
| RESEARCH ARTICLE

From Prototypes to Cryptotypes: Past Tense-Aspect Acquisition in Moroccan EFL Interlanguage

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| ABSTRACT

The present cross-sectional study investigates the emergence of the English perfective (-ed) and imperfective (-ing) past markers in the interlanguage of Moroccan university EFL learners, testing the predictions of the Aspect Hypothesis (AH). Sixty Moroccan university learners of English (undergraduate/BA level, $n=30$; graduate/MA level, $n=30$) completed a silent-film narrative retelling task, coded for grammatical aspect marking across the four Vendlerian lexical aspect categories (states, activities, accomplishments, achievements). Chi-square tests of independence showed that marker choice (-ed vs. -ing) was significantly associated with lexical aspect category in both groups (BA: $\chi^2(3)=32.65$, $p<.001$, $V=.35$; MA: $\chi^2(3)=31.70$, $p<.001$, $V=.45$), supporting the AH's central prediction. Paired-samples t-tests further showed that perfective marking was significantly more accurate than imperfective marking within both groups (BA: $t(29)=5.38$, $p<.001$, $d=0.98$; MA: $t(29)=9.71$, $p<.001$, $d=1.77$), consistent with the predicted acquisitional order (perfective preceding imperfective). However, the overall -ed/-ing distribution did not differ significantly between BA and MA ($\chi^2(1)=1.29$, $p=.256$), and BA learners significantly outperformed MA learners on imperfective-marking accuracy ($t(57.4)=2.33$, $p=.023$, $d=0.60$) — a pattern that complicates any straightforward account of linear improvement from BA to MA and is discussed in relation to task and cohort effects. Standardised residual analysis further shows the marker-category association is anchored in the state/non-state distinction rather than the classical achievement-based prototype, a pattern discussed in relation to a connectionist account of cryptotype emergence as a theoretical extension beyond categorical Aspect Hypothesis predictions.

| KEYWORDS

Acquisition, Aspect Hypothesis, Conspiring Factors, Emergence, Interlanguage.

| ARTICLE INFORMATION

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1. Introduction

Tense and aspect are two related grammatical concepts that express temporal notions cross-linguistically. These two concepts have attracted significant interest in the field of language acquisition. Over the past few decades, many studies have

been conducted to uncover the nature of the emergence of the T/A system within the ESL and EFL context (Rohde, 2002; Shirai & Andersen, 1995). Developing this system in learners' interlanguage requires understanding how its forms, meanings, and functions are interconnected (VanPatten, 2015). Researchers have explored Aspectology by investigating the correlation between lexical and grammatical aspects.

Building on the work of Shirai and Andersen (1995), acquiring aspectual knowledge involves creating native-like form-meaning associations as learners apply past markers (-ed, -ing). Hypothetically, learners' use of past markers is guided by the inherent semantic properties of verb categories (achievements, accomplishments, activities, states); therefore, the correlation between past markers and inherent lexical aspect is seen as an indicator of the aspectual system's development. Both Salabakova and Montreal argue that learners require both knowledge of the inflectional morphology and the conceptual-interpretive properties associated with this projection (Slabakova, 1999) as a construct in their underlying knowledge for acquiring any linguistic item, including (-ing, -ed). LAsp primarily stands for the inherent semantic properties of the verb or predicate itself — the "characteristics of the internal contour in the lexical items which describe the situation" (Comrie, 1976, p. 13) — captured in this study by Vendler's (1957) four-way classification (states, activities, accomplishments, achievements); whereas GA (grammatical aspect) refers to the inflectional morphology through which a speaker marks a situation, distinguishing ¹perfective (-ed) from ²imperfective (-ing) marking.

Focusing on the predictions of the Aspect Hypothesis, several studies focus on L2 and EFL temporal acquisition in both natural and formal contexts (Cenoz, 2001; Cenoz & Hoffmann, 2003; Dewaele, 1998; Housen, 2000; Kim et al., 2010; Salaberry, 2003; Williams & Hammarberg, 1998, 2005). In spite of the fact that the field of SLA research in Morocco covers a broad spectrum of issues related to the acquisition process, still few studies have explored the issue of Tense-Aspect acquisition. Undoubtedly, a study on how Moroccan learners acquire English past Tense-Aspect would help in understanding how the underlying acquisition processes work. The importance of this enterprise is not limited only to its research dimension by seeking explanations. It exceeds the pedagogical dimension to offer a better treatment of grammar. To this end, the present research attempts to investigate the past inflectional forms as anticipated by the Aspect Hypothesis premises by adopting a psycholinguistic analysis to uncover the interplay of multi-dimensional factors that come into play when Moroccan EFL learners develop their aspectual forms as they transcend the prototypicality to embrace the less-prototypical meanings within their interlanguage.

Regarding the premises of AH in mind, this research seeks to investigate the acquisition of tense-aspect morphology among Moroccan EFL university learners. It primarily aims to explore the development of the aspectual system in learners' interlanguage (Shirai & Andersen, 1995). Essentially, the study will present an account of the emergence of prototypical meanings that guide the acquisition of the aspectual semantic concepts of perfective and imperfective, as proposed and described by the Aspect Hypothesis (Andersen & Shirai, 1994, 1996).

The study's investigation of Moroccan EFL acquisition of the past tense-aspect verbal morphology system intends to determine the differential distributions of -ed and -ing past markers across the Aspectual categories (Andersen & Shirai, 1994, 1996; Shirai & Andersen, 1995; Robison, 1990, 1995). Two theoretical approaches, the Aspect Hypothesis (Andersen & Shirai, 1994; Shirai & Andersen, 1995) and the Prototype Hypothesis (Andersen & Shirai, 1996), will guide this exploration. The primary objective is to uncover the prototypical links between English past morphemes and various lexical verb categories. Thus, this study will strive to present a comprehensive picture of the semantic interpretations of English perfective and imperfective Aspects that constitute the learners' interlanguage development. In other words, it will endeavour to determine whether the developmental stages of Moroccan learners follow the standard route of L2 acquisition as revealed in the universal path of the acquisition of past TA morphology. Based on the proposed hypothesis, the acquisition process requires the expansion of the markers' semantic meanings from prototypes to non-prototypes. Hypothetically, L2 learners' imperfective aspect will initially be restricted to activity verbs. As they advance, they should be able to use the markers more accurately than their preliminary prototypical stage use. Significantly, they commonly use the perfective aspect and past tense with verbs with an intrinsic ending, such as discover and arrive (Andersen & Shirai, 1994, 1996; Shirai & Andersen, 1995).

Anchored in the Aspect Hypothesis (AH) principles, the research endeavours to illuminate the development of the aspectual system in the learners' interlanguage, as delineated by Shirai and Andersen, (1995). In essence, the research will trace

¹ "The perfective aspect looks at the situation from the outside without attempting to divide the situation into various individual phases" (Comrie, 1976, p. 266).

² "The imperfective aspect views the situation from within and is concerned with the internal temporal structure of a situation" (Comrie, 1976, p. 266).

the emergence and application of the prototypical meanings that underpin the acquisition of aspectual semantic concepts of perfective/imperfective. The primary objectives of the research include investigating the following:

Prototypical Links: To determine the differential distributions of -ed and -ing past markers across the aspectual categories. The research will adopt the Aspect Hypothesis and the Prototype Hypothesis to illustrate the prototypical associations between English past morphemes and various lexical verb categories.

Acquisition Process: To investigate whether Moroccan learners' developmental stages follow the standard route of L2 acquisition, with a particular focus on acquiring past tense-aspect morphology.

Order of Acquisition: To delineate the acquisitional order of past markers in the learners' interlanguage, an approach that aligns with Andersen and Shirai's hypothesis.

To summarize, the research seeks to explore the multidimensional phenomenon of Aspectology from a morpho-semantic standpoint. By evaluating the acquisition of perfective-imperfective prototypical meanings, this research hopes to shed light on the nuanced stages of aspectual meanings development in Moroccan learners' interlanguage.

2. Literature Review

The intricate process of acquiring tense-aspect morphology in second language (L2) learners has been a subject of extensive scholarly investigation. This exploration into the acquisition process necessitates a profound understanding of the confluence of internal cognitive mechanisms and external socio-linguistic factors. Over the years, researchers have presented an array of perspectives concerning this symbiosis, leading to an evolved understanding of L2 tense-aspect morphology acquisition.

Language acquisition theories have predominantly been categorized into two schools of thought: the Universal Grammar (UG) approach and the Functionalist approach. The UG perspective posits an innate linguistic capacity that drives language learning. According to this theory, the human brain possesses a set of rules and structures that predispose it to understand and learn languages in certain ways. The Functionalist approach, in contrast, emphasizes the importance of external factors like social interaction and the pragmatic need for communication as pivotal forces in language acquisition. This perspective underscores the importance of context, meaning, and function in language learning and use.

Embedded within the Functionalist realm is the Aspect Hypothesis, proposed by Andersen and Shirai. This hypothesis suggests that in the early stages of English acquisition, L1 learners gravitate towards linguistic structures by initially implementing prototypical forms, branching out over time to more non-prototypical structures. Rooted deeply in the semantic-driven approach, the Aspect Hypothesis presents language acquisition as a gradual process of expanding from core, prototypical forms to the periphery. However, its applicability to L2 learners remains debated. Studies, notably by Bardovi-Harlig, have challenged the uniform progression from prototype to non-prototype in L2 contexts, suggesting that L2 learners might not always follow the trajectory laid out by their L1 counterparts (Bardovi-Harlig, 1992).

