Can Anglophone learners aurally distinguish between the passé composé and imparfait in French?

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Can Anglophone learners aurally distinguish between the passé composé and imparfait in French?

Rhonda Chung

Anglophone French learners' problems acquiring the *passé composé* (PC; *il a parl/*e/) and *imparfait* (IMP; *il parl/*ɛ/) are well-documented in SLA literature. Explanations range from inadequate pedagogical material to incongruencies in the tense/aspect/modality of both languages. However, can learners actually perceive the acoustic differences inherent in these two constructions? The largest verb group in French (-*ER* verbs) was targeted as it produces regular morphophonemic inflections (/e/ and /ɛ/) when conjugated in the PC and IMP, respectively. However, this /e-ɛ/ distinction has undergone phonological neutralization in certain French variants, resulting in greater production of /e/ over /ɛ/, which may lead to inaccurate L2 perception and production.

A one-shot experiment comprised of four tasks tested whether Anglophone L2 French learners could distinguish between the /e-ɛ/ contrast in: a transcription task of high frequency verbs, two phoneme discrimination tasks of minimal pairs in nonwords and in sentential contexts, and a grammaticality task evaluating lexical bias. All speech samples were judged by speakers of Quebecois French, where the /e-ɛ/ distinction remains contrastive. Results revealed that participants: overwhelmingly transcribed /e/ with greater accuracy than /ɛ/; perceived /e/ better than /ɛ/ in the discrimination tasks for non-words; perceived the IMP where the PC was used (despite the auxiliary in the latter); and demonstrated an aspectual lexical bias in differentiating between the PC and IMP in the grammaticality task. These results suggest that

French learners' inability to aurally perceive the /e-ɛ/ distinction inherent in the PC and IMP may further complicate past tense acquisition.

Key words: L2 perception, passé composé, imparfait, past tense acquisition, Anglophone FSL, Quebecois French, phonological neutralization, epsilon, /e-E/, French mid-vowels, loi de position, Aspect Hypothesis, tense and aspect.

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Vorwärts immer, rückwärts nimmer!

Table of contents

List of Tables

APPENDICES

Chapter One

The *passé composé* (PC) and *imparfait* (IMP) have long been identified as "*pierres d'achoppement"* 'stumbling blocks' (Trescases, 1979, p. 60) for Anglophone French second language (FSL) learners. In most cases, French learners will be introduced to these past tense forms in grammar books and the explanations and descriptions found therein will undoubtedly shape their viewpoints on how to use these forms. To this end, Dansereau (1987) surveyed twelve beginner and intermediate French grammatical texts and found a common thread in how both the PC and IMP were characterized. Three characteristics of the PC surfaced (p. 34-36):

- "...express[ing] events which occurred in the past but are completed at the time of speaking"
- "...used for actions finished in the past"
- "...used for actions finished at the point of reference in the past"

The IMP, on the other hand, was underlined by more continuous actions (p.34-36):

- "...used for an action which takes place in the past without any indication as to when it began or ended'
- "…[for] habitual action"

What seems to emerge from these discourses is that the PC and IMP are shown as opposing past tense forms, whereby the PC describes more stable and complete past events and the IMP describes the continuous nature of these past events. Perhaps, it is for this reason that the PC is commonly aligned with the English simple past, a tense which also underlines completion, and the IMP is often aligned with the English past continuous (Dansereau, 1987; Favrod &

Morrison, 2009; Foley & Hall, 2003; Morton, 1997; Trescases, 1979). In actuality, however, the IMP can be expressed in both the simple past and past continuous (Andrews, 1992; Comrie, 1976; Trescases, 1979), making these French-English alignments not only false, but confusing for learners as they can create difficulty in both the transfer of past-time meaning from the L1 into the L2 for production and, conversely, can make it difficult to derive meaning from the L2 based on L1 constraints.

Despite the problems raised by Dansereau's (1987) thorough analysis of the PC and IMP contrast, almost 30 years later these same descriptions about the PC's 'completion' and the IMP's 'continuity' endure in grammatical texts and, upon close inspection, invoke even more conflicting information (Favrod & Morrison, 2009; Morton, 1997; Poisson-Quinton, Mimran, & Mahéo-Le Codiac, 2007). For example, in Poisson-Quinton, Mimran, and Mahéo-Le Codiac (2007), the PC "…*exprime une action achevée au moment où on parle... exprime aussi une action terminée dans le passé*." ('…expresses a completed action at the moment of speaking... also expresses an action which ended in the past.'; p. 140); whereas, the IMP is used to "…*décrire le 'présent' d'une époque antérieure... planter le décor... ou... exprimer la répétition ou l'habitude*..." ('…describe the 'present' of a previous time, set the scene... or... express repetition or habit…'; p. 138-139). However, is a past "habit" (the IMP) not also an "action which ended in the past" (the PC)? To complicate matters, one grammar text even posits that certain verbs, in this case almost all statives (e.g., *penser* 'to think', *sembler* 'to appear', *savoir* 'to know'), are often used in the IMP, seemingly making a link between a verb's telicity and its past tense form (Favrod & Morrison, 2009). In actuality, any verb can be expressed in the PC or IMP, it all depends on the narrator's perspective of events. These continual faulty links being

drawn between the two languages are sure to complicate learners' acquisition of these two past tense forms.

It would, however, be remiss to posit that grammar books are the only source of learner input. In fact, they could be considered as starting points for language learning and, as learners gain proficiency in the target language, these descriptions may not actually reflect how learner viewpoints of these two past tense forms. The quotations that follow are taken from participants of this current study after they were presented with ten decontextualized sentences where the verb could be conjugated in any tense: past, present or future. In this task, however, they were provided only with the following four options: (1) the PC, (2) the IMP, (3) either the PC or IMP, and (4) neither the PC nor the IMP. After each choice, they were asked to provide a brief justification as to why they felt the selected form best suited the sentence. Since the sentences were decontextualized, they were actually grammatical in either the PC or IMP. Their responses, therefore, provided a window into their metalinguistic knowledge of PC/IMP usage in sentential contexts.

In sentences where the PC was identified as the preferred past tense choice, justifications included:

- "because this happened at a specific time" - P001
- "it [the action] happened once" - P036
- "[action] completed" - P005

In sentences where the IMP was the preferred past tense choice, the justifications included descriptions such as:

- "[action] ongoing" - P005

- “No completed action” - P003
- “Habitual action in the past” - P002
- “it is a description of the situation” - P001

As can be seen, all of these comments seem identical to the descriptions found in Dansereau’s (1987) survey from almost 30 years ago. What is most interesting about these participants is that they are all current Anglophone FSL teachers in the United States who describe themselves as advanced French speakers; therefore, even the most highly-motivated French users appear to cling to these binary descriptions about the PC and IMP. Seen from another perspective, if highly motivated learners with high proficiency skills, like these FSL teachers, seem unable to move past these oversimplified descriptors, how likely is it for learners with less linguistic prowess or motivation to advance in their acquisition of the past tense?

It is not, however, the intent of this study to castigate grammatical texts for not providing an exhaustive array of descriptions of past tense use for French learners. Instead, attention needs to be drawn to the fact that grammatical texts often initiate and assist learners’ metalinguistic analytic skills, and clearly remain important reference tools (Dansereau, 1987; Lightbown & Spada, 2006; Ortega, 2009). When textbooks offer shallow explanations to learners, they may restrain a learner’s ability to progress in the target language despite high-levels of motivation or prolonged use. In effect, what learners think they know about a language, in this case the past tense, may constrain how they produce it and, perhaps, even how they perceive it from the input.

The perception of the PC and IMP in the largest group of French verbs (-*ER* verbs) can, in fact, be said to be characterized by two contrastive mid-vowels: /e/ and /ɛ/. When -*ER* verbs, such as *parler* ‘to talk’, are conjugated in the PC, their past participle is realized as [e] (*parl**é*** – /parle/ ‘talked’). Similarly, for four of the six conjugations of all verbs (not just -*ER* verbs) in the

IMP, the past tense verb is realized as [ɛ] (*parl**ais**, parl**ait**, parl**aient*** - /parlɛ/ 'talked' or 'was talking'). While many grammatical textbooks have underlined the importance of pronunciation matching orthography (Chartrand, Aubin, Blain & Simard, 1999), not all French varieties observe this rule. In fact, the vocalic instability of these two phones has been subject to phonological neutralization in many French variants where /ɛ/ is increasingly becoming realized as /e/, which has created homophony between the two past tense forms as the IMP would be phonetically identical to the past participle of the PC. Therefore, in addition to the already problematic descriptions found in textbooks, FSL learners may be unable to discriminate between PC and IMP in the acoustic signal.

What follows this introduction is a manuscript that looks beyond the scope of pedagogical texts and focuses on the perception of the PC and IMP, particularly how certain phonological aspects may be affecting learners' abilities to identify these two constructions in the aural input. The question being investigated is whether or not Anglophone FSL learners can perceive the phonetic differences that distinguish the PC from the IMP. Since first group verbs (infinitives that end in *-ER*: *parl**er***, 'to talk') account for 90% of all verbs in French and, when conjugated in the PC and IMP, utilize two contrastive phones: /e/ (e.g., *il a parl*/e/, 'he talked') and /ɛ/ (e.g., *il parl*/ɛ/, 'he talked/he was talking'), this vocalic contrast will be the focus of this study. An overview of the nature of this /e-ɛ/ distinction as it currently exists among native Francophone speakers will first be examined; the implications of this vocalic contrast for L2 learners will follow; and lastly, a grammatical and metalinguistic analysis of the PC and IMP, particularly what constitutes successful L2 listening and comprehension, will be discussed. The final section of this manuscript-based thesis will recapitulate some key findings of this study,

consider the implications of training with different French variants, and then conclude with a brief analysis about vowel training and its pedagogical implications.

Chapter Two

The acquisition of the French past tenses *passé composé* (PC) and *imparfait* (IMP) has been a widely recognized source of learner difficulty, particularly among Anglophone French second language (FSL) learners (Andrews, 1992; Dansereau, 1987; Harley, 1992; Trescases, 1979). In fact, Anglophone learners in French immersion settings as high as grade ten have been shown to have an incomplete understanding of the PC/IMP distinction (Harley, 1992). Researchers have presented an array of explanations, ranging from the inadequacies of FSL pedagogical material (Dansereau, 1987), to the incongruous nature of the French and English verbal systems (Andrews, 1992), and to insufficient teacher talk and communicative practice in the classroom (Harley, 1989a). Yet another complicating factor is the notion that an order of acquisition for past tense learning exists, whereby the PC will be acquired before the IMP (Andersen & Shirai, 1994; Izquierdo & Collins, 2008), suggesting that fossilization may occur before either forms are mastered. While all of these factors undoubtedly contribute to learners' lack of understanding of the two forms, there is a more fundamental question that needs to be asked: can Anglophone FSL learners actually perceive the phonetic differences inherent in the PC and IMP?

