imperfective
Activities(–telic)	Imperfective	Perfective
States(–telic)	Imperfective	Perfective

It is important to bear in mind that the LAH only predicts that the use of the target forms is preferred in a particular semantic context (or with certain event types). This implies that the absence of non-prototypical form-meaning associations in oral learner productions should not be taken as evidence that learners are not able of using the correct forms in those contexts.

Using mainly oral or written production data, some evidence corroborating the LAH for L2 Spanish has been found (Bardovi-Harlig & Bergström, 1996; Bardovi-Harlig & Reynolds, 1995; Cadierno, 2000; Camps, 2005; Comajoan, 2006; Hasbún, 1995; Housen, 2002; López-Ortega, 2000; Ramsay, 1990; Salaberry, 1998, 1999). The common pattern that emerges in these studies is that present morphology is first used in past tense contexts; this is followed by a stage in which Preterit is the only past tense morphological marker and it is used with telic (accomplishment and achievements) eventualities only. The Imperfect emerges after the Preterit and it is first used with states and activity verbs (see Hasbún (1995) and Ramsay (1990) for relevant evidence and Comajoan (2005, 2013) for discussion).

However, studies have not always supported the spreading across classes predicted by the LAH (Bergström, 1995; Camps, 2002; González, 2003; Lubbers-Quesada, 1999, 2007; Salaberry, 1998) or that the use of the Preterit is particularly delayed with states (Bergström, 1995; Housen, 1994; Lubbers-Quesada, 1999, 2007; Salaberry, 1998, 1999, 2002); Shirai (2004) also argues that the Imperfect may not be subject to the same stage-like development as the Preterit. Finally, some studies report that the Preterit does not emerge with achievements and it is, in fact, used across lexical classes (Bergström, 1995; Camps, 2002; Comajoan, 2001; Salaberry, 1998, 2000).

The LAH is difficult to test for various reasons. First, lexical aspect is made up by the combination of several lexico-semantic features such as duration, culmination, and delimitation (Smith, 1991; Vendler, 1967; Verkuyl, 1993). Proponents of the LAH have not made it explicit which exact features are problem-

atic for learners at early stages of acquisition. Second, other factors such as the structure of the narrative, the data elicitation procedure and the characteristics of the learners can play a role as well (Andersen, 2002; Bardovi-Harlig, 2000, 2005; Comajoan, 2006, 2013; Giacalone-Ramat, 2002). Third, a number of issues regarding the methodology employed by these studies have been noted as early as Slabakova (2001). For instance, Domínguez et al. (2013) argue that uncontrolled narrative tasks do not provide learners with a chance to use the forms in all contexts, in particular those where grammatical (perfective/imperfective) and lexical aspect (telic/atelic) predict different forms (i.e. non-prototypical contexts). Furthermore, there has been a lack of studies using combined evidence from both production and comprehension tasks.

The next section introduces the SPLLOC project and a discussion of its rationale, goals and main findings to illustrate how a mixed-methods approach can better test the predictions of the LAH.

3.2 Spanish Learner Language Oral Corpora (SPLLOC)

SPLLOC (www.splloc.soton.ac.uk) is an ESRC-funded research project led by researchers at the University of Southampton (UK) which run from 2006 to 2010. The project was developed on the basis of the following six principles (see details in Mitchell et al., 2008):

1. Complete open access
2. Theory-focused
3. Focus on semi-naturalistic oral data
4. Variety of genres (narrative, interview, picture description, peer discussion etc.)
5. Balance of open-ended and focused tasks testing both production and interpretation
6. Variety of learner ages and proficiencies
7. Use of CHILDES procedures (e.g. CLAN and MOR)

The second leg of the project which ran from 2008 to 2010 had two main goals: (a) to create a database of semi-controlled oral L2 Spanish in order to test the validity of the Lexical Aspect Hypothesis with reference to the acquisition of perfective and imperfective forms in L2 Spanish, and (b) to test learner's comprehension of the different semantic meanings associated with the Spanish Imperfect (i.e. habitual, progressive and continuous).