Table 1. Predicted functional development of English verb morphemes

Imperfective Aspect Marker -ing					Past and Perfect Tense Marker -ed			
	STAT	ACT	ACC	ACH	STAT	ACT	ACC	ACH
Stage								
0	V	V	V	V	V	V	V	V
1	V	V-ing	V	V	V	V	V	V-p
2	V	V-ing	V-ing	V	V	V	V-p	V-p
3	V-ing	V-ing	V-ing	V	V	V-p	V-p	V-p

4	(V-ing)	V-ing	V-ing	V-ing	V-p	V-p	V-p	V-p
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Connectionist accounts of tense-aspect acquisition, most fully developed by Li and Shirai (2000), mark a significant departure from purely categorical treatments of the Aspect Hypothesis. Rather than treating lexical aspect categories (STA/ACT/ACC/ACH) as discrete, pre-given classes that the learner simply maps grammatical morphology onto, Li and Shirai propose that both the categories themselves and their association with tense-aspect morphology emerge jointly through a correlational, statistical learning process. On this account, the learner simultaneously tracks three kinds of co-occurrence in the input: forms with meanings, forms with other forms, and forms with contexts. Through a mechanism the authors describe as Hebbian learning implemented in a self-organising feature-map network, verbs come to be represented as feature-weighted clusters (e.g., varying in dynamicity, punctuality, and telicity) rather than members of crisp textbook categories, and the connections between these clusters and particular morphological markers strengthen or weaken according to their frequency and consistency in the input.

Central to this account is Whorf's (1956) concept of the cryptotype: a covert semantic category that constrains which forms a morphological device can combine with, without being consciously accessible to speakers or statable as a clean symbolic rule. Whorf illustrated the concept with the English prefix *un-*, which productively combines with verbs like *unbuckle*, *uncoil*, and *untie* but not with *unkick* or *unpush*, a constraint native speakers reliably enforce without being able to articulate the rule that governs it. Li and Shirai's proposal is that lexical aspect categories are acquired through learning mechanisms comparable to those underlying the acquisition of cryptotypes: early in acquisition, a grammatical marker and the semantic category licensing it are tightly, cryptotype-like bound together, in the sense that the category is defined largely by the distribution of the marker itself. As input accumulates, this account predicts a developmental trajectory in which lexical aspect becomes increasingly independent of the marker it was initially bound to, and the marker's use spreads from prototypical to non-prototypical verbs, weakening the original association. This connectionist, cryptotype-informed perspective is revisited in the Discussion below to interpret two patterns in the present data that a purely categorical AH account does not, by itself, fully explain.

Yet the narrative did not end here. A deeper exploration unveiled the critical importance of input, frequency, saliency, and instruction in the acquisition process. External factors such as the saliency of linguistic forms and their functions in input, along with their frequency, began to be acknowledged for their profound influence on learning outcomes. These findings carved space for a holistic model that recognized both internal (like cognitive processes and innate linguistic inclinations) and external factors (like exposure, saliency, and instruction) in language acquisition.

In essence, the journey of understanding the tense-aspect hypothesis in L2 acquisition has evolved through a myriad of perspectives. From the semantic stronghold of the Aspect Hypothesis proposed by Andersen and Shirai, to the multifaceted approach acknowledging internal and external factors, the scholarly discourse has witnessed a rich tapestry of insights (Bardovi-Harlig, 1992; Dietrich et al., 1995). Recognizing the interplay between neurobiological processes, external inputs such as input frequency and saliency, and internal cognitive mechanisms offers a comprehensive account of this intricate linguistic domain (Hakuta et al., 2003). Such an approach enriches our understanding and conceptualization of how language acquisition set up, emphasizing the necessity to delve deeper into both the external factors like instruction, and internal factors grounded in cognitive and connectionist theories (Bloom et al., 1980; Lieven & Pine, 1990)

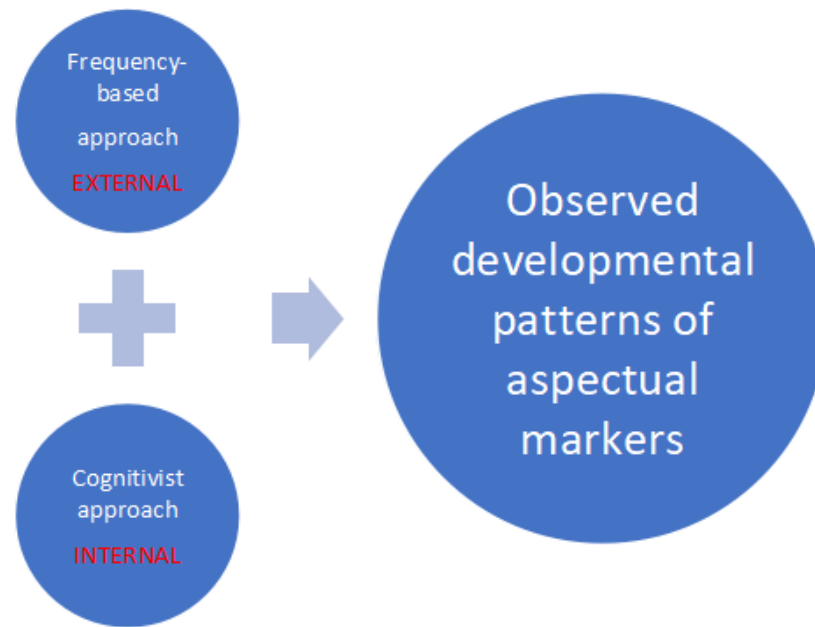


Figure 9. An integrated approach to account for the development of past markers in the second language acquisition context (GIACALONE RAMAT, 1990; Lorenzino, 1992; Sugaya & Shirai, 2007)

3. Methodology

This section delineates the methodology implemented to explore past tense-aspect verbal morphology. After rearticulating the objectives, research hypotheses, and research questions employed to navigate the investigation, the chapter elucidates the operational phases of the research instruments and the commencement of data collection and coding.

3.1 Research Questions and Hypotheses

Research Questions

RQ1: Is grammatical aspect (GA) marking — perfective (-ed) versus imperfective (-ing) — significantly associated with lexical aspect (LAsp) category (states, activities, accomplishments, achievements), as predicted by the Aspect Hypothesis?

The first research question tests the Aspect Hypothesis's central, correlational claim: that a learner's choice of grammatical marker (GA) is not independent of the inherent semantic category of the verb being marked (LAsp). Framed this way, the question maps directly onto a test of association between two categorical variables — GA marker and LAsp category — which is assessed using a chi-square test of independence (Section 4.1.1).

RQ2: Is perfective (-ed) marking produced with significantly greater accuracy than imperfective (-ing) marking, consistent with the Aspect Hypothesis's predicted order of emergence, in which perfective marking precedes imperfective marking?

The second research question addresses a distinct prediction of the Aspect Hypothesis: that perfective marking emerges before imperfective marking over the course of acquisition. Because the present design is cross-sectional rather than longitudinal (Section 3.2), this order of emergence is not observed directly; instead, it is assessed indirectly and conservatively, following standard practice in this literature, by comparing the accuracy of perfective marking against imperfective marking within each participant at a single point in time (Section 4.1.2). A significant accuracy asymmetry favouring perfective marking is treated as evidence consistent with — though not direct proof of — the predicted order of emergence.

RQ3: Does the strength of the LAsp-GA association tested in RQ1, and the accuracy of perfective and imperfective marking tested in RQ2, differ between BA-level and MA-level Moroccan EFL learners as a function of proficiency?

The third research question examines whether the patterns addressed in RQ1 and RQ2 vary with proficiency level, treating the BA-MA comparison as a pseudo-longitudinal proxy for development (Section 3.2). It is assessed in two parts: a comparison of the distributional shape of the marker-category association between BA and MA (Section 4.1.3), and a comparison of overall perfective/imperfective accuracy between the two groups (Section 4.1.4).

Research Hypotheses

The following hypotheses have been formulated to correspond with the three research questions above. A null hypothesis and an alternative hypothesis have been proposed for each question.

Concerning RQ1:

H0₁: GA marking (perfective vs. imperfective) is not significantly associated with LAsp category.

H1: In line with the Aspect Hypothesis, GA marking is significantly associated with LAsp category.

Concerning RQ2:

H0₂: There is no significant difference in accuracy between perfective and imperfective marking.

H2: In line with the Aspect Hypothesis's predicted order of emergence, perfective marking is produced with significantly greater accuracy than imperfective marking.

Concerning RQ3:

H0₃: The LAsp-GA association and the accuracy of perfective and imperfective marking do not differ significantly between BA and MA learners.

H3: The LAsp-GA association and the accuracy of perfective and imperfective marking differ significantly between BA and MA learners.

3.2 Research Design

This study adopts a cross-sectional, ex post facto design, used here pseudo-longitudinally: data were collected from the BA and MA groups once, at the same point in time, and group differences between them are used as a proxy for developmental patterns that a true longitudinal design would instead track within the same learners over time. This is a standard and practical approach in interlanguage research, but one whose limits are well established in the SLA methodology literature: because different individuals, not the same learners at two points in time, are being compared, apparent "development" between groups may also reflect cohort, curricular, or selection differences rather than a genuine developmental trajectory (Ortega & Iberri-Shea, 2005). This qualification is addressed directly in the Discussion and Limitations, and is one reason the present BA-MA comparisons are interpreted with caution throughout. The design is additionally ex post facto because proficiency level was not experimentally manipulated or randomly assigned: BA and MA learners constitute naturally occurring, pre-existing groups that the study compares as found, rather than groups created through random assignment to a controlled treatment.

Tense-aspect verbal morphology is a multifaceted concept whose study combines a qualitative and a quantitative stage rather than two fully separate strands of analysis: classifying each verb token into a Vendlerian lexical aspect category (Section 3.8) requires qualitative, context-sensitive linguistic judgement, applying the diagnostic tests described below to each occurrence in the narratives; the resulting categorical data are then analysed quantitatively, through the descriptive and inferential statistics reported in the Results/Findings section. This qualitative-coding-then-quantitative-analysis design is distinct from a full mixed-methods design in the stronger sense of separately reported and triangulated qualitative and quantitative findings, and no such separate qualitative findings (e.g., thematic or discourse analysis of the narratives) are reported in this article. Hence, the study's objective is to align with adequate and appropriate research methods; to that end, this research employs this qualitative-coding, quantitative-analysis design alongside its cross-sectional, ex post facto structure. This design offers a robust framework that addresses the research questions and fosters synergy between the methodologies employed.