Focusing on French's largest group of verbs (-*ER* verbs; e.g., *aim**er*** 'to love'), it may be the case that the morphosemantic acoustic cues of the past tense forms go unnoticed by learners due to the unstable realization of the /e-ɛ/ distinction inherent in the PC (i.e., *il a parlé* - [paʀl**e**] 'he talked') and the IMP (i.e., *il parlait* [paʀl**ɛ**] 'he talked/he was talking'). To further investigate this phenomenon, this study will explore six of the most dominant impediments facing Anglophone FSL learners. The first impediment being the neutralization of /ɛ/ into /e/ in certain

French variants and the resulting homophony that has occurred. Next, the word-final position of this /e-ɛ/ contrast in the PC and IMP will be examined as this prosodic context may go unperceived by Anglophone learners. Thirdly, the effect of the lack of correspondence between past tense forms in English and French will be considered. In connection to this negative L1 transfer problem, the seeming inability of L2 learners to identify the semantic boundaries between L1 and L2 verbs will also be considered. Fifthly, the predictions of the Aspect Hypothesis will be examined, especially with regards to its implication that verb telicity may bias L2 verb use. Finally, a look at the inadequacy of pedagogical materials to provide accurate descriptions of the PC and IMP in order to build learners' metalinguistic awareness will also be discussed. As can be seen, L2 learners do not just rely on the acoustic signal when processing their L2. After considering these numerous impediments that FSL learners face acquiring the PC and IMP, and delving more deeply into the nature of the /e-ɛ/ distinction, what will become clear is that these myriad of factors may render the perceptual acoustic system of Anglophone FSL learners ill-equipped to distinguish between these two past tense forms and ultimately impede their acquisition of the PC and IMP.

LITERATURE REVIEW

The Nature of the /e-ɛ/ Distinction

The largest verb group in French is the open class first group verbs: infinitives that end in *-ER* (e.g., *aim**er*** 'to love'). They comprise 90% of all French verbs (Thomas, 2010), making them the most likely type to be encountered in the output by learners and, therefore, crucial to acquire. When *-ER* verbs[1] are conjugated in the PC, which is composed of an auxiliary and past

[1] Note that *être* (to be), the most frequent French verb (Lonsdale & Le Bras, 2009), can also be included in this /e-ɛ/ distinction. The past participle in the PC is: *été* [ete] and in the IMP is: *étais/étais/étaient* [etɛ].

participle, the morphemic inflection of this past participle is realized as [e]: *J'ai aimé* [em**e**] 'I loved'. Contrastively, when conjugated in the IMP, all verbs (not just -*ER* verbs) contain the morphemic inflection [ɛ] for four of its six conjugations: *Je/tu aim**ais**, il/elle/on aim**ait**, ils/elles aim**aient*** [emɛ] – 'I/you, he/she/one, they loved' or 'was/were loving'. Therefore, the past tense construction of -*ER* verbs conjugated in the PC can be said to be represented by the morphological unit [e], and in the IMP by [ɛ] (Charliac & Motron, 1998; Chartrand et al., 2009; Ostiguy & Tousignant, 2008; Price, 2002).

Like other French mid-vowels, /e/ and /ɛ/ are subject to pronunciation constraints as explained by *la loi de position*. When the contrast is found in final open syllable position, it is realized as /e/, and when in closed final syllable position, it is realized as /ɛ/ (Léon & Bhatt, 2005; Walker, 2001). However, in instances where /ɛ/ is found in final open syllable, like in the IMP, the /e-ɛ/distinction is unstable (Léon & Bhatt, 2005). French variants are characterized as either conforming to the constraints imposed by *la loi de position*, and thus realize the vowel as /e/, or they conform to the expectations of orthography, and realize the vowel as /ɛ/ (Walker, 2001). The vocalic opposition between /e-ɛ/ is continually emphasized in grammatical texts, which state that pronunciation should correspond to orthography, and particularly that the morphemic inflections of the IMP (i.e., *-ais/-ait/-aient*) should correspond to /ɛ/ (Brissaud, Fisher & Negro, 2012; Charliac & Motron, 1998; Price, 2002). However, not all varieties of spoken French make this distinction. This instability in the /e-ɛ/ distinction has been subject to phonological neutralization in certain French variants, whereby /ɛ/ has increasingly become phonetically realized as [e] (Landick, 1995), resulting in the IMP becoming homophonous to the past participle of the PC (Brissaud et al., 2012).

In fact, this neutralization of /ɛ/ into /e/ is a well-recorded phenomenon in the speech patterns of European French, particularly in France (Brissaud et al., 2012). A study of two oral corpora from the late 1980s among Parisian native speakers (NSs) reported a notable instability in the /e-ɛ/ opposition output (Landick, 1995). More precisely, a 1973 oral dictionary of French NS usage found that the morphemic inflections of the IMP (i.e., *-ais/-ait/-aient*) were overwhelmingly realized as [e], and the same held true for nominal items such as *frais* 'fresh' and *lait* 'milk' (Lefebvre, 1988). According to the analysis, when the /ɛ/ phoneme was in final open syllable position (i.e., in consonant plus vowel sequences such as [lɛ] in [parlɛ] 'spoke'), it was realized 62% of the time as [e] and 23% of the time as [ɛ] (Lefebvre, 1988). Therefore, regardless of the rules surrounding pronunciation and orthography, the phonological neutralization of /ɛ/ into /e/ has created a situation where [e] is the dominant phonetic realization for both mid-vowels when in final open syllable position.

A study of French NSs from cities in France, Martinique, and Canada (Quebec) builds on Lefebvre (1988) and Landick's (1995) results and found that in regions where the phonemic contrasts between /e/and /ɛ/ were weak or non-existent, speakers displayed a higher tendency to orthographically represent the IMP with the inflectional morphemic ending [e] (Brissaud et al., 2012). In areas where /e/ and /ɛ/ remain phonemically contrastive, like Quebec (Ostiguy and Tousignant, 2008; Santerre, 1976; Walker, 1984), NSs were less likely to make these orthographic mistakes. For example, Quebecois NS participants reported a 1.27% orthographic error rate when transcribing the morphemic inflection *–ait* of the IMP as [e]; whereas their Parisian counterparts reported an error rate of 43.82% (Brissaud et al., 2012).

Given this wide range in NS ability to accurately perceive /e/ and /ɛ/, the question arises: how often does the PC or IMP actually occur in NS output? The results of a corpus study[2] of NSs' oral (150K words) and written (150K words) output found that among the ten most frequent verbs in French, the IMP occurred 74% of the time in the oral corpus and 66% of the time in the written corpus as compared to the PC (Chung, 2014), a finding that does not conform to the generally-held belief that, in most languages, the perfective form (i.e., PC) is the more frequently occurring form compared to the imperfective (i.e., IMP; Comrie, 1976). However, if the IMP is indeed the more frequently occurring form, it does explain why it has become so susceptible to neutralization. Frequently occurring forms are, by nature, produced more, and as such provide more opportunities for sound change, especially when this sound occurs in the same phonetic environment (Bybee, 2001). However, if French NSs have considerably more aural exposure to the IMP ([ɛ]), but the dominant phonetic realization is [e], how do NSs fare when trained on this /e-ɛ/ distinction within different verbal constructions? Despite rigorous training and corrective feedback regarding the homophonous nature of [e] in *-ER* verbs, the experimental group of the David, Guyon, and Brissaud (2006) study not only underperformed in their ability to perceive the IMP ([ɛ]), as compared to the control group, they also made twice as many errors than before the intervention. Although, the researchers were unable to account for this poor perceptual performance, it may be the case that the dominant phonetic presence of [e] in the acoustic stream may have a perceptual effect that is so strong for NSs that the attempt to train them on differentiating between /e/ and /ɛ/ seemed to interfere wholly with their ability to disentangle these mid-vowel phones from the acoustic signal. For those NS of a variant where /e/

[2] Word frequency data, based on corpora studies, have been found to closely match NSs' self-reported use up to the 7K word level (Okamoto, 2015), meaning that corpora studies can be viewed as a reliable source for identifying usage patterns.

and /ɛ/ are non-contrastive in final open syllable (i.e., European French), their link between grammatical form (i.e., IMP) and phonetic realization (i.e., [e]) may represent a strong prototypical schema in their minds as explained by the Distributional Bias Hypothesis: the greater the presence of a particular linguistic item in the input (i.e., [e], rather than [ɛ], for the IMP), the greater the likelihood that this item (i.e., [e]) will become prototypical for its category (i.e., IMP; Wulff, Ellis, Romer, Bardovi-Harlig & Leblanc, 2009).

These studies all underline that the instability inherent in the /e-ɛ/ distinction disrupts NSs' attempt to capture graphically what they have perceived aurally based on their phonological store. Having explored the NS perspective of the /e-ɛ/ distinction, we will now turn to examining the L2 perspective.

L2 Implications of the /e-ɛ/ distinction

Like all inflectional morphemes in French, /e/ and /ɛ/ occur in word-final position. Due to the nature of the metrical system of French, stress falls on the rightmost stressful word or phrase and, when orally produced, can result in a longer length of the phones and a more salient acoustic cue for the listener. However, word-final position is a universally marked position, which can make it difficult for L2 learners to perceive this vocalic distinction (Archibald, 1998; Eckman, 1977).

As mentioned earlier, *-ER* verbs produce regular phonetic patterns when conjugated in the PC (/e/) and IMP (/ɛ/), and this type of morphonological regularity is positively correlated with L2 acquisition (Goldschneider & DeKeyser, 2001). Unfortunately, French inflectional morphology, while semantically rich, is often phonologically poor, which can complicate L2 lexical learning (Brissaud et al., 2012). For example, *je* ***marchais***/*on* ***marchait***/*elles* ***marchaient*** ('I walked/one walked/they walked' or 'I was/one was/they were walking') all have different

inflectional and orthographic forms, yet are phonologically identical. L2 learners must, therefore, associate one morphophoneme [ɛ] with three distinct orthographies: *-ais, -ait, -aient*. Similarly, the morphophoneme [e] in *–ER* verbs corresponds to the infinitive (*parl**er*** 'to talk'), the past participle (*parl**é*** 'talked'), the second person plural of the present (*parl**ez*** 'talk'), and the first person singular of the future simple (*parl**ai*** 'will talk'), demonstrating not only a wide range in orthography, but also in verb tense and semantics. These wide ranges in morphological spelling for one phoneme have been found to be a source of L2 learner difficulty (Terrell, 1986), as they complicate learners' ability to associate one form to one meaning (Goldschneider & DeKeyser, 2001). Harley (1986) found that the "near-homonymity" of the IMP with other morphological endings (e.g., *-er, -ez, -é*) made it difficult for Anglophone FSL immersion students in marking past tense aspect (p.73). Therefore, phonologically decoding these morphophonemes and associating them with distinct orthographies creates a heavy learning burden for L2 learners not only in production of these forms, but also, in their perception.

The identification of L2 items is itself a complex and competitive process that implicates both the L1 and L2 lexica. It is widely contended that the L1 acts as a phonological filter for perceiving the L2 (Bohn, 1995; Flege, 1987; Flege, 1995), meaning that some phonetic aspects of the L2 will not be perceived in a native-like fashion by learners (Thomson, 2011), which can lead to inaccurate perception and processing. In North American English, the closest phonetic realization to /e/ is the vowel and glide [ej] (e.g., day [dej]), making /e/ and /ej/ "similar" phones (Flege, 1987). Anglophone FSL learners should have little difficulty transferring this "similar" /e/ and the native /ɛ/ to their L2 phonological inventory.