3.2.1 Research design

The data were collected from sixty learner participants at three different levels of proficiency (see Table 2), and fifteen native controls (five in each age group).

Table 2. Participants

Group	Typical age	Hours of instruction (appr.)	Common European Framework
Beginners (Y10) (<i>n</i> = 20)	14–15	200	A2
Intermediates (Y13) (<i>n</i> = 20)	17–18	750	B1–B2
Advanced (UG) (<i>n</i> = 20)	21–23	900	C1

Table 3 shows the details of the three oral tasks developed by the team to test the predictions of the LAH. The tasks included a picture-based impersonal narrative (Cat Story),⁴ a free personal narrative (Interview) and a controlled impersonal narrative (*Las Hermanas*/ the Sisters) specifically designed to include non-prototypical contexts.

Table 3. Details of the three oral impersonal narrative tasks

Task type	Area investigated	Format
Free personal narrative	Emergence and development of past tense forms in naturally occurring contexts	Semi-structured interview
Semi-controlled impersonal narrative	Emergence and development of past tense forms in naturally occurring contexts	<i>Cat Story</i> : picture-based story retell
Controlled impersonal narrative	Emergence and development of past tense forms in non-prototypical contexts	<i>Las Hermanas</i> : picture-based story retell

All the tasks went through a rigorous piloting stage with both native speakers and a group of learners of the same age as our three experimental groups. In the Cat Story, learners had to depict both perfective and imperfective situations based on a series of pictures. Only two written prompts were included: one which provided imperfective contexts (*‘Todas las mañanas eran iguales’* (every morning was the same)) and another one for one-off/perfective contexts (*‘Hasta que un día...’* (until one day...)). In the Interview task, learners were free to talk about their personal lives with an investigator. Some specific questions were used to elicit both the Imperfect (e.g. *‘¿Qué te gustaba hacer de pequeño?’*/What did you

4. Pictures used in the Cat Story were taken with permission from a short story by Jonathan Langley ©Frances Lincoln, 2000.

like to do when you were a child?') and Preterit (e.g. '¿Qué hiciste el fin de semana pasado?/What did you do last weekend?') but no further controls applied. Las Hermanas (The Sisters) was designed to test non-prototypical contexts. Learners also had to narrate a story based on a series of pictures but unlike in the Cate Story, they had to use a set of target verbal predicates which were chosen by the team, these included thirteen telic predicates (achievements and accomplishments) and thirteen atelic predicates (activities and states). There were eight possible situations as each of the four lexical classes appeared in both imperfective and perfective contexts. For instance, learners had to use achievements like *despertarse* (wake up) or *terminar* (finish) in habitual imperfective contexts as shown in Figure 1. Learners also had to use states like *haber* (to have) or *creer* (to think) in perfective (one-time event) contexts which require the use of the Preterit (see Figure 2). These are non-prototypical form-meaning pairings which do not appear frequently in naturally occurring contexts.

Figure 1. Non-prototypical pairings: Telic predicates in imperfective contexts

The oral data were audiorecorded and the soundfiles were transcribed using CHILDES (CHAT) transcription conventions (MacWhinney, 2000). At least two members of the team were involved in checking the accuracy of the transcriptions. CHAT transcripts were tagged and morphologically analysed using MOR and POST routines. The audiofiles, CHAT transcriptions and MOR files are freely available through the project's website.

3.2.2 Results

Figures 3 and 4 show the distribution of use of the Preterit and Imperfect in two impersonal narratives which favour prototypical pairings, the Cat Story and the

Figure 2. Non-prototypical pairings: Atelic predicates in perfective contexts

Interview. These are tasks with minimal manipulation although in the Cat Story two prompts were used as explained in Section 3.2.1. It is interesting that the Preterit-telic and the Imperfect-atelic association expected by the LAH is found in the data of the native controls, indicating that these associations are naturally occurring and feature prominently in the input. A similar pattern is found in the data of the advanced learner group (the UG group), and to some extent in the data of the intermediate learners.

Figure 3. Use of the Preterit across lexical classes in the Cat Story and the Interview

Figure 4 also shows a similar distribution of the Imperfect across the four lexical classes for the native controls and for the advanced group. The intermediate group used the Imperfect with states in both tasks but did not show a preference for activities over the other two (telic) classes in the Cat Story.