3.3 Population and Sample of the Study

The target population for the present study consists of Moroccan university students of English at both the BA and MA levels. Altogether, the sample comprises 60 adult participants, male and female alike, ranging in age from 19 to 28. The vast majority of these students are native speakers of Arabic, and they are enrolled in English departments at a number of Moroccan universities, namely the Faculty of Educational Sciences and the Faculty of Humanities in Agadir, Marrakech, Kenitra, and Rabat. Most of them have been learning English for a period of seven to ten years. Undoubtedly, the COVID-19 pandemic considerably complicated the task of recruiting participants. Nevertheless, the researcher succeeded in reaching the required number of participants through direct contact by email, social media, telephone, and department or class coordinators. Regrettably, owing to procedural constraints and privacy regulations, the initial aim of incorporating native speakers into the study could not be fulfilled. Although some data were gathered from native speakers, the resulting sample proved too small to be included in the study.

3.4 Data Collection Instrument

Impersonal Narratives (Film Re-telling Test)

Impersonal narratives, such as silent films or stories, have been frequently employed in acquisition research to collect data (Bardovi-Harlig, 1998; Bardovi-Harlig et al., 1998; Bardovi-Harlig & Bergström, 1996). This research will employ narratives based on the silent film "Alone & Hungry" by Charlie Chaplin (5 to 6 minutes). This film has been chosen due to its discrete, easily noticeable past sequences and ideal actions, perfect for examining the emergence of verbal morphology across different lexical aspectual classes. The projection includes a variety of scenes displaying both background and foreground information. To detect the emergence and spread of EFL past verbal morphology, learners will be asked to re-tell the events they will have observed in the film.

The film "Alone & Hungry" stars Charlie Chaplin, who befriends a young woman that steals a loaf of bread and tries to persuade him to return to prison where he can eat and sleep for free (Bardovi-Harlig, 1995). This segment encompasses four distinct foreground scenes, further divisible into sequences:

- **Scene 1** occurs on the street, where the young woman steals bread and is subsequently arrested.
- **Scene 2** unfolds in a cafeteria, where Chaplin consumes two trays of food without paying, leading to his arrest.
- **Scene 3** occurs in the police wagon, marking the first meeting between Chaplin and the young woman.
- **Scene 4** captures the subsequent escape on the street.

The film culminates with a fictional scenario featuring Chaplin and the young woman enjoying life in their home. Chaplin ultimately manages to purchase their dream home, and the film concludes with a glimpse of them blissfully settled in their new residence.

3.5 The Pilot Study

The pilot study involves 2 MA students and 3 BA students as subjects. After welcoming the participants, a comprehensive overview of the study is presented. They are then introduced to a short excerpt from Charlie Chaplin's silent movie "Alone and Hungry". Later, during their class session, the participants are invited to watch the film and are asked to produce a written narrative during the second stage. The story's events are suggested to be marked with either simple past (perfective) or past progressive (imperfective) aspects. However, the learners are allowed to ask questions between the story scenes. It should be noted that the participants need more than three viewings to remember the scenes and narrate them as recommended. It takes them approximately 45 to 50 minutes to produce their written narratives.

After collecting the data to test the premises of the Aspect Hypothesis, the tokens are quantified and classified to ascertain the practicality of Vendler's semantic verb categorisation tests, which help establish evidence for the likely impact of LAsp on the distribution of verbal morphology. The test attempts to determine whether verbal morphology shows any remarkable distribution across the lexical aspectual categories, as argued by Shirai (2007), Andersen (1986, 1991), Bardovi-Harlig (1999).

3.6 Data Collection Procedures

This section provides a detailed description of the data collection phase, which is crucial for ensuring the validity of the research findings. The research instrument is carefully designed to guarantee precise administration during the data collection stage.

Table 2. Data collection schedule

Test	Mode of collection	Sample	Duration	Remark
Re-telling Story test	Online administration	MA and BA students include first-year and second-year students. The number of participants for MA students is 20, whereas the number of BA students is 30.	From 01/06/2020	The average completion of the task is 70min.

In response to the constraints imposed by the COVID-19 lockdown coinciding with the data collection stage, alternative administration methods are implemented, enabling remote completion of the data collection process. As noted in the pilot study, an original expectation was for one-on-one administration. However, adhering to this strategy in practice could be more feasible, necessitating a modification approach that allows for delivering tests directly to the designated sample. Accordingly, modifications are undertaken to obviate the need for personal contact with participants, leading to the implementation an online administration modality to ensure the operation's successful completion.

At the core of this research is the re-telling story test, administered to test the premises of the Aspect Hypothesis. This hypothesis tracks the stages of perfective/imperfective aspects emergence within learners' interlanguage, specifically the correlation between LAsp and GA that captures the developmental stages of learners' aspectual knowledge. According to the hypothesis, the learners' spread of GAs over lexical verb categories changes as they advance toward complete mastery of the system, and as a result, the relationship weakens by the last stage (Andersen & Shirai, 1994, 1996; Shirai & Andersen, 1995). In contrast, it is strongly associated with the initial stages.

This test form adopts the same online procedures as the previous tests. The form includes an overview of the test's purpose and the significance of its potential results. A clear and precise description of the test instructions is provided in the online form. Participants are asked to watch a 7-minute video of a Charlie Chaplin silent movie and to narrate the events using the simple past and past continuous tenses whenever necessary. Participants are contacted personally via email with a URL address or a direct URL link.

All in all, the task took 70 minutes for the participants to complete. For MA participants, only four summaries are handled using the Microsoft test form, and the rest of the data is collected through direct email contact with BA students. The confidentiality of the participant's data is ensured by making their contributions anonymous. The data collection lasted for one month, from 01/06/2020 to 02/07/2020.

3.7 Additional Scoring of the Re-telling Narratives

In addition to the category-level coding reported below (Tables 4-6), each participant's narrative was also scored for overall suppliance of past morphology: a Perfective score and an Imperfective score, consisting of the total count of correctly formed simple past and past progressive predicates (respectively) produced across the entire narrative, regardless of Vendlerian category, together with corresponding Misuse scores for incorrectly formed or inappropriately selected forms.³

3.8 Coding and Data Analysis

This section provides a semantic review of the operational stages adopted for lexical and GA categories and a brief descriptive account of the data coding procedures. Additionally, this section surveys the statistical analysis methods implicated.

³ Coding scope not fully specified in the original protocol notes available for this scoring; it is not established whether copula/auxiliary forms and reported speech were included in the count. This scoring is distinct from, and broader than, the category-level tally in Tables 4-6, which is restricted to predicates codeable under Vendler's (1957) four-way classification.

The methodology of this research employs the four procedures (I-IV) delineated by Shirai and Andersen (1995) for the identification of the inherent Lexical aspect (LAsp) within the Re-telling Test (RT), conforming to Vendler's (1957) quadrifurcate categorisation of aspectual classes. This process uses the verb classification system Shirai (1991) developed to elucidate the nuances of LAsp categorisation. Scholars from varied theoretical orientations, such as functionalists and generativists, have applied this system across diverse languages, including Japanese, Spanish, Chinese, and Korean. However, the classification test applicability system devised by Shirai and Andersen is widely acknowledged as the benchmark in this area.

Vendler's (1957) four categories, namely states (STA), activities (ACT), accomplishments (ACC), and achievements (ACH), are utilised as coding categories for the LAsp in the present study, following Vendler's (1957) categorisation scheme.

The following is a compiled summary of available diagnostic procedures for LAsp classification. The operational criteria established by Dowty (1979) and additional contextual and extra-linguistic information are used to assign each predicate to one of the four LAsp categories based on Vendler's (1957) classification scheme. The subsequent section will examine each of the four LAsp categories in detail.

According to Shirai and Andersen (1995), the following four stages are adopted to decide on the inherent LAsp in the RT within Vendler's framework of aspectual categories.

- (i) Read a small subset of written discourse until the interpretation of the coded sentence (s) was evident. Linguistic and extra-linguistic contexts facilitated this interpretation.
- (ii) Determine if repetition was involved and code as either unitary, iterative, habitual, or iterative-habitual.
- (iii) GA (or viewpoint Aspect) and inherent LAsp are two levels of aspectual choice. Remove GA and Tense (e.g., -ing and PAST) from the sentence (for example, he plays, he is playing, and played should be he play as default values without GA). Inflections might bias the assessment of the inherent LAsp in favour of the study's hypotheses. In referring to a situation in which John drove yesterday, the speaker can select from a variety of choices, as in (1):
 - a. John drove (yesterday).
 - b. John was driving.
 - c. John was driving to school.
- (iv) Apply stages 1-3 of the below operational tests to determine the sentence's inherent aspect in RT.

(as cited in Mazyad, 1999, p.161)

Table 3. Lexical Aspect Classification Tests.

Step 1: State or non-state (stative vs dynamic)?

- a) Does the predicate have a habitual interpretation in the simple > present tense?
If no State (e.g. I know you, I love you = also now at the moment of utterance)
If yes, Non-state (e.g., I eat bread=habitually, but not at the moment of utterance go to step 2.
- b) Can the predicate occur with the progressive?
If no ==State (Mary is knowing the answer)
If yes==Non-state (John is singing)

Step 2: Activity or non-activity (atelic vs telic)?

- a) Can the predicate occur with 'in X time'?
If no== Activity (Mary danced + in two hours)
If yes==Non-activity (The ice melted in an hour)

- b) Does "X is V+ing" entail "X has V+ed" without an iterative/habitual meaning? In other words, if you stop in the middle of V+ing, have you done the act of V? (The imperfective paradox)

If yes, Activity (e.g., run in the park)

If no, Non-activity (e.g., run a smile), Go to Step 3

Step 3: Accomplishment or achievements (durative vs punctual)? If test (a) does not work, apply test (b) and possibly (c).

- a) If "X V+ed in (Y time; e.g., 10 minutes)", then "was V+ing during that time".

If yes, Accomplishment (e.g., He painted a picture)

If no, achievement (e.g., He noticed the picture)

It needs to be noted that it is possible to say X was V+ing Even right after X began the action that led to the goal.

- b) Is there ambiguity with "almost"?

If yes, (e.g., 'He almost painted a picture has two readings; i.e., He almost started to paint a picture, and He almost finished painting a picture)

If no, achievement (e.g., He almost noticed the picture has only one reading)

- c) "X will VP in (Y time; e.g., 10 minutes)" = "X will VP after (Y time)".