Whereas, /ej/ can appear both in open (e.g. pay [pej]) and closed syllables (e.g., paid [pejd]) in English, /ɛ/ appears exclusively in closed syllable position in standard North American

English (e.g., bed [bɛd]; Teschner & Whitley, 2004) and does not appear in word-final position (Yavaş, 2011). Since phonological sequencing is thought to be learned via word parts (Bybee, 2001), the word-final position of the IMP's /ɛ/ constitutes a novel prosodic context for Anglophone FSL learners, one that makes it unlikely for them to perceive this vocalic contrast in the French output (Archibald, 1998; Eckman, 1977). Despite the fact that vowels are the most sonorous phones (O'Grady & Archibald, 2010; Yavaş, 2011), this unusual lexical position for /ɛ/ may engender a lack of perceptual salience—an identified factor that favours morphophonemic L2 acquisition (Goldschneider & DeKeyser, 2001). Given the absence of such cues, the instability of the /ɛ/ phone, and its marked position, Anglophone learners may be hard-pressed to perceive this /e-ɛ/ distinction in their L2, particularly in word-final position.

Several impediments to the perception of the /e-ɛ/ distinction have been provided from both an L1 and L2 perspective, but what are some factors that constitute successful L2 perception? If we consider that successful perception is a by-product of successful listening, then Vandergrift and Goh (2012) underline cognitive factors, like vocabulary knowledge and metacognition, which contribute to accurate L2 perception and listening, which we will now explore.

Successful L2 Listening

Vocabulary knowledge

Vocabulary has been identified as the most important component of L2 comprehension by learners (Vandergrift & Goh, 2012). However, what are the implications of such a notion when the target language and the first language share lexical components—does this serve to aid or hinder L2 perceptions?

Gachelin (1990) once quipped that perhaps English was a Romance language since its lexical content is primarily Latinate in origin. Indeed, French is the largest contributor to English's lexical inventory (Pyles & Algeo, 1982), but what appears as a vocabulary advantage for Anglophone FSL learners may, in fact, complicate L2 learning if the semantic boundaries of each language are not observed. Lexical items, specifically verbs (Altenberg & Granger, 2001), rarely share identical semantic boundaries in both the L1 and L2 (Granger, 1996; O'Grady & Archibald, 2010); yet searching for L1-L2 verbal congruency is exactly the strategy that many L2 learners employ (Harley, 1989b; Harley & King, 1989; Kellerman, 1985).

Vocabulary richness (large vocabulary size) and variety (high type/token ratio) have been identified as the paramount factors for making advancements in L2 proficiency (Laufer, 1994; Laufer & Nation, 1995; Nation, 2013; Vandergrift & Goh, 2012). However, studies have found that the most frequently occurring verbs in a given language are overused by learners, and the full range of semantic boundaries are difficult to acquire by even the most adept of L2 learners (Altenberg & Granger, 2001; Harley & King, 1989; Lennon, 1996; Ringbom, 1998). In fact, Schmitt (1998) found that even after a year of extensively training non-native speaker (NNS) participants on only 11 lexical items, they were unable to recall many learned semantic features. Laufer (1994) equally found that even after a year of L2 use, highly proficient NNSs made minimal gains in L2 lexical richness and none in lexical variation. As can be seen, whatever advantages that might be gained from English and French's shared etymology are tempered by the lack of vocabulary richness and variety that L2 learners consistently exhibit at all proficiency levels, thus complicating L2 processing and, perhaps, even perception.

Verb knowledge

Within the lexical inventory of any given language, verbs account for approximately 20% of vocabulary (Lonsdale & Le Bras, 2009) and are considered the most fundamental part of any syntactic string as they confer information about a sentence's semantic and temporal properties (Almeida & Manouilidou, 2015; Harley, 1986). Additionally, verbs assist in the parsing of incoming information into "event segments" (Malaia, Gonzalez-Castillo, Weber-Fox, Talavange & Wilbur, 2015), which allow speakers to compartmentalize their speech into analyzable events. Verb acquisition is, therefore, crucial for L2 communication

While French and English share a common perception of the division of time (future[3], present, and past), neither the PC nor IMP correspond perfectly to any one past tense in English (Andrews, 1992; Morton, 1997; Trescases, 1979). Excluding the use of the historical present, English has at least six unique past tense forms (Foley & Hall, 2003):

1. Simple past: I walked.
2. Past continuous: I was walking.
3. Past perfect: I had walked.
4. Past perfect continuous: I had been walking.[4]
5. Habitual aspect: I used to walk.
6. Habitual aspect: I would walk.

Anglophone FSL learners must corral these six past tense forms into one[5] French mood: the indicative. The past indicative mood employs two aspectual properties: the perfective aspect (i.e.,

[3] For prescriptive grammarians, the future is not considered a "tense" due to its lack of inflectional morpheme and its use of a modal in its construction (Celce-Murcia & Larsen-Freeman, 1999). The aim of this study is not to dispute such claims, but to make reference only to how time may be perceived by language learners.

[4] Note that the past perfect continuous is often associated with the *plus-que-parfait* in French (Morton, 1997). However, this form can, in fact, be translated into French using the IMP: *Je l'attendais depuis 18 h 30* 'I had been waiting for her since 6:30 P.M.'.

[5] The French simple past (*passé simple*) is excluded from this analysis as it is used almost exclusively for literary purposes and is rarely used in casual oral discourse. The *plus-que-parfait* is also excluded from analysis as it tends to be learned after the PC and IMP and, most importantly, requires knowledge of composed forms as found in the

the PC), which characterizes an event as a whole, and the imperfective aspect (i.e., the IMP), which attempts to characterize an event from within a certain timeframe (Andrews, 1992; Comrie, 1976; Li & Shirai, 2000). The English simple past is often translated by grammatical texts using the PC and the IMP is often translated by the English past progressive (Andrews, 1992; Dansereau, 1987; Morton, 1997). However, the English simple can actually be expressed both in the perfective (PC) and imperfective (IMP), depending on the intention of the narrator (Andrews, 1992; Comrie, 1976; Trescases, 1979). This overlapping of the English simple past form for both the PC and IMP can lead to learner difficulty both in transferring meaning from the L1 into the L2 during production and in deriving meaning from the L2 based on L1 constraints. Therefore, when it comes to how learners acquire FSL past tense forms, learners are not simply learning new vocabulary, they are re-evaluating a verb's entire argument structure. The perfective (PC), however, is the form that Anglophones tend to overuse even in obligatory IMP contexts (Howard, 2004; Izquierdo & Collins, 2008), perhaps because it is considered the unmarked and more frequently occurring past tense form (Comrie, 1976).

This seeming preference for the PC over the IMP is, in fact, the first prediction of the Aspect Hypothesis, a theory which attempts to characterize how the lexical aspect[6] of a verb will influence a speakers' language development. The second prediction states that past tense acquisition will occur first with telic verbs (verbs with inherent endpoints: *sang* a song, *made* a chair) and the final prediction states that learners will acquire the IMP last, and will do so using atelic verbs (verbs that tend to be more continuous in nature), particularly statives (e.g., Charlotte *had* three sisters.) (Andersen & Shirai, 1994; Izquierdo & Collins, 2008; Malaia et al., 2015).

PC (auxiliary + PP) and the IMP (its auxiliary is conjugated in the IMP). Moreover, as seen in a previous footnote, it can be avoided by using the IMP.

[6] Lexical aspect refers to "the inherent temporal makeup of verbs" and can describe properties inherent in a verb like its duration and punctuality (Bardovi-Harlig, 2000, p.193).

This Hypothesis puts Anglophone FSL learners in a seemingly precarious grammatical predicament whereby telic verbs seem destined to being expressed in the PC and atelics in the IMP. Because of the Aspect Hypothesis' telicity-based predilection for L2 past tense use, learners may perceptually gloss over or wholly ignore telics when they are orally expressed in the IMP (or atelics when expressed in the PC) as these constructions would not fit their lexicosemantic categories.

Perception of the PC and IMP

Beyond this lack of verbal symmetry between the two languages, there exists an obvious structural difference between the PC and IMP. The PC distinguishes itself from the IMP by its use of an auxiliary, something that FSL learners have relied upon when making distinctions between the two forms in the oral output (Harley, 1992). Unfortunately, some FSL learners regard contracted subject pronouns, like *j'ai* [ʒe] (the first person singular conjugation of *avoir* 'to have'--an auxiliary of the PC), not as a pronoun and auxiliary, but as a whole chunk corresponding to the English pronoun "I" (Harley, 1992). This may be because clitic elements, such as *j'ai* 'I have', tend to be unstressed and not acoustically salient, thus making them less perceptible, especially in the context of conversations (Goldman, Auchlin, Roekhaut, Simon & Avanzi, 2010). Another complicating factor is that Francophones tend to assimilate subject and verb forms into a single unit in the oral output, which reduces the saliency of the PC's auxiliaries. For example, the second person singular conjugation of *être* (another auxiliary of the PC), *tu es* 'you are', is often produced as *t'es* [te] or [tɛ] (van Compernolle & Pierozak, 1993). Therefore, if the PC's auxiliary cannot be consistently relied upon to differentiate it from the IMP, then the sole remaining acoustic indicator is the word-final morphemic vocalic contrast of /e/ and /ɛ/. Unfortunately, morphological learning tends to occur in the later stages of L2

vocabulary acquisition, when many words may have already become fossilized (Schmitt & Zimmerman, 2002). This suggests that L2 learners may have semantic knowledge of a verb, but do not always possess knowledge of its full range of inflections and derivations to use it with syntactic precision, which may, in turn, negatively affect their L2 perception.

Metacognition and the inadequacy of pedagogical materials

French grammar texts seem like a logical way to instill morphological rule learning in learners, while simultaneously divesting them of the L1 lexical bias predicted by the Aspect Hypothesis. In fact, over time, language learners can expect to have built an impressive network of declarative L2 grammatical knowledge (Lightbown & Spada, 2006). This accumulated knowledge is part of what Vandergrift and Goh (2012) term, metacognition, or the ability of an individual to reflect upon his/her information processing. The specific ability to analyze language as an object independent of its meaning has been referred to as metalinguistic awareness (Lightbown & Spada, 2006), which can be considered part of the background knowledge and schemata that learners use during L2 processing (Celce-Murcia, Brinton, Goodwin & Griner, 2012). Despite the fact that some inconsistencies have surfaced with regards to metalinguistic awareness as a correlate of L2 proficiency (Alderson, Clapham & Steel, 1997; Gutiérrez, 2013), it has been generally accepted that the awareness of a linguistic form has a positive effect on learner competence (Hawkins, 1984; Ortega, 2009), a finding corroborated by the many studies cited by Renou (2001). However, FSL grammar books have been found to provide oversimplified and often contrary descriptions of PC/IMP usage (Dansereau, 1987; Favrod & Morrison, 2009; Morton, 1997; Poisson-Quinton et al., 2007), meaning that learners would be not only be ill-equipped to build robust L2 metalinguistic awareness skills, it may produce an opposite effect. Shallow explanations from trusted grammatical sources may

complicate FSL learners' ability to produce grammatical past tense sentences, which in turn could inhibit L2 proficiency and, perhaps, have a negative effect on how L2 learners perceive the PC and IMP from the input. However, the extent to which a lack of L2 metalinguistic awareness may impact the aural perception of a problematic language item, like the PC and IMP, appears to be rather scant in the SLA literature, and thus will be an area of consideration in this study.