Overall, these results show that the Cat Story elicited more Imperfect than the Interview. One possible reason for this is that in this task participants had a chance to describe the daily routine of a cat, an imperfective-habitual context which requires the Imperfect in Spanish. It is important to note that the Cat Story

Figure 4. Use of the Imperfect across lexical classes in the Cat Story and the Interview

also elicited more Imperfect with achievements and accomplishments (telic eventualities) than the Interview.

Next, I discuss some results reported in Domínguez et al. (2013) on the emergence and use of the Imperfect, the form which is particularly challenging for English speakers across the three tasks. The combined results from the Interview and the Cat Story are presented across the four lexical classes. These results (elicited by open-ended tasks) are then compared to the same results obtained by the controlled oral narrative Las Hermanas.

The beginner group shows very little use of the Imperfect except with states (see Figure 5). The use of the Imperfect increases across the lexical classes, from telic and atelic, as expected by the LAH in the case of the intermediate group (Figure 6). This is clearly the case in the results of the advanced group (Figure 7) which shows a high use of the Imperfect with states (59%), a decrease of its use with activities (31%), then accomplishments (15%) and only 7% of use with achievements. Interestingly, this mirrors the pattern of use of the native controls (Figure 8), as the distribution of the Imperfect also seems to be constrained by lexical class (see similar findings in McManus, 2015).⁵

Figure 5. Use of the Imperfect (beginners)

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Figure 6. Use of the Imperfect (intermediates)

Figure 7. Use of the Imperfect (advanced)

Figure 8. Use of the Imperfect (controls)

In contrast, the results obtained by Las Hermanas, the narrative which included discriminatory contexts against the predictions of the LAH, paint a different picture. Although the Imperfect is still preferred with states in this task, the overall use of the Imperfect with telic eventualities (achievements and accomplishments) increases in the data of all groups except for the beginners. For instance, the use of the Imperfect with achievements has increased from 13% to 31% for the intermediate group and from 7% to 35% for the advanced group. This clearly supports the claim that the type of oral narrative has an effect on how much Imperfect is elicited. It also shows that free open-ended tasks favour the use of the Imperfect in atelic contexts, as predicted by the LAH. However, learners can, indeed, use the form with all lexical classes, something which is not easily detected with the data elicited by free open-ended tasks.⁶

The same sixty learner participants and fifteen native controls also completed a sentence-context matching preference task to examine the extent to the state-Imperfect and event-Preterit association revealed by the production data collected by the three tasks just discussed. The comprehension data were also used to investigate whether learners know that the two target forms (Preterit and Imperfect) are appropriately used in some contexts but not in others, something which oral production data cannot reveal on its own.

In this task, learners had to rate the appropriateness of two sentences (one with Imperfect and one with Preterit) in two sets of contexts (perfective and imperfective). A typical perfective context depicted one-time events (i.e. finished actions that only occurred once), whereas imperfective contexts included habitual, continuous and progressive actions. The participants had to rate both the correct and incorrect sentence, and it was expected that they would accept the sentence with the correct form and reject the other sentence. Example (6) illustrates a sample test item where the introductory context represents a habitual action with a stative verb (*ser/to be*).

- (6) When Ana was a child she had a very close friend, Amy, and she liked to spend a lot of time at her house after school.
- a. Ana **estuvo**_{PRET} mucho en casa de Amy al salir del colegio (inappropriate)
“Ana was in Amy’s house a lot after getting off school”
 - b. Ana **estaba**_{IMP} mucho en casa de Amy al salir del colegio (appropriate)
“Ana was in Amy’s house a lot after getting off school”

6. It is important to note that the beginners in this study, secondary school students, are at the earliest possible stages of acquisition of the Imperfect. Still, the fact that in the three tasks the beginners clearly prefer to use the Imperfect seem to suggest that these learners are sensitivity to the [+dynamic] feature carried by states (see details in Domínguez et al., 2013).