If no Accomplishment (e.g., He will paint a picture in an hour is different from He will paint a picture after an hour because the former can mean He will spend an hour painting a picture, but the latter does not.)

If yes, achievement (e.g., He will start singing in two minutes can have only one reading, which is the same as in He will start singing after two minutes, with no other reading possible.)(Weist et al. 1984, Robison 1990, Shirai 1993, 1994 cited in Salaberry & Comajoan, 2013, p.283-284)

The lexical aspect verb classification system used in this study builds upon established research on inherent-aspectual categories by scholars such as Brinton & Brinton (2010), Comrie (1976), Dowty (1979), Robison (1990), and Vendler (1957) Vendler's four-way categorisation of aspectual categories, namely states (STA), activities (ACT), accomplishments (ACC), and achievements (ACH), is adopted as the coding scheme. In order to facilitate data analysis, two separate files were created in SPSS for each target tense, containing all relevant data for the respective participant groups.

4. Results

In order to examine the Aspect Hypothesis, the amassed data from the impersonal narratives instrument will necessitate quantification. To facilitate this, a cross-category analysis will be employed to scrutinise and assess the gathered corpus. This analytical approach is tailored to test the hypothesis that probes the emergence of perfective and imperfective aspects within the interlanguage of Moroccan EFL learners across varying lexical aspectual (LAsp) verb categories, as predicted by the Aspect Hypothesis (AH).

Every research addressing aspect seeks to determine whether verbal morphology exhibits diverse distribution across aspectual categories. As Rohde (1996) explains, "the perspective adopted for the analysis was the verbal inflectional categories and their co-occurrence with different verb categories" (p. 1121). The comparative examination of tense-aspect morphology utilisation by learners at disparate proficiency levels and across distinct aspectual categories accentuates the profound relevance of this analysis (Bardovi-Harlig, 2000a; M. R. Salaberry & Shirai, 2002).

In this cross-category study, the primary focus rests on the verb's regular past tense (indicated by the -ed ending) and the progressive tense (denoted by -ing). This analysis method permits an exploration of how grammatical aspects are distributed across the four Vendlerian verb categories. Tables 9 and 10 display the number of tokens analysed for this purpose. This analysis does not consider the base form, as the emphasis is solely on acquiring -ed and -ing inflections. Both raw scores, as evidenced in the tables and percentages portrayed in Graphs 6 and 7 below, function as data visualisation tools. This analysis differentiates

between tokens of verbs (the total number of all the verbs in the learner texts) and types of verbs (counting only a single instance of each verb form) that appear in the text (Bardovi-Harlig, 2002)

The participants undertook a production test comprising impersonal narratives to elicit the target grammatical aspects (GAs) emergence. Upon collecting raw data, it was subjected to analysis using the Statistical Package for the Social Sciences (SPSS).

Four hundred seventeen verb tokens have been coded based on the operational tests and are currently being quantitatively analysed utilising the SPSS software. All learners predominantly use past inflection with statives (40.1% to 43.7%) and achievements (31.3% to 27%), and progressive inflection most frequently (47.1% to 57.6%) with activities. Nevertheless, progressive inflection use with state verbs is absent, albeit with a notable variation among the groups (BA 11.8% and MA 3%). Tables 12 and 13 below illustrate the distribution of past inflections (-ed, -ing) in relation to the inherent aspect at both levels.

Table 4. Across-Category Analysis of the Distribution of (-ed) in Film Re-tell Narratives by BA and MA

Level	Grammatical Aspect	STA	ACT	ACC	ACH	Total
BA.	-ed	77	42	13	60	192
MA.	-ed	55	25	12	34	126

Figure 2. The Distribution of Perfective Aspect (-ed) across the Vendlerian Classes

The graph in Figure 2 above represents the BA group's utilisation of the perfective form, contingent upon verbs' inherent Lexical aspect (LAsp). Generally, states constitute the most frequently used verb type (77, 40.1% of all predications), followed by achievements (60; 31.3%), then activities (42; 21.9%), and finally, accomplishments (13; 6.8%).

Distribution of tense-aspect morphology within aspectual categories in written narratives by MA learners of English

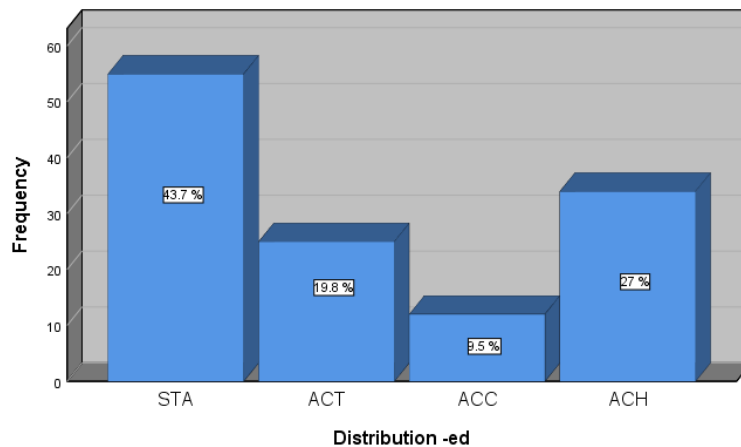


Figure 3. The Distribution of Perfective Aspect (-ed) across the Vendlerian Classes

The graph depicted in Figure 3 above presents the usage of the perfective form by the MA group based on the inherent Lexical aspect (LAsp) of verbs. Generally, states emerge as the most frequently used verb type (55, 43.7% of all predications), followed by achievements (34, 27%), then activities (25, 19.8%), and finally, accomplishments (12, 9.5%).

Table 5. A Cross-Category Analysis of the Distribution of (-ing) in Film Re-tell Narratives by BA and MA

Level	GA	STA	ACT	ACC	ACH	Total
MA.	-ing	1	19	8	5	31
BA.	-ing	8	32	13	15	68

Distribution of tense-aspect morphology within aspectual categories in written narratives by BA learners of English

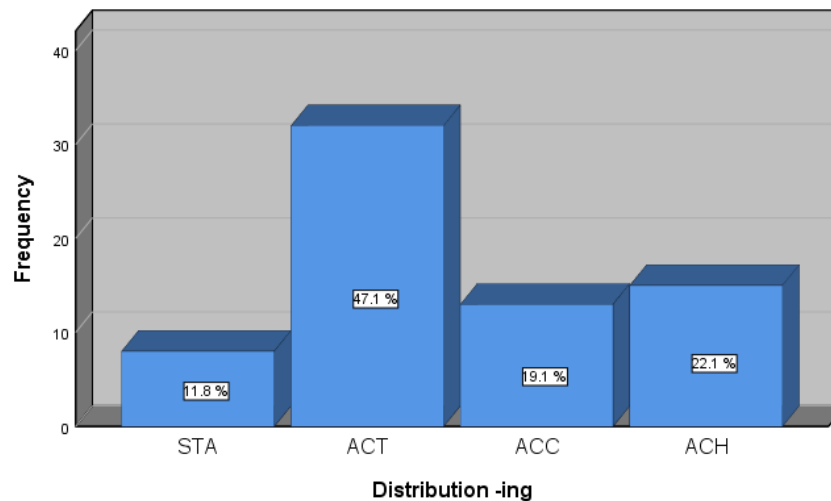


Figure 4 The Distribution of Perfective Aspect (-ing) across the Vendlerian Classes

The graph shown in Figure 4 above illustrates the BA's use of imperfective form according to the inherent LAsp of verbs. Generally, activities are the verb type mostly used (32; 47.1% of all predications), followed by achievements (15; 22.1%), then accomplishments (13; 19.1%), and finally, statives (8; 11.8%).

Distribution of tense-aspect morphology within aspectual categories in written narratives by MA learners of English

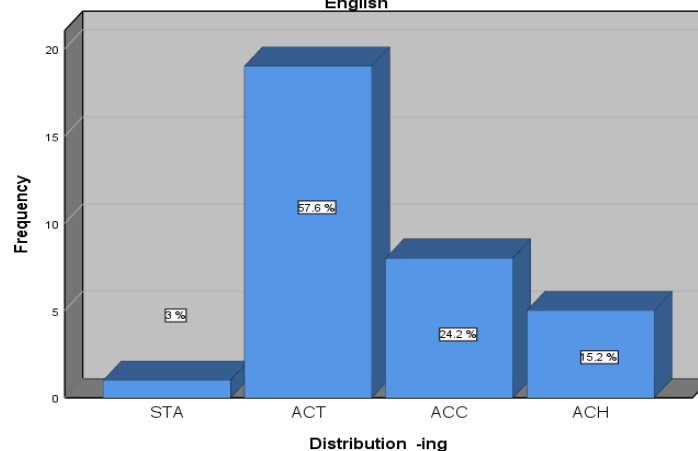


Figure 5. The Distribution of Perfective Aspect (-ing) across the Vendlerian Classes

The graph in Figure 5 above illustrates the MA's use of imperfective form according to the inherent LAsp of verbs. Generally, activities is the verb type mainly used (19; 57.6% of all predications), followed by accomplishments (8; 24.2%), then achievements (5; 15.2%) and finally statives (1; 3%).