Thus far, the Lefebvre (1988), Landick (1995), and Brissaud et al. (2012) studies have all demonstrated the extent to which the /e-ɛ/ distinction has been examined in European French (particularly France) among NSs. The studies indicate that the neutralization of /ɛ/ into /e/ has played a negative role in certain French NSs' ability to differentiate between the two phones in various verbal constructions of *-ER* verbs, with the exception of those speakers whose variants have resisted neutralization (e.g., the Quebec variety). As Ostiguy and Tousignant (2008) state: "*Aucune étude, à notre connaissance, ne s'est vraiment intéressée à ce cas* [/e-ɛ/] *de variation"* (p. 90) 'No study, to our knowledge, has examined this type (/e-ɛ/) of variation.' in Quebec French. This study, therefore, aims at addressing this gap in the /e-ɛ/ distinction using the Quebec French variant as its linguistic object of analysis, but from a second language perspective. With the lack of acoustic reliability of the PC's auxiliaries and with morphological accuracy taking place in the later stages of L2 acquisition, this continuous weakening of the /e-ɛ/ morphophonological distinction makes the question all the more pressing as to whether or not Anglophone FSL learners can indeed aurally discriminate between the PC and IMP.

In sum, there appears to be six dominant impediments that Anglophone FSL learners face in their acquisition of the PC and IMP: the first being the neutralization of /ɛ/ into /e/, which has led to /e/ becoming the dominant phone in the output for past tense forms and has created homophony between the IMP and PC; secondly, the marked word-final position of /ɛ/, which

constitutes a novel prosodic context for Anglophones, may go unperceived by FSL learners; thirdly, the lack of correspondence between the English and French past tenses may constrain learners' ability to derive meaning from the L2; fourthly, the inability of L2 learners to identify the semantic boundaries of L1 and L2 verbs, and an overall lack of L2 lexical richness and variety may hinder L2 proficiency; fifthly, the predictions of the Aspect Hypothesis, which state that the telicity of verbs, as informed by learners' L1, may bias L2 use; and finally the inadequacy of pedagogical materials to provide accurate descriptions of the PC and IMP may inhibit learners from building robust representations of these two past forms and developing strong metalinguistic awareness. Undoubtedly, all of these impediments interact with one another and complicate the acquisition of the PC and IMP for Anglophone FSL learners. As a result, the forthcoming research questions were designed to both address and disambiguate these overlapping factors regarding past tense acquisition by learners.

Research Questions and Hypotheses

This study attempts to address the gap with respect to the perception of the /e-ɛ/ distinction among Anglophone French second language learners. Considering the six dominant impediments that Anglophone FSL learners face in their acquisition of the PC and IMP, four tasks were created, each aimed at answering the following research questions:

1. Can Anglophone FSL learners detect the /e-ɛ/ vocalic contrasts:
    a) in various lexical positions of French non-words?
    b) in the most frequently occurring *-ER* verbs?
    c) within sentential contexts that include nouns and verbs?
2. Are Anglophone FSL learners affected by a lexical bias when problem-solving for past tense sentences in their L2?

Concerning question RQ1(a), non-words were used to eliminate the effects of input frequency (see forthcoming Task Descriptions for further details). It is hypothesized that participants will be better able to perceive the /e-ɛ/ contrast when it appears in word-final position as this position has certain perceptual advantages in the processing system and is in a privileged phonological position in French as the head of a foot (or a stressed syllable) (Alderete, 1995; Beckman, 1997).

For question RQ1(b), it is hypothesized that participants will be better able to perceive the high frequency verbs with word-final [e] than [ɛ] due to two factors: the higher frequency of [e] over [ɛ] in the NS French output and the L1 similarity to [ej] in word-final position (Flege, 1987; Thomson, 2011).

Finally, for question RQ1(c), since the target sentences were designed to be grammatical regardless of which minimal pair was used, it is hypothesized that participants will be better able to perceive the nouns and verbs with a word-final [e] over [ɛ], again due to the former being the more dominant phone in the French output and due to its close resemblance to the word-final [ej] found in most varieties of English (Flege, 1987; Thomson, 2011). Additionally, by having minimized the acoustic saliency of the PC's auxiliary for the past tense minimal pairs (see Task descriptions for Task 3ii for more details), it is hypothesized that participants will demonstrate an L1 bias when aurally discriminating between verbs conjugated in the PC and IMP in accordance with the Aspect Hypothesis. Given the correlation between metalinguistic awareness and L2 proficiency (Renou, 2001), learners' aural perceptions may be influenced by their knowledge, or in this case their lack thereof, of PC/IMP usage.

It is hypothesized for RQ2 that participants will exhibit a lexical bias by choosing the PC for telic verbs and the IMP for atelics, in accordance with the Aspect Hypothesis and other

similarly motivated FSL studies (Andersen & Shirai, 1994; Izquierdo & Collins, 2008). The data from this task will then be used to inform the results from Task 3ii (or RQ1(c)) to reveal if a lexically-driven L1 bias, one which would denote a low metalinguistic awareness of past tense usage, has any effect on learners' ability to perceive the /e-ɛ/ distinction in their L2 when found in sentential contexts.

METHODOLOGY

Participants

A random sampling of 59 native English speakers; 39 were female and 20 male[7]. Twenty-nine participants were between 18 to 35 years of age, 27 participants were between 36 to 55 years of age, and three participants were 56 years of age or older. With the exception of nine participants, all reported having completed a minimum of an undergraduate degree. More than half of the participants (n=30) reported having learned French outside of Quebec, including the province of Ontario in Canada, France, Switzerland, and the United States. More than 81% of participants self-reported an intermediate (n=25) or advanced/native-like (n=23) proficiency, and the remainder claimed to have only basic skills in the language. Since the objective of this study was to ascertain whether or not FSL learners as a whole could perceive the /e- ɛ/ contrast, diverse FSL training regions and proficiency levels were sought to observe if any of these factors affected perception; a more stratified sampling, by contrast, may have inhibited such observations. Most participants (n=47 or 79.6%) claimed to use French every day or a few times per week, while the remaining participants stated they hardly ever used the language. Finally, more than 91% of participants (n=54) reported having 5 years or more of experience with French

[7] Eighty-one participants completed task one, but only 59 participants completed all required tasks for this study.

as a second language (40 participants had 10 years or more of experience), and all participants claimed to have minimal knowledge of a third language[8].

Task descriptions and relation to the research questions

Participants completed four tasks remotely via a web-based application (see Procedure for how the study was conducted). These tasks included: 1) a phoneme discrimination task using non-words; 2) a transcription task of the most frequent *-ER* verbs in French; 3) a phoneme discrimination task using nominal and verbal minimal pairs in sentential contexts; and 4) a grammaticality task to investigate the degree of L1 transfer bias in past tense sentences based on the lexical aspect of verbs.

RQ1(a): Task 1 – Phoneme discrimination task: non-words

Ten pairs of non-words, all conforming to the phonotactic constraints of French, were recorded (see Appendix A). Non-words ensured that participants had no prior experience with the lexical items. Each pair contained the /e-ɛ/ contrast in either word-initial (e.g., ***ai****gline* - ***é****gline*), word-medial (e.g., *macrod****é****tique* - *macrod****e****ttique*), or word-final positions (e.g., *drais****é*** - *drais****ait***) to investigate if one lexical position favoured L2 perception. For each question, participants clicked on an audio hyperlink and heard a pair of words. They were instructed to choose whether the words sounded the same or different. The results will reveal how well participants can aurally discriminate between the /e-ɛ/ contrast in different lexical positions and what position might favour, or hinder, such perception for novel lexical items.

[8] All participants who reported having knowledge of a third language with a proficiency of intermediate or higher were eliminated from the study. Only those participants who claimed to have minimal knowledge of a third language where the /e-ɛ/ was not present in the language (e.g., Spanish) were retained for the study.

RQ1(b): Task 2 – Transcription task: high frequency verbs

Ten of the most frequently occurring verbs in French (Lonsdale & Le Bras, 2009) were recorded: four were conjugated with a morphemic [e] (e.g., *porté* [pɔʁte]); four with a morphemic [ɛ] (e.g., *étais* [etɛ]); and two were distractors (e.g., *peuvent* [pøv]; see Appendix B). Due to the frequency of these verbs in the language, it is likely that all participants will have had high exposure to them and, therefore, well-formed acoustic perceptual systems for their various inflections (Bybee, 2001; Goldschneider & DeKeyser, 2001). For each question, participants: clicked on an audio hyperlink, heard a conjugated verb, and were asked to transcribe the verb they heard using standard French orthography (an exhaustive list of French accents, from which to copy and paste into the response box, was provided)[9]. Results will demonstrate if multiple exposures to a lexical item increase the chances of a more accurate perception and, if so, for which phone.

RQ1(c): Task 3 – Sentential phoneme discrimination task: minimal pairs

Twenty sentences of minimal pairs (five nouns; five non-past tense verbs; ten past tense verbs) were recorded, with each pair containing the /e-ɛ/ contrast (see Appendix C). All sentences were grammatical regardless of which item from the pair was chosen, meaning that participants could not simply semantically problem-solve for each sentence--they had to rely on the acoustic cue to determine which item they heard. Participants were presented with a sentence that contained a minimal pair and, based on the audio clip, chose what item they heard (e.g., *Je ne trouve pas l'intérêt de ce* ***pré/prêt*** 'I don't see the interest of this **meadow/loan**.'). To ascertain whether or not Anglophone FSL learners could differentiate between the [e] and [ɛ] phones within lexical items of different word classes, three categories of words were created:

[9] All verbs ending in [e] (e.g., [pɔʁte]) can be transcribed as: *port**é**, port**ez*** or *port**er***.
All verbs ending in [ɛ] (e.g., [etɛ]) can be transcribed as: *ét**ais**, ét**ait**, ét**aient***.

Task 3i – Minimal pairs: nominal and non-past tense verbs

Category 1 - nouns: All nouns were monosyllabic and occurred in sentence-final position, giving the vocalic distinction a longer length and more salient acoustic cue for the listener: *Je ne trouve pas l'intérêt de ce **pré/prêt***.

Category 2 - verbs (simple future and present conditional): These verbs were conjugated in the first person (e.g., *mangerai* [mɑ̃ʒeRe] 'will eat'; *mangerais* [mɑ̃ʒeRɛ] 'would eat') and occurred in sentence-medial position, thus compromising vocalic length due to the co-articulation of other lexical units: *Ces tartes ont l'air délicieuses! Je les **mangerai/mangerais** toutes* 'These pies look delicious. I **will/would eat** them all.'