The results discussed in Domínguez et al. (2013) indicate that intermediate and advanced learners correctly prefer the Imperfect with states and events in imperfective contexts (Figure 9) which shows that learners know that the Imperfect can be used with both types of eventualities in this context.

Figure 9. Mean ratings of input sentences in imperfective contexts

However, Figure 10 shows that in perfective one-time contexts, the same learners had problem accepting the Preterit (the correct option) over the Imperfect with states but not with events.

Figure 10. Mean ratings of input sentences in perfective contexts

Taking all of the evidence together from both production and comprehension data, Domínguez et al., (2013) argue that the results offer converging evidence against three main predictions of the LAH; first, the Imperfect emerges as early as the Preterit; second, the development pattern of the Imperfect does not reveal an

incremental spread across lexical classes; third, learners' knowledge of how aspect is represented morphologically in Spanish goes well beyond the semantic-form associations predicted by the LAH.

The combined evidence obtained by all of these tasks shows that when learners use the Imperfect mostly with states and activities and Preterit mostly with accomplishments and achievements (as predicted by the LAH), they are not necessarily showing a deficient knowledge of how aspect is represented in Spanish. Learners seem to be behaving like native speakers as the same telic-Preterit and atelic-Imperfect associations are found in both sets of data in the open-ended tasks. Second, the same intermediate and advanced learners can use the Imperfect with telic events and the Preterit with atelic events when given the chance. These contexts are not very frequent in free and open-ended narratives.

4. Discussion and conclusion

Most of the studies which have examined the LAH have either adopted a functional approach seeking to elicit descriptive and naturalistic data or a formal (explanatory) approach with a solid experimental basis to test a number of variables. The main goal of this article was to show that studies which adopt a mixed-methods design are well suited to provide robust evidence for testing leading hypotheses in the study of grammatical aspects of a second language. In particular, I have discussed some results arising from the SPLLOC project regarding the validity of the Lexical Aspect Hypothesis in explaining how English learners of Spanish learn the Preterit and the Imperfect (see Domínguez et al., 2013). A key feature of the design of the corpus is that it includes tasks with different levels of manipulation to elicit the target forms in a wider range of contexts and situations. The results discussed in this paper show that the combination of production and comprehension data elicited through different task types can provide useful evidence to clarify major SLA debates such as whether learners' use of aspect-related forms can be fully accounted for by the LAH. Furthermore, this shows that studies which adopt a mixed-methods approach can solve some of the methodological challenges faced by adopting a single method of data collection. For instance, open-ended oral tasks are improved when they are able to elicit rare form/context pairings by including both free and semi-spontaneous personal and impersonal tasks.

This paper provides further evidence that learner corpora consisting of semi-spontaneous oral data can provide useful evidence regarding learners' grammatical knowledge which is difficult to obtain with tasks which target language use in spontaneous contexts alone. The benefits of using electronic collections

of learner corpora and applying computerised tools to address existing theoretical debates in SLA have already been argued for (Granger, 2002, 2012; Lozano & Mendikoetxea, 2013; Myles, 2005, 2008, 2015; Rankin, 2015). Small-scale learner corpora of this type can be a bridge between frequency-based, descriptive approaches and formal, hypothesis-driven approaches to SLA. In addition, small-scale and semi-spontaneous learner corpora have some of the advantages of large-scale corpora including the facilitation of data sharing among users, the easiness of data manipulation, and the automatization of the data analysis process (Myles, 2005; Tracy-Ventura & Myles, 2015). In contrast to large-scale corpora, smaller learner corpora based on data collected to test a particular hypothesis require a certain manipulation of the data collection method. However, the potential compromise on authenticity and naturalness of the data in this type of corpora is outweighed by the other benefits listed in this section. In the future, it would be useful for researchers interested in large and small-scale learner corpora to share insights on how to develop a methodology which serves different SLA theoretical positions.

To summarise, I have argued that the combination of different research methodological is not only desirable but possible as this has already been successfully applied to the study of the acquisition of aspect in a second language (e.g. the SPLLOC project). It is important that future research pays careful attention to the design of the research methodology adopted and considers all of its benefits and limitations.

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