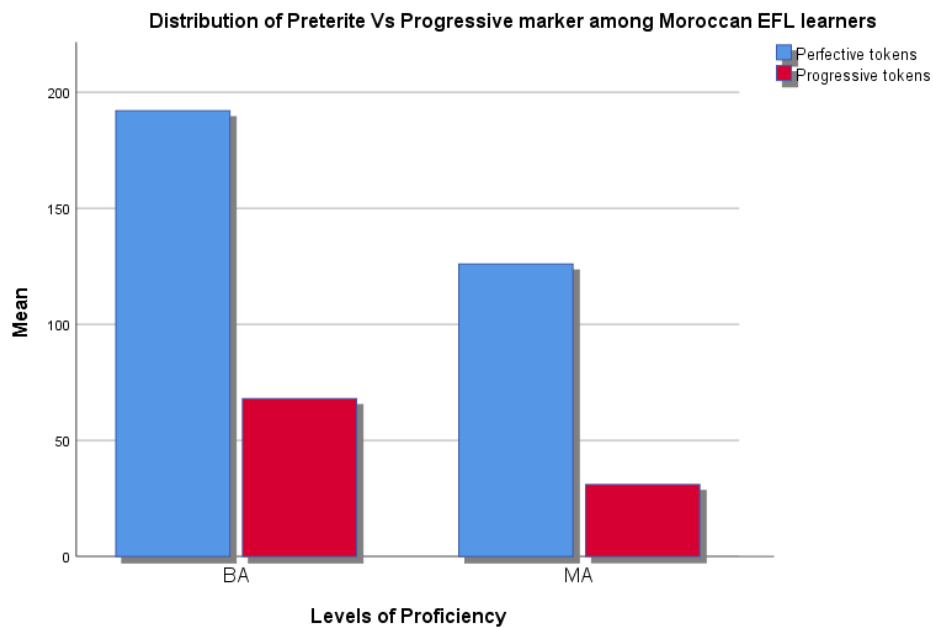


Figure 6 The Distribution of Preterite and Imperfective across the Moroccan Proficiency levels

Table 6. Mean percentages of (-ed) and (-ing) markers.

Level of Proficiency	Aspectual Markers		TOTAL
	(%)-ed	(%)-ing	
BA.	73.8%	26.2%	100 %
MA.	80.3%	19.7%	100 %

The results of the distributional analysis are summarised in Table 6. The columns display the tokens for the two perfective/imperfective marker levels. At first glance, learners of both levels appear to use the past simple more frequently than the past progressive—73.8% to 80.3% for BA and MA, respectively, are used with –ed, whereas only 19.8% to 26.2% of the remainder is used with the imperfective marker.

The results indicate that the students' use of tense-aspect markers is likely influenced by lexical aspect, supporting the Aspect Hypothesis (Andersen & Shirai, 1994, 1996; Shirai & Andersen, 1995). The learners are found to be more successful at marking the simple past with achievement verbs and the past progressive with activity verbs. Therefore, the distribution and accuracy of tense-aspect morphology are affected by the inherent lexical aspect of the predicates.

4.1 Inferential Statistics

The following tests were run on the data in Tables 4-6 to formally evaluate the three hypotheses (H0₁/H1, H0₂/H2, H0₃/H3) stated in the Methodology. One further, exploratory analysis (the correlation between perfective and imperfective control, reported in Table 10) is also included; it does not correspond to a formally stated hypothesis but follows naturally from the RQ2 results and is reported for its descriptive value.

4.1.1 RQ1: Is GA Marking Associated with LAsp Category?

A chi-square test of independence was run separately for each proficiency level, cross-tabulating marker (-ed vs. -ing) by Vendlerian category (STA/ACT/ACC/ACH). Effect size is reported as Cramér's V; since marker has only two levels (-ed/-ing), the relevant benchmarks (Cohen, 1988) are .10 = small, .30 = medium, .50 = large.

Table 7. Chi-square tests of marker × lexical aspect category, by level

Level	χ^2	df	p	Cramér's V	Min. expected count
BA	32.65	3	< .001	0.354 (medium)	6.80
MA	31.70	3	< .001	0.447 (medium-large)	4.15 †

† One cell (MA -ing × STA) has an expected count below the conventional threshold of 5. This same cell underlies both the present test and the BA-vs-MA distributional comparison reported in Table 11; since Table 11's result ($p = .361$) is the more borderline of the two and therefore more sensitive to any inaccuracy in the chi-square approximation, a Monte Carlo simulation (100,000 resamples) was run on that comparison specifically, yielding a simulated p-value (.370) close to the asymptotic one (.361). This confirms the approximation is trustworthy for the shared low-count cell, and the present test — with a far larger effect ($p < .001$) — is in any case much less sensitive to approximation error than a borderline result would be.

Both tests are significant: GA marking is not independent of LAsp category in either group. **H0, is therefore rejected in favour of H1** for both proficiency levels: this is the first formal statistical test of RQ1, and it supports the Aspect Hypothesis's central prediction.

A significant chi-square result only shows that an association exists somewhere in the table; it does not identify which specific marker-category combinations drive that association. Adjusted standardised residuals address this by indicating, for each cell, how far the observed count departs from the count expected under independence, expressed as a z-score; values with $|z| > 1.96$ indicate a statistically significant departure and are reported in Table 8.

Table 8. Adjusted standardised residuals for marker × category

Group/Marker	STA	ACT	ACC	ACH
BA -ed	+4.28	-3.95	-2.92	+1.44 (ns)
BA -ing	-4.28	+3.95	+2.92	-1.44 (ns)
MA -ed	+4.35	-4.31	-2.27	+1.41 (ns)
MA -ing	-4.35	+4.31	+2.27	-1.41 (ns)

The association is driven primarily by the strong attraction of -ed to statives and its avoidance with activities/accomplishments (and the mirror-image pattern for -ing). Achievements do not contribute significantly to the association in either group. This qualifies the classic AH claim that perfective marking is prototypically anchored to achievements; in this dataset, it is statives, not achievements, that anchor the perfective pattern most strongly.

4.1.2 RQ2: Perfective vs. Imperfective Accuracy — Within-Group Comparison

Because this comparison is within-subjects (the same participants' perfective and imperfective scores compared to each other, rather than two independent groups), effect size is reported as d_z , the paired-samples analogue of Cohen's d , using the same conventional benchmarks (0.2/0.5/0.8 = small/medium/large).

Table 9. Paired-samples t-tests, perfective vs. imperfective score

Group	Mean difference (Perf. – Imperf.)	t	df	p	dz (paired)
BA	8.77	5.38	29	< .001	0.98 (large)
MA	12.80	9.71	29	< .001	1.77 (very large)

In both groups, perfective scores are significantly higher than imperfective scores, and the gap is larger, not smaller, at the MA level. **H0₂ is therefore rejected in favour of H2** for both proficiency levels: this robustly supports RQ2's directly-tested accuracy claim, and — following the conservative interpretation set out in the Methodology (Section 3.1), given the cross-sectional rather than longitudinal design (Section 3.2) — is consistent with, though it does not directly establish, the AH-predicted order of emergence (perfective before imperfective).

Supplementary Analysis: Relationship Between Perfective and Imperfective Control

Table 10. Pearson correlations between perfective and imperfective scores

Group	Pearson r	p	n
BA	0.219	.246 (ns)	30
MA	0.493	.006	30
Pooled	0.371	.004	60

Perfective and imperfective control are significantly correlated at the MA level but not at the BA level, suggesting the two systems become more integrated within the learner's grammar as proficiency increases.

4.1.3 RQ3 (Distributional Component): Does the LAsp-GA Association Differ Between BA and MA?

Table 11. Chi-square tests comparing BA and MA distributional shape

Comparison	χ^2	df	p	Cramér's V
-ed distribution shape: BA vs. MA	1.58	3	.664	0.071 (negligible)
-ing distribution shape: BA vs. MA	3.21	3	.361	0.178 (small)
Overall -ed : -ing usage rate, BA vs. MA	1.29	1	.256	0.056 (negligible)

None of these differences are significant: **H0₃ is retained for all three distributional comparisons**. The shape of the LAsp-GA association is therefore essentially stable across the two proficiency levels sampled here, rather than showing a statistically detectable shift from BA to MA.

4.1.4 RQ3 (Accuracy Component): Group Comparison on Whole-Narrative Past/Progressive Suppliance

Independent-samples t-tests compared BA and MA on each measure. Welch's t-test (rather than Student's t-test) is used throughout, as it does not assume equal variances between groups and is generally recommended as the safer default for two-group comparisons; this is also why the degrees of freedom below are non-integer, since Welch's correction adjusts df to reflect each group's variance.

Table 12. BA vs. MA comparison on whole-narrative accuracy scores

Measure	BA M (SD)	MA M (SD)	Welch t	df	p	Cohen's d
Perfective score	57.13 (4.60)	56.17 (6.16)	0.69	53.6	.494	-0.18
Imperfective score	48.37 (8.73)	43.37 (7.87)	2.33	57.4	.023	-0.60
Misuse of perfective	13.07 (4.47)	14.30 (5.55)	-0.95	55.5	.347	0.25
Misuse of imperfective	14.20 (8.95)	17.30 (6.82)	-1.51	54.2	.137	0.39

BA learners scored significantly higher than MA learners on the imperfective measure (medium effect size); no other group difference reached significance. Combined with Table 11, **H0₃ is retained for six of the seven comparisons tested across both tables and rejected for one (imperfective accuracy)**. RQ3 therefore receives mixed support: BA and MA learners are largely similar in how tense-aspect marking is distributed and supplied, with one notable exception that runs counter to a simple linear-improvement account, since it is the BA group, not the MA group, that shows the significantly higher accuracy. This pattern is returned to in the Discussion below.

4.1.5 Summary of Hypothesis Tests

Table 13 consolidates the formal test of each research question and hypothesis stated in the Methodology, in the order they were introduced, alongside the decision reached for each.

Table 13. Summary of research questions, hypotheses, and decisions

RQ	Hypothesis	Test	Result	Decision
RQ1	H0 ₁ : GA not associated with LAsp / H1: associated	Chi-square, marker × category (Table 7)	BA: $\chi^2(3)=32.65$, $p<.001$; MA: $\chi^2(3)=31.70$, $p<.001$	H0 ₁ rejected; H1 supported (both groups)
RQ2	H0 ₂ : no accuracy difference / H2: perfective more accurate	Paired t-test, perfective vs. imperfective (Table 9)	BA: $t(29)=5.38$, $p<.001$; MA: $t(29)=9.71$, $p<.001$	H0 ₂ rejected; H2 supported (both groups)
RQ3 (distribution)	H0 ₃ : LAsp-GA association does not differ between BA and MA / H3: differs	Chi-square, BA vs. MA shape (Table 11)	All three comparisons $p>.05$	H0 ₃ retained (3 of 3 comparisons)
RQ3 (accuracy)	H0 ₃ : accuracy does not differ between BA and MA / H3: differs	Independent t-tests, BA vs. MA scores (Table 12)	3 of 4 comparisons $p>.05$; imperfective score $p=.023$	H0 ₃ retained (3 of 4); rejected for imperfective accuracy only

Overall, H0₃ is retained for six of the seven distributional and accuracy comparisons combined (Tables 11-12) and rejected for one. The correlation reported in Table 10 is exploratory and, as noted above, does not correspond to a formally stated hypothesis.