The sentential contexts provide maximum semantic support and will test whether this contributes to a more accurate perception of the vowels. In addition to this, word category has been shown to be processed differently by language users (Fernández & Cairns, 2011), and the results from Task 3i will show whether one lexical category was perceived better and equally, which phone was perceived better.

Task 3ii – Minimal pairs: past tense verbs (PC/IMP)

Category 3 - verbs (PC and IMP): As discussed earlier, the past participle of *-ER* verbs in the PC is realized as [e] and for four of the six morphemic inflections of the IMP are realized as [ɛ]. All pronouns/subjects had a word-final vowel and were followed by a verb that also began with a vowel, creating an *enchaînement vocalique*[10] between subject and verb. The resulting synalephic production of the vowel would not only make it difficult to perceive where the subject ends and the verb begins, but would also decrease the acoustic saliency of the PC's

[10] The majority of syllables in French are open, resulting in many instances of "*enchaînement vocalique*"—where one words ends in a vowel and the following word begins with a vowel. The pronunciation tendency is to move from one vowel to another without audible interruption. In cases where the vowels are identical, the speaker may choose to alter the tone of his/her voice (Charliac & Motron, 1998, p.14).

auxiliary: *Quand Andréa **a été/était*** [ete/etɛ] *malade, il l'a beaucoup aidée* 'When Andréa **was** sick, he helped her a lot.' With the subject ending in a vowel (*Andréa)* and the auxiliary (*a*) being a vowel, the concatenation of the two forms leaves only the past participle ([ete] - *été*) as the acoustic signal for the target verb. If, however, participants are tempted to semantically problem-solve for these targets rather than listen for the acoustic cue, then the results from Task 4 (the Grammaticality test) would confer some evidence as to how strong this L1 bias is. Since the Aspect Hypothesis (Shirai & Andersen, 1994; Izquierdo & Collins, 2008) predicts that Anglophone FSL learners are more likely to associate the PC with telic verbs and the IMP with atelics, all telics were recorded in the IMP and atelic verbs were recorded in the PC—thus, the opposite of the Aspect Hypothesis' prediction. For example, the atelic/stative verb (*être* 'to be') most likely to be used in the IMP by Anglophones was recorded in the PC (*a été* 'was'). Reversing the expected telicity of the verbs was a means of eliminating an attested L1 bias factor that might interfere with perception of the vocalic contrast. The Grammaticality test, therefore, serves to tease apart the constraints that the L1 often has on L2 acquisition and, perhaps, even on L2 perception. These results will serve to provide a window into learners' metalinguistic awareness of PC/IMP usage to investigate what role it might play in the perception of this vocalic contrast. For this reason, the results from Task 3ii can only be analyzed after the results from Task 4 (the Grammaticality test) are provided.

RQ2: Task 4 – Grammaticality test

Ten sentences were created to test whether or not L1 bias played a role in L2 perception (see Appendix D). The sentences were constructed without any temporal context, meaning that they were grammatical whether the verb was conjugated in the future, present, or past tenses; however, the provided responses were limited to the past tense forms only (i.e., the PC and IMP).

For each sentence presented, the verb was removed, and participants were asked to indicate whether the verb should be conjugated in the: a) PC; b) IMP; c) either the PC or IMP; or d) neither the PC nor the IMP. Participants were asked to provide a brief explanation for their responses. Since the sentences were grammatical whether conjugated in the PC or IMP, the correct response for all target items was: c) either the PC or IMP. All telic and atelic verbs were sourced from *The Grammar Book* (Celce-Murcia & Larsen-Freeman, 1999). Results will demonstrate whether the predictions of the Aspect Hypothesis (i.e., that participants will choose the PC for telic verbs and the IMP for atelics due to an L1 bias) played a role in the grammatical choices of the Anglophone participants, and the data will be used to analyze the results of Task 3ii – sentential phoneme discrimination of past tense minimal pairs.

As can be seen, the /e-ɛ/ distinction occurs in many other contexts outside of *-ER* verbs in the PC and IMP; it affects lexical units in other word classes (i.e. nouns) and has morphosemantic consequences for other verb types (i.e. conditionals and the future), thus giving these contrasting vowels a fairly high functional load. Since L2 learners use more than just the acoustic signal when processing their L2 (Celce-Murcia, Brinton, Goodwin & Griner, 2012; Lightbown & Spada, 2006), a Grammaticality test was added to control for this factor.

Procedure

All participants were recruited from various online groups (e.g., Anglophone French teachers in the U.S, language learning groups, etc.) based in one social media site. All tasks were created using a web-based survey tool allowing respondents to complete the study remotely. All instructions were written in English. For each of the four tasks, only one question was displayed on the screen at a time, and only after participants had clicked on their choice, could they advance to the next survey question. Tasks involving audio clips contained a hyperlink in each

question, which opened in a separate window to an online audio content distribution platform. Participants were instructed to wear headphones and listen to the audio clip only once before answering each question. Each target item was voiced only once in the audio clip. All audio clips were recorded by a male French native speaker, who makes the /e-ɛ/ distinction, using a conversational tone as any attempt to make the speech more clear could slow the speech rate, compromising articulation rates and segment duration, thus resulting in an inaccurate vocalic production (Lam, Tjaden & Wilding, 2012). Additionally, a conversational tone more accurately reflects the acoustically unstable nature of the speech signal that learners are often faced with in their L2 environment. Two Quebecois French native speakers judged the audio clips and, where 100% agreement was not found, the target items were re-recorded until full agreement was achieved.

RESULTS

Task 1 – Phoneme discrimination task: non-words

In this task, participants listened to ten recordings of French non-word pairs where the /e-ɛ/ contrast appeared in different lexical positions (i.e., word-initially, word-medially or word-finally) and were asked whether these words sounded the same or not. A one-way within subjects (or repeated measures) ANOVA was conducted to compare the effect of lexical position on perception of the /e-ɛ/ contrast. No significance ($p=0.69$) for lexical position was found. Therefore, regardless of where the vocalic contrast appeared (see Table 1), be it word-initially ($M=20.34$, $SD=30.96$), word-medially ($M=16.95$, $SD=28.78$) or word-finally ($M=25.42$, $SD=33.95$), participants demonstrated an inability to perceive the /e-ɛ/ contrast.

Table 1. *Perception of vocalic contrast in non-words, in different lexical positions*

Lexical Position	Mean (%)	SD (%)
Word-initial	20.34	30.96
Word-medial	16.95	28.78
Word-final	25.42	33.95

Task 2 – Transcription task: high frequency verbs

Participants listened to ten recordings of the most frequently occurring *-ER* verbs and were asked to transcribe the conjugated verb that they heard. A paired-samples t-test was conducted to compare the perception of /e/ and /ɛ/. There was a significant difference in the scores for /e/ (M=93.22, SD=17.88) and for /ɛ/ (M=33.05, SD=37.28) conditions; t(58)= 10.986, p=0.000 (see Table 2). These results indicate that participants transcribed verbs with word-final /e/ (e.g., *portez* [pɔʀte]) with greater accuracy than verbs with word-final /ɛ/ (e.g., *étais* [et**ɛ**]).

Table 2. *Perception of /e/ and /ɛ/ in word-final position in the ten most frequent -ER verbs in French*

High Frequency Verbs	Mean (%)	SD (%)
/e/	93.22	17.88
/ɛ/	33.05	37.28

Task 3 – Sentential phoneme discrimination task: minimal pairs

Task 3i – Minimal pairs: nominal and non-past tense verbs

For this task, participants were presented with ten recorded sentences: five sentences contained nominal minimal pairs and five contained non-past tense verb minimal pairs. Participants were asked to choose what noun (e.g., *Je ne trouve pas l'intérêt de ce* ***pré/prêt***. 'I

don't see the interest of this meadow/loan.') or verb (e.g., *À un prix plus bas, je le* ***prendrai/prendrais***. 'At a lower price, I will/would buy it.') they heard. A paired-samples t-test was conducted to compare the perception of /e/ and of /ɛ/. A one-way within subjects (or repeated measures) ANOVA was conducted to compare the effect of lexical type (i.e., nouns and present conditional/simple future verbs) on perception of the /e-ɛ/ contrast in sentential contexts. There was not a significant effect for the perception of /e/ or /ɛ/ for nouns (Wilks' Lambda= 0.98, F (1.0,58.0) = 0.97, p=0.33) or for non-past tense verbs (Wilks' Lambda= 1.0, F (1.0,58.0) = 0.01, p=0.91). The results for the sentential phoneme discrimination task are provided in Table 3. These results suggest that when the vocalic contrast occurs in word-final position, regardless of lexical type, be it a noun (e.g., *pré/prêt* [pʀe/pʀɛ]) or a non-past tense verb (e.g., *prendrai/prendrais* [pʀɑ̃dʀe/ pʀɑ̃dʀɛ]), lexical category did not play a role in favouring the perception of either /e/ or /ɛ/.

Table 3. *Perception of word-final /e/ and /ɛ/ in nouns and non-past tense verbs*

Lexical category	Mean (%)	SD (%)
Noun /e/	50.85	34.10
Noun /ɛ/	56.50	24.96
Non-past tense verb /e/	54.24	34.41
Non-past tense verb / ɛ/	53.39	36.98

Task 4 – Grammaticality test

Participants were presented with ten decontextualized sentences with the verb missing and were given four options to choose from: (1) the PC, (2) the IMP, (3) either the PC or IMP,

and (4) neither the PC nor the IMP. The Grammaticality test was designed to reveal: i) whether participants could accept the sentences as grammatical in both the PC and IMP, and ii) to what extent they demonstrated a lexical aspect bias in choosing the PC or IMP, based on the verb's telicity. The goal of this task, therefore, was to better understand the nature of learners' lexical bias for these ten sentences, and descriptive statistics were adopted for the establishment of means and standard deviations to this end.

With regards to the first point, two (3.39%) of the 59 participants accepted five of the ten sentences as grammatical in either the PC or IMP form. The vast majority of participants (89.83%) responded that only three to zero of the ten sentences were grammatical using either the PC or IMP, demonstrating low metalinguistic awareness of PC/IMP usage for this task.

With regards to the second point, participants selected the PC (M=41.53, SD=32.37) and IMP (M=37.80; SD=29.53) almost equally in their responses for the ten sentences. However, once the verbs were analyzed according to their telicity, major differences in past tense preference appeared: telics were highly rated as candidates for PC use alone (M=70.51, SD=13.00) and atelics were rated as plausible in the IMP alone (M=64.41, SD=10.45), indicating a correlation between telicity and lexical bias. In connection to this, few participants rated telics (M=12.54, SD=6.84) and atelics (M=15.59, SD=5.67) as grammatically plausible in both the PC and IMP forms, again underscoring the strength of their lexical bias and also their weak metalinguistic awareness.

Focusing more closely on telic verbs, the verbs *briser* 'to break' and *renverser* 'to run over' showed the greatest lexical bias as participants responded 83.05% of the time that they should be conjugated in the PC alone. The verbs *s'installer* 'to settle oneself' and *se parler* 'to talk to one another' received somewhat high ratings (11.86%) for "neither" (i.e., participants

believed that neither the PC nor the IMP were possible choices to complete the sentence) in comparison with all the telics (M=5.74, SD=5.59). The accompanying participant comments revealed that participants had difficulty processing these pronominal verbs, with some participants even rewriting the target sentences in the comment section in an attempt to correct the grammaticality.

For the five sentences that employed an atelic verb, results for lexical bias were not as strong. The highest rating was found for *être* 'to be', where participants responded 77.97% of the time that it should be conjugated in the IMP alone. In comparison with all atelics (M=7.45, SD=7.73), only *sembler* 'to seem' received the highest rating (20.34%) for "neither" (i.e., use of neither the PC nor IMP could render the sentence grammatical). Participants' comments revealed processing difficulties with the sentence's negative structure, indicating that their responses may have reflected an inability to process the sentence as a whole, not just its verbal element.

Overall, results from Task 4 showed that participants had low metalinguistic skills in their ability to accept the targeted *–ER* verbs as grammatical in both the PC and IMP, and also demonstrated lexical bias with regards to verb telicity, preferring telics in the PC and atelics in the IMP.

Task 3ii – Sentential phoneme discrimination task: minimal pairs past tense verbs

Returning to the minimal pairs used in sentential contexts task, participants were presented with ten recorded sentences and were asked to choose what past tense form they heard, the PC or the IMP. A paired-samples t-test was conducted to compare the perception of /e/ and of /ɛ/ in ten sentential contexts where telic *-ER* verbs were conjugated in the IMP (e.g. *En 2011, l'université* ***fermait*** *ses portes.*) and atelic *-ER* verbs were conjugated in the PC (e.g. *Quand Andréa* ***a été*** *malade, il l'a beaucoup aidée.*), with the acoustic saliency of the PC's auxiliary

minimized due to the presence of a preceding word-final vowel in the subject. There was a significant difference in the scores for /e/ (M=65.08, SD=24.0) and for /ɛ/ (M=83.05, SD=18.60) conditions; $t(58)= -4.77$, $p<0.001$. These results indicate that, in sentential contexts, participants were better able to perceive /ɛ/, associated with the IMP, over /e/, associated with the PC.

When the results from Task 4's Grammaticality test are factored in, we see that the two telic verbs that received the highest ratings as plausible only in the PC, *briser* and *renverser*, were perceived with 81.36% and 77.97% accuracy when conjugated in the IMP, respectively. Only the atelic verb *être* received high ratings as plausible only in the IMP in the Grammaticality task and when conjugated in the PC (i.e., /ete/), participants were able to perceive it with 62.71% accuracy. Overall, participants demonstrated a strong ability to accurately identify telics (M=83.05, SD=15.93), verbs strongly favoured for use in the PC, when they were conjugated in the IMP and demonstrated a moderate ability (M=65.09, SD =15.93) to accurately identify atelics, verbs favoured for use in the IMP, when conjugated in the PC.

In sum, the ratings of lexical bias was stronger for telics (as seen in the Grammaticality test) and telics also received more accurate perceptual ratings than atelics, suggesting that telic verbs may have a perceptual advantage.

DISCUSSION

The goal of Task 1 was to mimic how L2 learners perceive the /e-ɛ/ contrast in different lexical positions upon first exposure to a novel item; therefore, free of frequency effects or semantic interference. Participants' ability to perceive the vocalic contrast, regardless of where it occurred in the lexical item, was extremely weak, pointing to an overall perceptual deficit for the /e-ɛ/ contrast at the word-level. Despite the fact that /ej/ and /ɛ/ occur both word-initially and word-medially in English, neither lexical position conferred any significant perceptual advantage

to participants. These findings suggest that the appearance of the /e-ɛ/ contrast in word-final position, a marked position (Archibald, 1998; Eckman, 1977), is not a factor that impedes L2 perception. Moreover, the fact that these minimal pairs all utilised the /e-ɛ/ contrast, and participants were unable to differentiate between them, points to a possible perceptual interchangeability between these two phones, similar to French NS who do not regard these phones as phonemically contrastive. Regardless of the phonologically privileged word-final position in French (e.g., Alderete, 1995; Beckman, 1997), the hypothesis that word-final position would be easier to perceive was not confirmed.

With the addition of word familiarity, Task 2's transcription task was designed to test how well participants would be able to distinguish between /e/ and /ɛ/ for the most frequently occurring French -*ER* verbs. High frequency words tend to be better known by language users both in phonological and semantic terms (Bybee, 2001; Goldschneider & DeKeyser, 2001; Laufer, 1990). The results revealed that participants more accurately transcribed verbs conjugated with word-final /e/ over /ɛ/, indicating a better perceptual system for /e/. This might be due to the higher frequency of /e/ in the French NS output and to it being a "similar" phone (Flege, 1995) to /ej/, a phoneme that commonly occurs in word-final position in English. It is possible that the combination of these two factors contributed to /e/ being easier to recover from the L2 input. Conversely, English's lack of word-final /ɛ/ and the participants' inability to transcribe high frequency words conjugated in the IMP suggest that another perceptual deficit may exist, this time for word-final /ɛ/. The hypothesis that /e/ would be perceived better than /ɛ/ among the most frequent verbs in French was confirmed.

With maximum semantic support provided, Task 3i was designed to test how well participants could aurally distinguish between /e/ and /ɛ/ in sentential contexts for nouns and

non-past tense verbs. The results did not demonstrate that participants were able to discern between /e/ or /ɛ/ regardless of word class; in fact, participants appeared to be performing at chance levels. Although lexical category has been shown to be processed differently by language users (Fernández & Cairns, 2011), neither the nominal nor verbal category facilitated perception of any one phone. Despite /e/ being the more dominant phone in the French output and being a "similar" native phone, it was not perceived better than /ɛ/, unlike in the results from Task 2. This suggests that regardless of lexical type, Anglophone FSL learners may perceive /e/ and /ɛ/ as acoustically interchangeable. Similar to some European French speakers (Brissaud et al., 2012), these perceptions of interchangeability might be due to the phonological neutralization occurring in certain variants of the French language, which has rendered these two phones homophonous for the FSL participants. As mentioned earlier, homophony has been found to complicate learner perception and acquisition of L2 morphophonology (Goldschneider & DeKeyser, 2001). The hypothesis that word-final /e/ would be easier to perceive than /ɛ/ in sentential contexts, particularly among nouns where the sentence-final position would produce a longer duration, was not confirmed.

As stated earlier, the results of Task 3ii (sentential phoneme discrimination of past tense verbs) can only be considered after first analyzing the findings from Task 4's Grammaticality test. Task 4 revealed that, as a whole, when confronted with decontextualized sentences, participants seemingly chose the PC and IMP in equal measure. However, once the data were analyzed on the basis of verb telicity, the results suggested that participants were no longer operating by chance in their past tense decisions, but by a lexical aspect bias where the PC was strongly preferred for telic verbs and, with slightly less certitude, the IMP for atelics, suggesting that telics may have a processing advantage. This confirms the hypothesis that lexical bias would

affect PC/IMP selection among participants. These results also lend further support to the findings that telics are deemed more PC-like and atelics more IMP-like (Andersen & Shirai, 1994; Dansereau, 1983; Howard, 2004; Izquierdo & Collins, 2008), thus reinforcing the notion that a lexical aspect bias for Anglophone FSL learners exists (Dansereau, 1983; Howard, 2004; Izquierdo & Collins, 2008). The stronger bias for telics also underscores tenets of the Aspect Hypothesis, which state that the PC will be acquired first with telic verbs (followed by atelics) and the IMP will be acquired first with atelic verbs (followed by telics), indicating that the participants would be more grammatically adept in their practise of aligning telics with the PC and atelics with the IMP. Finally, this confirmation of a lexical bias, one which negatively affected participants' ability to accept the sentences as grammatical in both the PC and IMP, points to a weak metalinguistic awareness of the two past tense forms in decontextualized sentences.

Using the same ten sentences from Task 4's Grammaticality test, atelics were presented in the PC and telics in the IMP—in other words, the opposite of their lexical bias predilection, which controlled for lexical aspect interference. The results from Task 3ii found that the aural discrimination of the /e-ɛ/ contrast in word-final position was, for the first time ever, significantly better for /ɛ/ over /e/. This is in stark contrast to Task 3i, where no perceptual preference for /e/ or /ɛ/ was found in sentential contexts for nouns and non-past tense verbs, and also in contrast to Task 2's transcription task, where only /e/ was better perceived than /ɛ/ among high frequency verbs. In light of this lack of perceptual accuracy for identifying /ɛ/ in Tasks 2 and 3i, it seems more plausible that the absence of an auxiliary caused participants to choose the IMP more categorically, which would explain the higher ratings for the IMP (/ɛ/). This strong perceptual effect of the auxiliary also explains the results of the PC sentences. Since the auxiliary

was made less salient through synalephic production of the subject pronoun and auxiliary, the only remaining morphological cue was the /e-ɛ/ distinction in word-final position. However, the results from Task 1 showed that the /e-ɛ/ contrast was weakly perceived by participants in this lexical position and, as Task 3i equally showed, verbs utilising this word-final contrast were also weakly perceived when in a sentential context. Therefore, this lack of a salient auxiliary for the PC helps explain why over a third of participants thought they heard the IMP. This supports the claim that auxiliaries are powerful acoustic cues that make the PC perceptually distinct from the IMP (Harley, 1992) and, without them, Anglophone FSL participants appeared to have difficulty identifying whether or not they heard the PC or IMP.

The Grammaticality task also helped identify which verbs had the highest lexical bias ratings. In general, the telics conjugated in the IMP (/ɛ/) were perceived with better accuracy than the atelics in the PC (/e/). The telics *briser* and *renverser* were overwhelmingly preferred by participants as grammatically plausible in the PC alone, yet when presented in the IMP, this bias did not impair participants' ability to accurately perceive them. For the atelics, only *être* emerged as being strongly preferred in the IMP alone and, when conjugated in the PC, was not perceived with a high level of accuracy as compared to the telics. This seemingly better perception for and processing of telic verbs lend support to the finding that telics are processed differently than atelics[11] (Folli & Harley, 2006; Malaia et al., 2015). In terms of how metalinguistic awareness might have affected aural perception, the data demonstrate that learners had little difficulty identifying the IMP for verbs that they would not normally consider grammatically plausible in

[11] Malaia et al. (2015) reported on two studies where telics were found to be easier to neurally process than atelics. However, the link between the processing of verbal event structures and the impact on neural resources for this processing is still being investigated in behavioral psycholinguistic research. Perceptual research has, nevertheless, shown that how information is segmented affects both encoding and memory, as readily attested in American Sign Language grammar studies.

this construction. These results are all the more intriguing given that, according to the Aspect Hypothesis, the IMP is the form usually acquired after the PC, meaning that learners would have less grammatical experience with it. As such, the hypothesis that participants would be affected by a lexical bias when aurally discriminating between verbs in the PC and IMP was not confirmed for telics in the IMP, but appears plausible for atelics in the PC. It is, however, difficult to draw conclusions about what metalinguistic strategies participants were employing when the main task was a listening-focused activity. At best, it appears that when participants were focused on a listening task, they were able to override a demonstrated grammatical bias in order to recover the target acoustic cue, which bodes well for L2 training activities.