4.2 Discussion

While the acquisition of English verbal morphology has been extensively explored in second language (L2) contexts, it still needs to be examined within the framework of a foreign language. Accordingly, this research aims to illuminate how Moroccan

university students acquire English aspectual forms. More specifically, the study delves into whether Moroccan learners can master both typical and atypical aspectual meanings pertinent to the past tenses, namely the Perfective and Imperfective aspects.

This study embarks on an in-depth exploration of the acquisition of tense-aspect morphology, focusing on a group of 60 university students studying English. These learners have been categorised into two distinct levels of academic study for this research. The study employs the re-telling narrative task, together with its whole-narrative scoring (Section 3.7), to draw insightful inferences about the students' comprehension and production of past verbal morphology. This tool is carefully selected to gauge the intricacies of learners' understanding and their ability to apply the studied morphology practically. Structured within the cross-sectional, ex post facto design described in the Methodology, this research combines qualitative coding with quantitative analysis (Section 3.2) to facilitate a multi-dimensional examination of the data collected. This robust methodology ensures a thorough interpretation of results, yielding comprehensive insights into the language acquisition process.

The re-telling story test's findings reveal differential morphemes spread patterns over the various lexical verb categories. Each level of study has shown a particular distributional frequency over the past markers. As shown earlier, all BA and MA learners use past marker (-ed) most frequently, with statives (40.1% to 43.7%) and achievements (31.3 % to 27%), and progressive (-ing) inflection most frequently (47.1% to 57.6%) with activities. In answer to RQ1, chi-square tests of independence confirm that marker choice (-ed vs. -ing) is significantly associated with lexical aspect category in both the BA and MA groups ($\chi^2(3)=32.65$, $p<.001$ and $\chi^2(3)=31.70$, $p<.001$, respectively), providing direct statistical support for the Aspect Hypothesis's central prediction. However, chi-square tests comparing the shape of this distribution across proficiency levels found no significant BA-MA difference, either for -ed ($\chi^2(3)=1.58$, $p=.664$) or -ing ($\chi^2(3)=3.21$, $p=.361$). The association pattern is therefore already largely in place by the BA level and remains statistically stable through the MA level in this cross-sectional sample, rather than showing continued significant reorganisation across the two levels sampled; the descriptive percentage shift reported above should be interpreted with this in mind. Standardised residual analysis further indicates that the significant association between marker and lexical aspect category is driven primarily by the strong attraction of the perfective marker to stative predicates and its corresponding avoidance with activities and accomplishments (all $|z| > 2.9$), with the mirror pattern holding for the imperfective marker. Notably, achievements — the category most classically associated with perfective prototypicality in the Aspect Hypothesis literature (Andersen & Shirai, 1994, 1996) — did not contribute significantly to the association in either group ($|z| < 1.5$). This suggests that in this narrative-retelling dataset, the perfective-imperfective distinction is organised primarily around the state/non-state distinction rather than the punctual/durative distinction more classically emphasised in AH's achievement-based prototype account, a nuance that qualifies rather than contradicts the overall support for AH found here. The verb semantics affect the verbal morphology use, as data has shown to adhere to the premises of how LAsp impact the deployment of the perfective/imperfective Aspects (Salaberry & Shirai, 2002). In light of the prototypical account elaborated by Shirai and Andersen (1995, 1995), the LAsp has constraints on acquiring tense-aspect morphology. The Lexical aspectual classes are defined by features: "achievements (+punctual, +telic, +dynamic), accomplishments (-punctual, +telic, +dynamic), activities (-punctual, -telic, +dynamic), and states (-punctual, -telic, -dynamic)" (Salaberry & Shirai, 2002, p. 456). According to Andersen and Shirai (1994), the existing attraction between the above verb categories and GA can be explained by different principles; among them, we have the congruence principle in which we have the simple past (+past), (+telic), (+punctual), and (+result) is attracted to achievements. Following the findings, we can assume the critical role of the LAsp in how the distribution of past markers has been established in the learners' interlanguage.

The study research research question examines how grammatical features of English (GAs) interact with learners' native language aspectual systems (LAsp) to guide the full emergence of the Moroccan EFL aspectual system. The above analysis of the study indicates that Moroccan university learners of English rely on the inherent semantics of verbs to properly use the perfect and imperfect tenses in their L2 productions. Based on Andersen's Aspect Hypothesis, this research implemented the narrative re-telling test as an instrument to investigate whether the inherent aspect of the predicates guides the distinction of the two past tenses, and the overall results tend to support the Aspect Hypothesis (Shimanskaya, 2014).

The general tendency is to use the perfective aspect more frequently with achievements and statives. However, the emergence of past forms is first observed with telics (achievements), which are characterised as punctual but only in the context of narratives (i.e., sequenced events in a story that are not interrupted), and then proceed to accomplishments, activities, and statives (Andersen & Shirai, 1994, 1996; Shirai & Andersen, 1995).

The imperfective marker (-ing) is primarily used with activities and gradually spreads to achievements without inappropriate over-generalisation to statives. However, there is a notable difference between BA and MA students in their use of progressive morphology. BA students tend to overextend the use of -ing to some verbs, while MA students' use of progressive morphology is not overextended to statives. These findings suggest that Moroccan learners' verbal morphology follows the Aspect Hypothesis (AH) predictions that relate to the semantic features of dynamicity, punctuality, and telicity to the four (Vendler, 1957) verbal categories. The re-telling story test results from all groups also indicate a correlation between LAsp and GA, supporting the alternative hypothesis of the Aspect Hypothesis, which claims that EFL learners' aspectual markers follow a developmental

sequence of emergence influenced by the lexical-semantic verb categories. These results have been reported by several researchers, including Andersen and Shirai (1994,1996), Shirai and Andersen (1995), Bardovi-Harlig and Bergström (1996).

Based on the findings and analysis, this study has investigated whether the deviant use of inflections in L2 written production aligns with the Aspect Hypothesis (AH). Narratives have been extensively used in AH research and have yielded findings broadly consistent with the most controlled cloze tasks. The premises of AH have been adopted to account for the emergence of the uses of past markers. AH was initially formulated by Andersen (1986, 1991) as The Defective Tense Hypothesis fueled by research in first language acquisition. This hypothesis is also supported by various studies, such as Bronckart and Sinclair (1973), Antinucci and Miller (1976), Bloom et al., (1980), Weist (1983), Rocca (2002), Rosch (1988) and others. AH predicts that the semantic features of a situation, such as dynamicity, punctuality, and telicity, related to the four Vendler (1957) verbal categories, state, activity, accomplishment, or achievement, will impact how language learners create productive systems of verb morphology using Tense/Aspect markers.

In the field of second language acquisition (SLA), research investigating the influence of LAsp has predominantly employed Andersen & Shirai (1994, 1996), Shirai and Andersen (1995) semantic feature description of the Vendler hierarchy (Collins, 2002). Andersen reconceptualised the hierarchy into a matrix of four categories and three semantic features. This classification system allows for situations to be classified as a state, activity, accomplishment, or achievement based on the presence or absence of semantic features, including dynamicity, telicity, and punctuality. As a result, the distribution of aspectual markers is seen as a natural consequence of the congruence principle, which relates the semantics of the verb morphology to the inherent LAsp, as previously discussed. Aspect holds more significant importance to the verb than tense because it affects how the internal temporal contours of the situation are perceived, whereas tense considers the situation as a whole and places it in relative time without altering the perspective on the nature of the event described by the verb (Salaberry, 2001).

In addition, it is worth noting that the overextension of progressive states, previously reported in L2 learners by Andersen and Shirai (1996), has yet to be observed in the current study among the MA data and only appears in limited instances among BA learners' data. Specifically, the BA students' use of the imperfective form is 11.8% (8 occasions), while their use of the form with statives is 3% (one occasion). Flashner's (1989; see Bardovi-Harlig, 2000a) study of three L1 Russian learners also shows a limited association of the progressive with statives. Similarly, Shirai has reported only 2% of all progressives in the interlanguage of three Chinese learners of Japanese, and Bardovi-Harlig (1998, 1999) has found no more than 3% of progressive use with statives in her oral and narrative tasks with learners of English. These findings support the predictions of the Aspect Hypothesis, which relate the lack of overextension to the learners' experience and developmental stage of acquisition. It is important to note that the nature of the re-tell task in this study limits the learners' access to report habitual activities and states, as explained by Bardovi-Harlig (1998, 1999). Thus, it is evident that adult second language learners rarely overextend progressives to statives.

Eventually, Moroccan EFL learners appear to follow a developmental sequence in acquiring aspectual markers that correspond to the predictions of the Aspect Hypothesis. As reported earlier on the morphosyntactic marking of temporality among learners in naturalistic and classroom settings, findings from different empirical studies have shown that instruction might significantly impact language development (Andersen, 1991; Andersen & Shirai, 1994, 1996; Rohde, 2002). However, the remaining question is how instruction contributes to the developmental processes of the extended use of tense verbal morphology. According to Shirai & Andersen (1995), in the first stages of the emergence of learners' verbal morphology, these learners restrict their use of tense-aspect inflections to the prototype of a category and later extend the category boundary equally across various verb categories with no variation or sensitivity at more advanced stages.

Furthermore, the frequent use of perfective markers among BA and MA learners supports the premises of the Aspect Hypothesis. It predicts a universal acquisition route for Moroccan EFL learners. The reported data reveals a strong tendency towards using perfective markers (80.3%) over imperfective ones (19.7%). This descriptive pattern is consistent with the -ed past marker being established earlier than -ing in the Moroccan learners' interlanguage; more direct, inferential support for this order comes from the paired-samples comparison reported in Section 4.1.2 (RQ2), though, as noted there and in Section 3.2, the cross-sectional design means this should be read as evidence consistent with, rather than direct proof of, a temporal order of emergence.