To summarize, when participants were presented with a French variant where /e/ and /ɛ/ remained phonemically contrastive, they were unable to detect this contrast regardless of where it occurred within a lexical unit or within sentential contexts, suggesting the existence of an impoverished perceptual system for this vocalic contrast. While the perception of /e/ was found to be more accurate among high frequency verbs, the perception of /ɛ/ was more accurate in past tense sentences; however, this latter result is most likely related to the lack of auxiliary in the IMP sentences rather than to any perceptual acuity for /ɛ/. In instances where the auxiliary of the PC was less salient due to the coarticulation of two vocalic phones, participants demonstrated an inability to correctly identify what past tense form they heard. This inability to identify past tense forms from the aural input has negative repercussions on FSL learners' ability to build phonemic representations of the PC. Finally, while a lexical bias was confirmed as affecting past tense choices among participants, it also underscored participants' weak metalinguistic knowledge that either the PC or IMP could render the target sentences grammatical; this, however, did not appear to have a unilaterally negative effect on participants' perceptual abilities. Nevertheless,

FSL participants' weak perceptual abilities for identifying the /e-ɛ/ distinction and their telicity-driven bias with regards to PC/IMP usage are not positive aggregates of L2 learning. If repeated exposures to grammatical forms constitutes learning and assists in memory encoding (Ellis, 2006; Ortega, 2009), then FSL learners are missing these elements from both the acoustic signal and grammatical texts.

Study limitations

Among the major limitations of this study is the online instrument utilized for data collection. Participants completed the study remotely and it was impossible to know under what circumstances they accomplished these tasks; specifically, how quiet their environment was and how reliable the audio equipment was for the listening tasks. Conducting the study in a laboratory setting would have allowed to control for both ambient noise and the audio equipment used. However, some participants more than likely used their own familiar, audio equipment and completed the tasks in a comfortable, stress-free environment at their own pace, all of which may allow for a more faithful rendering of their L2 problem-solving techniques than that of a laboratory setting (thus avoiding any Hawthorne effects). Another weakness of the study was the web-based audio playback software used, which did not disallow multiple playbacks, meaning that participants may very well have played the recordings more than once, despite being explicitly instructed not to do so. In the event that this was the case, it is all the more interesting that participants did not achieve more accurate perceptual ratings. For Task 3i (phoneme discrimination for nominal and verbal minimal pairs in a sentential context), word frequency may have played a role in some participants' choices. For example, for the sentence: *Je ne trouve pas l'intérêt de ce pré/prêt.* 'I do not understand the interest of this loan/meadow.', the word *pré*

(n/a) 'meadow' and *prêt* (915)[12] 'loan' have vastly different frequency patterns; whereas, *prêt* occurred in the first 1K frequency band, its counterpart *pré* did not appear in the frequency listing at all. Although participants were not inhibited from using on-line translation or dictionary tools to aid in their comprehension of any unfamiliar vocabulary items in the tasks, which would have eliminated frequency effects, some participants may nevertheless have chosen an item based solely on their familiarity with the word. Finally, the Grammaticality test should have employed more uniform syntactic structures for all target items, as the use of a pronominal verb and negative structure, as mentioned in the Discussion section, appeared to have complicated processing and detracted from the intent of this study.

Pedagogical implications

Although it has been widely recognized that knowledge of linguistic rules does not guarantee that L2 learners will be able to apply them (Lightbown, 2000), increasing a learner's L2 metalinguistic knowledge has nevertheless been correlated with positive outcomes in the areas of L2 phonological acquisition (Bouffard & Sarkar, 2008; Lam, 2009; Kennedy & Trofimovich, 2010; Verdugo, 2006). Building L2 metalinguistic awareness by exposing learners to a fuller range of a problematic linguistic form (i.e., sentences which show that all verbs, regardless of telicity, can be produced in both the PC and IMP) has been shown to produce more accurate L2 usage and raise learners' self-assuredness when using that particular linguistic form (Lam, 2009). Although the literature on metalinguistic awareness and its effect on L2 perception appears to be scarce, the ability to produce more accurate L2 oral output may be regarded as positive evidence for the existence of a more acoustically acute L2 perceptual system.

[12] Based on Lonsdale and Le Bras' (2009) frequency dictionary, which contains 5,000 of the most frequently occurring words in French NS oral and written corpora, *prêt* was found to have a frequency level of 915.

One of the most interesting details that emerged from this study was that the participants with the best aural discrimination scores were those who stated that they used French—in Quebec—every day, supporting the view that consistent use of the target language facilitates native-like L2 perception (Flege, 1995; for similar effects on production, see John & Cardoso, in press). Although Quebecois French has been a stigmatized variant in the language classroom (Chapelle, 2009; Lebrun, 2007; Salien 1998), it has nevertheless demonstrated itself to be a useful variant in comparison to the European standard in its ability to assist learners in acquiring certain aspects of the French language. Quebecois French's rich vocalic inventory has been found to facilitate L2 acquisition of vocalic contrasts and to assist in the generalization of this knowledge to other phonetic environments and to other French variants (Baker & Smith, 2010), pointing to a potential acoustic advantage in using the Quebecois variant in FSL classrooms, as it may serve to enhance learner awareness of phonemic contrasts. Since L2 learning has been likened to statistical learning (Ellis, 2006), learners are highly influenced by the patterns in the input, which can, in turn, influence patterns in the L2 output (Bybee, 2001; Ellis, 2002; Wulff et al. 2009). Put another way, the omission of the Quebec variant in the classroom can be seen as impoverishing Anglophone FSL learners of crucial acoustic cues that could help them differentiate between the PC and IMP--past tense forms which, as the literature has demonstrated, have been especially difficult for them to acquire over the decades.

Chapter Three

In closing, chapter one demonstrated that for almost 30 years, grammatical textbooks have been consistent in their inability to present a full range of explanations that learners can draw upon when acquiring the differences and similarities between the PC and IMP. As the results from this study's Grammaticality task show, textbook explanations appear to have a direct impact on learners' conceptions of the PC and IMP as many of the participants' comments about their characteristics seemed almost lifted from these texts. It is clear that FSL learners need additional pedagogical sources to help them move past the binary descriptions presented in textbooks.

Chapter two focused on the aural perception of the PC and IMP for -*ER* verbs, particularly the phones that reflect their forms: /e/ and /ɛ/, respectively. The results from the various perception tests revealed that no matter where this /e-ɛ/ contrast appeared within a word, it was not easily perceived by FSL participants, indicating a possible perceptual deficit for the contrast as a whole. Even among the most frequently occurring -*ER* verbs, ones that participants would arguably be the most familiar with, only verbs with word-final [e] were accurately perceived, indicating a possible weakness for the perception of word-final [ɛ]. Additionally, the use of sentential contexts where the vocalic contrast was found in nominal and verbal minimal pairs did not seem to aid participants in discriminating between the two phones. These results all seemed to indicate that, from the word level to the sentence level, the participants of this study did not have strong perceptual systems able to differentiate between /e/ and /ɛ/, and appeared to have particular difficulty identifying /ɛ/. The final discrimination task controlled for the lexical aspect interference predicted by the Aspect Hypothesis. For the first time, the results showed that participants were better able to perceive /ɛ/ (i.e., the IMP) over /e/ (i.e., the PC). However, as the

discussion explained, this may have been less about the accurate identification of a particular phone (i.e., /ɛ/), and more about the absence of an auxiliary in the IMP. When all the results were considered, the Anglophone FSL participants were regarded as not having strong perceptual systems for the /e-ɛ/ contrast, and did not appear to rely on it when aurally differentiating between the PC and IMP; rather, they appeared to rely on the PC's auxiliary.

What do these results mean for Anglophone FSL learners? This chapter will proceed with a brief discuss of the implications of raising awareness of the /e-ɛ/ contrast by focusing on L2 dialectic training in the classroom and then making connections to the core discussion of this paper (i.e., L2 vowel perception). The chapter will conclude by underlining some of the pedagogical implications of the /e-ɛ/ contrast specifically, but also of FSL vowel training in general.

Native speakers have been found to habituate to variability within their L1 in under a minute (be it to ambient noise or to foreign accents); however, non-native speakers have not demonstrated this same capability (Fernández & Cairns, 2010), meaning that L2 learners require perceptual training support. From this perspective, including a variety of L2 dialects in the classroom can be regarded as a means of increasing the robustness of L2 learners' comparatively weaker perceptual systems. Unfortunately, as Baker and Smith (2010) noted, the research surrounding the impact of training learners on various L2 dialects is lacking in SLA literature. The research from O'Brien and Smith (2010), however, found that subtle differences between different L1 variants had an impact on learners' ability to produce vowels in the L2, indicating that dialectal differences do have consequences for L2 acquisition.

Several such consequences were outlined by the Baker and Smith (2010) study where Anglophone FSL participants were trained using both the Quebecois French and European

standard variants. The Quebecois trained participants were not only more successful in both their perceptions and discriminations of vocalic contrasts, they were also able to generalize this knowledge to other phonetic environments, yet the same results were not found for those trained in European French. This perceptual aptitude transferable from one dialectal variety to a more prestigious one can be seen as positive evidence that training with a non-standard variant better equips L2 learners at avoiding accent habituation—a particularly useful skill in second language settings. In most urban areas, L2 learners are exposed to a target language that varies not only from person to person based on factors like gender, socio-economic class, education levels (see Labov, 1966 and subsequent work), but also varies among other NNSs. L2 learners trained with different variants of the target language in the classroom arguably stand a greater chance of recovering the L2 speech signal from the natural setting. Put another way, not teaching a learner a particular vocalic contrast—one which is native to the linguistic environment that they are living in—may not only cause comprehension problems for the learner in their interactions with NSs, but also lead to L2 mispronunciation and possible communication breakdowns, both of which can incur negative social repercussions for the learner.

Turning back to the study's main focus, the perception of the *passé composé* and *imparfait*, the Chung (2014) corpus study tried to account for which of these two past tense forms were the most frequently occurring in the NS output. This was done to provide some indication as to which form might be more acoustically familiar to FSL learners as well as to underline which form may require more pedagogical support in the classroom. It was found that the IMP occurred 74% of the time in the oral corpus and 66% of the time in the written corpus as compared to the PC. As mentioned earlier, all French verbs when conjugated in the IMP employ the /ɛ/ morpheme for four out of its six conjugations. When /ɛ/ is found in final open syllable, the

/e-ɛ/ distinction is unstable. Some French variants conform to the phonetic constraints encapsulated by *la loi de position* and pronounce the morphological /ɛ/ as [e], whereas other variants (i.e., Quebecois, Belgian, or Martiniquan French) conform to orthographic rules and realize the morpheme as [ɛ]. Since word-final /ɛ/ cannot appear in an open syllable in English due to syllable constraints (e.g., bimoraicity; Hammond, 2003), its appearance in French constitutes a novel prosodic context for Anglophones and, as we have seen from this study's transcription task, is relatively unperceived by learners even among the most frequently occurring verbs in French. Therefore, tasks aimed at raising the awareness of /ɛ/ in the IMP may be advantageous to learners as this increases the likelihood of retrieving the form from the NS output where it so frequently occurs.

This retrieval, however, is only possible if the NS input in the classroom utilizes a French variant where the /e-ɛ/ distinction is salient or has not undergone neutralization. Since /e/ and /ɛ/ remain contrastive in final open syllable in Quebecois French, as indicated earlier, learners could be trained to associate not only [ɛ] for the IMP, but also [e] for the PC's past participle for *–ER* verbs. Building phoneme-grapheme associations not only helps learners better identify orthography with phonetic forms from the visual input, it could also translate into stronger phonological decoding skills from the aural input (Chapelle, 2003; Ortega, 2009; Skehan, 1998). This, in turn, may help boost Anglophone FSL learners' demonstrated poor perceptual abilities for the /e-ɛ/ distinction in word-final position as found in this study.

While the focus has thus far been the /e-ɛ/ distinction in past tense constructions, it is noteworthy to point out that this contrast does not occur solely in the PC and IMP. As seen in Task 3, this contrast can also be found in nouns (*ép*/e/ – *ép*/ɛ/, 'sword' – 'thick') and other non-past tense verbs, like the future simple and the conditional present (*manger*/e/ – *manger*/ɛ/, 'I

will eat' – 'I would eat'). As Vandergrift and Goh (2012) explain, learners would be using their "metacognitive experiences" in phone identification in one area (the PC/IMP) and then "recalling" or re-using these strategies to manage new linguistic problems (p. 86). From both a pedagogical and learner perspective, targeted training on the /e-ɛ/ distinction for past tense constructions could be an excellent starting point, and extending this training to other verb types and other word classes would be more globally beneficial to learners.

Based on the results from this study, building strong phonological representations of the /e-ɛ/ contrast among Anglophone FSL learners will require classroom intervention. This is particularly true in situations where French is taught as a foreign (i.e., not as a second) language, which is the case for most Canadian provinces—Anglophones may be hard-pressed to actually encounter the target language in their linguistic environment. Unfortunately, the use of a less prestigious variant in the classroom, like Quebecois French, may be considered undesirable by some teachers. Since Quebecois French is stigmatized (Chapelle, 2009; Lebrun, 2007; Salien, 1998), this may cause some instructors to avoid integrating it into the aural input. However, such teachers who champion these stigmatizing sentiments over the demonstrated usefulness of dialectic training (Baker & Smith, 2010) would be willfully harboring an acoustically homogenous L2 classroom to the disadvantage of the learner.

With regards to L2 perceptual training studies on vowels, at least three elements seem to emerge. First, vowel training should not focus solely on learners' perceptual difficulties for isolated vocalic items; rather, it is preferable to use a large training group to encourage the formation of rich, phonemic categories in the L2 (Nishi & Kewley-Port, 2007; 2008). In addition to this, speaker and token variation, and even the addition of ambient noise (Wang & Munro, 2004), all ensure that learners are able to generalize their training to new speakers and new

lexical items (Nishi & Kewley-Port, 2007; 2008). Finally, visual cues like lip rounding and exaggerated open mouth gestures have been found to be useful for learners when mastering especially difficult contrasts (Hardison, 2005). While incorporating all of these elements in the classroom may seem like an impossible task due to time constraints, the use of computer-based tools, like high variability phonetic training (which has been shown to utilize up to 20 NS voices), could facilitate these pedagogical goals (Thomson, 2011; 2012). The end result of L2 perceptual training can be regarded as the ability to not just better perceive the target language, but also to produce it with some measure of accuracy. While research appears divided as to whether perception precedes production, there is a general consensus that perceptual training can only be beneficial to second language learners.

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APPENDIX A

Task 1 – Phoneme discrimination task: Non-words

1. drais**[e]** – drais**[ɛ]**
2. **[ɛ]**gline - **[e]**gline
3. endocrésie - endocrésie
4. tourpent**[e]** – tourpent**[ɛ]**
5. estérer - estérer
6. micron**[e]**ludage - micron**[ɛ]**lludage
7. **[ɛ]**lerive - **[e]**lerive
8. retons - retans
9. béroubait - béroubait
10. macrod**[e]**tique – macrod**[ɛ]**ttique

APPENDIX B

Task 2 – Transcription of high frequency verbs

1. Ét**ais**
2. Avons
3. Port**ez**
4. Donn**aient**
5. Montr**é**
6. Peuvent
7. All**ais**
8. Continu**er**
9. Demand**ait**
10. Pens**ez**

APPENDIX C

Task 3 – Phoneme discrimination task: Minimal pairs

Category 1 - Nouns that employ the [e-ɛ] distinction

1. Je ne trouve pas l'intérêt de ce **pré/prêt** [pre-prɛ].
2. Elle étudie l'histoire pour comprendre l'importance des **faits/fées** [fɛ-fe].
3. Avant que les invités arrivent, nous devons acheter plus de lait, de serviettes et de **thés/taies** [te-tɛ].
4. En écrivant la musique pour l'opéra, le chef d'orchestre a tracé sur la page quelques **rés/raies** [re-rɛ].
5. Pour plus de protection**,** resserrez le **filé/filet** [file-filɛ].

1. I don't see the interest of this meadow/loan.
2. She is studying the story to understand the importance of the facts/fairies.
3. Before the guests arrive, we must buy more milk, towels, and tea/pillowcases.
4. While writing music for the opera, the conductor drew a few musical notes/lines on the page.
5. For more protection, re-tighten the thread/net.

Category 2 - Simple Future/Present Conditional verbs that employ the [e-ɛ] distinction

1. Je **ferai/ferais** [f(ə)re/f(ə)rɛ] le ménage tous les jours pour te plaire.
2. Ces tartes ont l'air délicieuses! Je les **mangerai/mangerais** [mɑ̃ʒɛʀe/mɑ̃ʒɛʀɛ] toutes.
3. À un prix plus bas, je le **prendrai/prendrais** [pʀɑ̃dʀe/pʀɑ̃dʀɛ].
4. Je **serai/serais** [s(ə)re/s(ə)rɛ] ravie de vous aider.
5. Au besoin, je **vérifierai/vérifierais** [veʀifjeʀe/veʀifjeʀɛ] le montant avant de l'acheter.

1. I will/would do the housework every day to please you.
2. These pies look delicious! I will/would eat them all!
3. At a lower price, I will/would buy it.
4. I will/would be happy to help you.
5. If needed, I will/would check the price before buying it.

Category 3 - Verbs in the IMP/PC employing the [e-ɛ] distinction

NB: Only the past participles have been transcribed below. All verbs appearing in green are intended to be recorded.

1. En 2011, l'université **a fermé/fermait** [fɛʀme/fɛʀmɛ] ses portes.
2. Lundi soir, le chat **a brisé/brisait** [bʀize/bʀizɛ] la statuette.
3. Quand Andréa **a été/était** [ete/etɛ] malade, il l'a beaucoup aidée.
4. Pendant ma jeunesse, j'**aimais/ai aimé** [emɛ/eme] collectionner les timbres.
5. Ce matin-là, à 11 heures, une auto **a renversé/renversait** [ʀɑ̃vɛʀse/ʀɑ̃vɛʀsɛ] le vieil homme.
6. J'ai passé une heure avec lui hier. On **s'est parlé/se parlait** [paʀle/paʀlɛ] d'une histoire incroyable!
7. Nul n'**a semblé/ne semblait** écouter [sɑ̃mble/sɑ̃mblɛ] le conférencier qui parlait.
8. Cinq heures plus tard, tu **t'installais/t'es installé** [ɛ̃stalɛ/ɛ̃stale] dans le salon.
9. André **a adoré/adorait** [adɔʀe/adɔʀɛ] à la plage pour nager.
10. Personne **n'a imaginé/n'imaginait** [imaʒine/imaʒinɛ] qu'elle vendrait sa maison.

1. In 2011, the university closed its doors.
2. Monday night, the cat broke the small statue.
3. When Andrea was sick, he helped her a lot.
4. During my youth, I loved collecting stamps.
5. That morning, at 11:00 A.M., a car ran over the old man.
6. I spent an hour with him yesterday. We told each other an incredible story!
7. Nobody listened to the conference speaker who was talking.
8. Five hours later, you settled into the living room.
9. André loved going to the beach to swim.
10. No one imagined that she would sell her house.

APPENDIX D

Task 4 – Grammaticality test

1. En 2011, l'université _____ ses portes.
'In 2011, the university closed its doors.'

a) *a fermé*
b) *fermait*
c) either: *a fermé* or *fermait*
d) neither: *a fermé* nor *fermait*

Why did you choose this answer? _____

2. Lundi soir, le chat _____ la statuette.
'Monday night, the cat broke the statue.'

a) *a brisé*
b) *brisait*
c) either : *a brisé* or *brisait*
d) neither : *a brisé* nor *brisait*

Why did you choose this answer? _____

3. Quand Andréa _____ malade, il l'a beaucoup aidée.
'When Andrea was sick, he helped her a lot.'

a) *a été*
b) *était*
c) either: *a été* or *était*
d) neither: *a été* nor *était*

Why did you choose this answer? _____

4. Pendant ma jeunesse, j'_____ collectionner les timbres.
'During my youth, I loved collecting stamps.'

a) *ai aimé*
b) *aimais*
c) either: *ai aimé* or *aimais*
d) neither: *ai aimé* nor *aimais*

Why did you choose this answer? _____

5. Ce matin-là, à 11 heures, une auto _____ le vieil homme.
'That morning, at 11:00, a car ran over the old man.'

a) *a renversé*
b) *renversait*
c) either: *a renversé* or *renversait*
d) neither: *a renversé* nor *renversait*

Why did you choose this answer? _____

6. J'ai passé une heure avec lui hier. On _____ d'une histoire incroyable!
'I spent one hour with him. We told each other an incredible story!'

a) *s'est parlé*
b) *se parlait*
c) either: *s'est parlé* or *se parlait*
d) neither: *s'est parlé* nor *se parlait*

Why did you choose this answer? _____

7. Nul ne _____ écouter le conférencier qui parlait.
'Nobody listened to the conference speaker who was talking.'

a) *n'a semblé*
b) *ne semblait*
c) either: *n'a semblé* or *ne semblait*
d) neither: *n'a semblé* nor *ne semblait*

Why did you choose this answer? _____

8. Cinq heures plus tard, tu _____ dans le salon.
'Five hours later, you settled into the living room.'

a) *t'es installé*
b) *t'installais*
c) either: *t'installais* or *t'es installé*
d) neither: *t'installais* nor *t'es installé*

Why did you choose this answer? _____

9. André _____ aller à la plage pour nager.
'André loved going to the beach to swim.'

a) *a adoré*
b) *adorait*
c) either: *a adoré* or *adorait*
d) neither: *a adoré* nor *adorait*

Why did you choose this answer? _____

10. Personne _____ qu'elle vendrait sa maison.
'No one imagined she would sell her house.'

a) *n'a imaginé*
b) *n'imaginait*
c) either: *n'a imaginé* or *n'imaginait*
d) neither: *n'a imaginé* nor *n'imaginait*

Why did you choose this answer? _____