The present data are consistent with the predictions of the order of emergence among English verbal morphology, which entail that the simple past emerges first, followed by the past progressive, as Bardovi-Harlig (2000a, 2000b) explained. The greater frequency of use and production accuracy of the past simple relative to the past progressive is consistent with — though does not by itself establish — its earlier acquisition. Firstly, for the perfective aspect, the past form emerges with telic verbs (achievements), which are characterised as punctual only in the framework of narratives (sequenced events in a story that are not interrupted), and then proceed to accomplishments, activities, and statives (Andersen, 1991; Andersen & Shirai, 1994). However, the general trend is the frequent use of achievements and states. Secondly, the imperfective marker (-ing) emerges with activities and spreads to achievements, with no inappropriate overgeneralisation to statives, but with a remarkable difference between BA and MA students.

Only BA students tend to overgeneralise some verbs, unlike MA students whose progressive morphology is not overextended to statives. Accordingly, Moroccan learners' verbal morphology seems to follow the predictions of the AH that accounts for the underlying relationship between LAsp and GA, which relates to the semantic features of dynamicity, punctuality, and telicity to the four Vendler (1957) verbal categories (Andersen, 1991; Bardovi-Harlig & Bergström, 1996).

The established evidence shows that the development of temporal expressions is slow and gradual, and learners acquire form-meaning associations in stages. Most actions with in-progress meaning are typically congruent with atelic (lacking inherent endpoint) and durative features defined as activities. However, when it comes to the imperfective marker (-ing), Moroccan BA students tend to overextend their use of -ing to statives, unlike many MA students. In this case, BA Moroccan EFL learners underuse the progressive marker with statives, contradicting the prototypical tendency that presupposes the state-process distinction.

The findings of other studies, such as Rohde (1996), suggest that L2 learners may fossilise at the prototype stage and produce incorrect stative progressives or misuse them with stative verbs. In terms of raw overextension frequency, the MA group's rate of -ing use with statives (3%) was lower than the BA group's (11.8%), a pattern that might initially be read as MA learners' progressive marking being more native-like. This reading requires substantial qualification, however, in light of the inferential results for RQ3 (Table 12). An independent-samples comparison on the whole-narrative production measure found that BA learners scored significantly *higher* than MA learners on imperfective-marking accuracy ($t(57.4)=2.33$, $p=.023$, $d=0.60$), and MA learners showed somewhat more (though not statistically significant) misuse of both perfective and imperfective marking (Table 12). This pattern does not support a straightforward linear-improvement account and instead may reflect one or more of the following: (a) cohort or curricular differences between the BA and MA samples rather than a strict developmental trajectory, given the pseudo-longitudinal use of this cross-sectional design (see Methodology, 3.2); (b) increased willingness among MA learners to attempt more complex or less-rehearsed constructions, elevating superficial error rates without reflecting reduced underlying competence; or (c) task-specific effects, since the low raw overextension percentage reported above and the accuracy score in Table 12 are not measuring the same thing (the former counts a narrow set of category-coded tokens; the latter is a whole-narrative accuracy score — see the Additional Scoring subsection in the Methodology). This finding is reported transparently here because a cross-sectional comparison of two proficiency groups cannot by itself establish a developmental trajectory, and future longitudinal work would be needed to adjudicate between these explanations. The stages of linguistic item emergence should nonetheless still be viewed as distinct from the acquisitional order across items, which proceeds as an ongoing process of mapping verb morphology onto the LAsp, according to the AH.

An additional analysis examined whether control over the two markers is related within individuals. Perfective and imperfective scores were not significantly correlated among BA learners ($r=.22$, $p=.246$) but were significantly and moderately correlated among MA learners ($r=.49$, $p=.006$; Table 10). This suggests that as proficiency develops, command of the two aspectual markers becomes more integrated within the learner's grammar — consistent with a view of interlanguage development as increasing systematicity, rather than the two markers developing as fully independent sub-systems at every stage.

In answer to RQ2, paired-samples t-tests provide robust support for the directly-tested accuracy claim, and — read conservatively, per the cross-sectional design (Section 3.2) — are consistent with the predicted order of emergence: perfective scores were significantly higher than imperfective scores within both the BA group ($t(29)=5.38$, $p<.001$, $dz=0.98$) and the MA group ($t(29)=9.71$, $p<.001$, $dz=1.77$), with the gap, if anything, larger at the MA level (Table 9). H_{02} is rejected in favour of H_2 : this is consistent with the Aspect Hypothesis's prediction that the perfective/past form emerges before the imperfective/progressive form, and is now supported by within-subject inferential statistics rather than by descriptive percentage comparison alone.

The process of acquiring aspect, as explained by Shirai, involves computation. Learners engage in an interactive and dynamic learning environment where the computational statistical mechanism interacts with the distributional properties of the input. This interaction results in the emergence of meaningful representations of linguistic categories (Li & Shirai, 2000).

According to Shirai & Andersen (1995), a child's knowledge of verbal morphology is shaped by input and prototype. Acquiring it starts with a prototype and gradually expands to the more peripheral members (Slobin, 1985). The prototypical past is characterised as (+Telic), (+Punctual), and (+Result), whereas the prototypical progressive is characterised as (-Telic), (+Durative), and (+Dynamic) (Rocca, 2002; Rosch, 1988). Consequently, strong associations typically exist in the early stages of language acquisition and gradually weaken in later stages. As predicted by the prototype hypothesis, Moroccan BA and MA students' Aspect morphology becomes more flexible due to their developmental transition from prototypical to non-prototypical associations.

It is important to note that the interplay of external and internal factors in language acquisition is complex and multifaceted, and researchers often approach this issue from different theoretical perspectives. While some researchers emphasise the role of input and instruction in shaping learners' language development, others highlight the role of innate linguistic mechanisms that enable learners to acquire language in the absence of explicit instruction (Andersen & Shirai, 1994, 1996; Barrett,

1978; Costello & Shirai, 2011; Ellis, 2002, 2004; Hakuta et al., 2003; Krashen, 2008; Shirai & Andersen, 1995) Motivation, individual differences in learning styles, and the sociolinguistic context of language use may also influence learners' language development. Therefore, it is essential to consider multiple factors when investigating the emergence of verbal morphology in Moroccan EFL learners.

Nativists believe that language acquisition is guided by domain-specific knowledge, which accounts for internal factors in learners. They argue that human semantic categories are innate and prior to language experience. The stative-dynamic distinction is an example of this innate knowledge. Nativists argue that the basic architecture of language is innate and not acquired. Bickerton's language Bio-program Hypothesis supports this assumption by proposing that semantic distinctions are biologically preprogrammed in the human brain. Bickerton considers the "state-process distinction" and the "punctual-nonpunctual distinction" innate semantic primitives independent of any particular language. However, Shirai and others (Costello & Shirai, 2011; Li & Shirai, 2000; Shirai, 2007; Sugaya & Shirai, 2007) presents evidence that children occasionally overgeneralise the -ing suffix to stative verbs like "seeing" and "loving." This finding, along with other evidence, challenges the premises of the Bio-program Hypothesis. Therefore, the interplay between innate and external factors in language acquisition remains complex and controversial.

In this respect, Bickerton revises his position and weakens his predictions concerning the acquisition of aspect by proposing differential acquisitional patterns between the universal list and the default list of grammaticalizable notions, leading Li & Shirai (2000) to highlight the prominent role of target language input in the acquisition of Bickerton's revised version. Thus, one should be careful when it comes to universals that have nothing to do with the inherent properties of language. Accordingly, universality is a product of the mental mechanism and has nothing to do with any semantic distinction hypothesised to be endowed in humans or programmed.

Human language expresses semantic categories like states, activities, achievements, and accomplishments, or the equivalent of these categories in terms of contrasts between telic, atelic, punctual, and non-punctual. This level of universality does not necessarily have to presuppose the innateness of these categories; instead, contrasts in events, such as being with or without results, time duration, and dynamicity, are perceptually salient to the learner and repeatedly occur, as Li and Shirai explain (2000). Therefore, Moroccan university English learners are cases of learners like any others who have been equipped with statistical concepts and mechanisms, which adequately account for the emergence of the observed developmental patterns as displayed earlier. Moroccan learners' emergent properties result from an interactive and statistical analysis of the learning environment factors and the learners' complex processing systems (Li & Shirai, 2000). Thus, the past linguistic structure emerges from the mapping between forms and meanings in the linguistic input, especially from analysing the statistical regularities and patterns in the mapping process, as MacWhinney (2005) suggests.

According to Ellis (2006), formal instruction plays a major role in the development of past tense verbal morphology in L2, and this can be assessed based on three major factors: frequency, saliency, and instruction sequence. Ellis notes that frequency and repetition are critical factors in the emergence of forms in language, as learners employ statistical mechanisms to analyse the distributional characteristics of the language input and generate relevant semantic associations and recurrent grammatical patterns. It is evident in the case of the emergent temporal system of instructed Moroccan learners. Furthermore, as Slobin (1981) explain, the range of grammatical devices available in the input trains learners to encode certain semantic content by relying on prototypes, which are most typical of a category. Learners build accurate knowledge of tense and aspect morphology by analysing the encountered frequency distributions and their central tendencies, even when they have never been encountered before.

To summarise, the emergence of the past tense-aspect system in Moroccan EFL learners is influenced by various psychological factors such as the frequency and saliency of the linguistic forms in the input, the contingency of form-function mapping, and learner attention. These factors and learning principles contribute to constructing and reconstructing the temporal system. Moroccan EFL learners exhibit a higher level of linguistic competency due to their statistical learning of the distributional properties of the input, primarily through instruction. The retrospective interaction between internal and external factors allows learners to establish semantic-meaning associations for their emergent aspects. Input guides learners to focus on the target linguistic entities and develop their past tense-aspect system.

4.3 Beyond the Aspect Hypothesis: A Cryptotype-Informed Interpretation

The results reported above support the Aspect Hypothesis's central prediction, but two aspects of the findings are better accommodated by extending the interpretation beyond a purely categorical AH account, returning to the connectionist, cryptotype-informed account introduced in the Literature Review. Whorf (1956) defined a cryptotype as a covert semantic category that constrains the combinability of a morphological device without being consciously accessible to speakers or cleanly statable as a symbolic rule; a cryptotype is definable only negatively, through the combinations it disallows. Li and Shirai (2000) propose

that lexical aspect categories emerge through the same kind of mechanism: a correlational, connectionist learning process in which the learner simultaneously tracks co-occurrences of forms with meanings, forms with forms, and forms with contexts, gradually building a distributed, feature-weighted representation rather than a discrete rule.

Two findings from the present study are consistent with this account. First, the standardised residual analysis (Table 8) shows that the significant association between marker and lexical aspect category in both groups is anchored not in the punctual, telic achievement category most classically treated as the AH prototype (Andersen & Shirai, 1994, 1996), but in the state/non-state distinction: perfective marking is strongly attracted to statives and avoided with activities and accomplishments, with achievements contributing no significant residual in either group. A crisply-defined achievement category is exactly the kind of “clean symbolic rule” a cryptotype account predicts should be less psychologically real than a broader, statistically emergent constraint; the present data suggest Moroccan EFL learners’ interlanguage may be organised around such a broader covert constraint rather than the narrower prototype category assumed by classical AH.

Second, Li and Shirai propose a developmental trajectory in which tense-aspect morphology and lexical aspect categories are tightly, cryptotype-like bound together early on, and gradually decouple as input accumulates: “categories of lexical aspect no longer need to be defined by the grammatical markers with which they are used... prototypes of tense-aspect morphology start to spread their uses to different types of verbs... the associations between the two weaken” (Li & Shirai, 2000, Ch. 7). The absence of a significant BA-MA difference in distributional shape (Table 11) is consistent with both proficiency groups still being within this tightly-bound phase, rather than evidence against development: two adjacent academic cohorts, sampled cross-sectionally, may simply not span enough accumulated input for the predicted relaxation to become statistically detectable. This reading is offered as an interpretive extension rather than a directly tested claim; it should be qualified against one complication in the data — the association is, if anything, marginally stronger in the MA group (Cramér’s $V=.447$) than in the BA group ($V=.354$), which runs counter to a straightforward relaxation-with-proficiency prediction. Given the cross-sectional design (see Limitations), this is more plausibly a cohort or sampling effect than evidence of the association tightening with proficiency, but it should not be discounted, and a longitudinal or proficiency-matched design would be needed to adjudicate it properly.

This cryptotype-informed reading also offers a mechanistic complement to the “conspiring factors” account of L2 tense-aspect morphology (Bardovi-Harlig, 1998), which identifies discourse grounding, input distribution, and the one-to-one principle as factors that jointly shape learner morphology. Li and Shirai’s three correlational analyses (forms-with-meanings, forms-with-forms, forms-with-contexts) can be read as a proposed computational substrate for how such conspiring factors might jointly do their work in the learner’s interlanguage, rather than as a competing account: the dynamic, interlanguage-internal reorganisation the present data are consistent with (a still-emergent, statively-anchored covert category, not yet showing significant cross-level relaxation) is the kind of process this connectionist, multi-factor learning mechanism is designed to produce. Testing this more directly — for example, by coding the graded semantic features Li and Shirai propose (dynamicity, punctuality, telicity) rather than discrete Vendlerian categories, and by sampling proficiency levels further apart or longitudinally — is a natural direction for future research building on the present findings (see Recommendations).

5. Conclusion

This study set out to answer three research questions. In summary: $H0_1$ was rejected in favour of $H1$ for both proficiency groups, confirming that GA marking is significantly associated with LAsp category (RQ1); $H0_2$ was rejected in favour of $H2$ for both groups, confirming that perfective marking is produced with significantly greater accuracy than imperfective marking, consistent with the Aspect Hypothesis’s predicted order of emergence (RQ2); and $H0_3$ was retained for six of seven distributional and accuracy comparisons but rejected for one — BA learners’ imperfective-marking accuracy significantly exceeded that of MA learners — indicating that BA and MA learners are largely similar in how tense-aspect marking is organised, with one notable exception that runs counter to a simple linear-improvement account (RQ3).

The present research findings suggest that the acquisition of tense-aspect markers by Moroccan learners is strongly influenced by the inherent LAsp: chi-square tests confirm that marker choice is significantly associated with lexical aspect category in both the BA and MA groups ($\chi^2(3)=32.65$, $p<.001$ and $\chi^2(3)=31.70$, $p<.001$, respectively), directly supporting the Aspect Hypothesis. Both groups show a robust perfective-before-imperfective asymmetry (Table 9), but neither group should be characterised as having achieved native-like command of -ing: the group-comparison results (Table 12) show that BA learners, if anything, scored significantly higher than MA learners on the imperfective measure, so the cross-sectional comparison between them does not support a simple linear-improvement narrative. The order of acquisition of tense-aspect markers in L1 and L2, as predicted by the Aspect Hypothesis, is well supported by the present within-subject data: the perfective aspect significantly precedes the imperfective aspect in terms of suppliance accuracy in both proficiency groups.

5.1 Recommendations

This study makes a valuable contribution to the current literature on the comprehension and production of past tense-aspect system by Moroccan learners. The results of this study emphasise the significance of internal and external factors that influence the emergence of past Tense verbal morphology in ELF learners. Consequently, this research has important pedagogical implications that should be considered.

First, the learners' output appears to align with the premises of the hypothesis when the suppliance of the previous morphological markers is first compared with the orders of emergence predicted by AH and observed for BA and MA. Thus, among other factors, learners' universal predispositions contribute to the general patterns found in earlier studies. This similarity in interlanguage is not unexpected, given the many interrelated factors that contribute to it. Additionally, the study could be extended to cover different proficiency levels to provide more robust results on the emergence and acquisition of past markers.

Second, even grammar instructors can enhance and accelerate the learning process of past markers by providing their learners with comprehensive input. It maximises the chances of capturing the associations between forms and meaning, forms and functions, and finally, forms with context. Through this process, learners can pay attention to the patterns of co-occurrences of telic verbs with perfective and atelic with imperfective aspects. They can generate and internalise how occurrences between event verbs and past inflections function. Statistical learning of the distributional properties of the input enables learners to achieve native-like representations of the target past markers efficiently. These results provide crucial insights into the workings of past tense-aspect morphology. They can inspire the development of materials and language instructors to provide adequate input for better morphological sensitivity. Furthermore, these insights could provide an opportunity for a perfect awareness of learners' intervening acquisitional factors and intriguing mental processing mechanisms.

Finally, regarding the English temporal system, the LAsp plays an essential role in constructing and reconstructing mental representations of event types for Moroccan learners. The Aspect Hypothesis remains a predictive hypothesis, as it is supported by evidence from this study and previous ones. As previously mentioned, the use of tense-aspect morphology is influenced by the inherent meanings of LAsp, as reported by Andersen (1991), Andersen and Shirai (1996), and Bardovi-Harlig (1999). Therefore, BA and MA's distribution of the simple past is biased towards achievements and statives, while their use of past progressive is more inclined towards activities than telics. Consequently, the projection of lexico-semantic verb classes with their related time-aspect references provides a suitable model for teaching English past tense-aspect morphology. In conclusion, these findings suggest that LAsp significantly influence Moroccan learners' use of past markers.

5.2 Limitations

However, some limitations should be noted. Firstly, the number of participants needs to be increased. Given the nature of the topic, a valid interpretation of the collected data requires a considerable sample size. Therefore, many participants should be recruited for future inquiry. Secondly, although reliable grammar tests have been used to make inferences about the learners' grammatical attainment, applying standardised proficiency tests such as IELTS would be suitable and practical regarding the global proficiency level of L2 learners (Salaberry & Comajoan, 2013). Thirdly, a control group of English native speakers is excluded from the study because the researcher could not find enough English native speakers to recruit as a control group. The implication of a control group is crucial because it allows the researchers to compare L2 learners' knowledge of Aspects to that of native speakers of the target language (Bardovi-Harlig, 1998). Besides, the lack of precise descriptions of the procedures for determining the inherent LAsp might lead to contradictions and distorted data. However, only four tense-aspect studies include operational tests for verb classification, while the other two report interrater reliability. The latter stresses the researcher's tendency towards disclosure of their verb categorisation procedures, which might cast doubts on several research findings (Andersen & Shirai, 1994; Cziko & Koda, 1987; Robison, 1990; Shirai & Andersen, 1995; Weist, 1983)). Therefore, an accurate and onboard procedure description is critical in this study because using different criteria may cause disagreement. Finally, regarding the conspiring factors in L2 tense-aspect marking, interlanguage production data are influenced by various factors. We can only sometimes be sure about what a learner has intended in every instance.

Fifth, the present design is cross-sectional and ex post facto, used pseudo-longitudinally (see Methodology, 3.2): BA and MA learners were compared at a single point in time as a proxy for development, rather than following the same learners longitudinally as they progress from one level to the other. The finding that BA learners outperformed MA learners on imperfective-marking accuracy (see Results and Discussion) underscores exactly the risk this design type carries: such a cross-sectional comparison cannot establish a developmental trajectory on its own, since cohort or curricular differences between the two samples are an equally plausible explanation for any group difference observed (Ortega & Iberri-Shea, 2005). A genuine longitudinal design, or at minimum a design matching BA and MA participants on additional proficiency indices, would be needed to make stronger developmental claims.

Sixth, the cryptotype-informed interpretation offered in the Discussion (see “Beyond the Aspect Hypothesis”) predicts that the association between marker and lexical aspect category should weaken, not strengthen, with proficiency, as tense-aspect morphology decouples from lexical aspect and spreads to non-prototypical verbs (Li & Shirai, 2000). The present data run counter to this in one respect: the marker-category association is marginally stronger in the MA group (Cramér’s $V=.447$) than in the BA group ($V=.354$, Table 7), the opposite of what a relaxation-with-proficiency account predicts. Because this study’s cross-sectional design is being used pseudo-longitudinally (see the previous point), this pattern cannot be distinguished from a cohort or sampling effect, but it is flagged here explicitly rather than treated as consistent with the cryptotype account: a genuine longitudinal or proficiency-matched design, ideally spanning a wider proficiency range than BA-to-MA, would be needed to test the predicted relaxation directly and would either substantiate or disconfirm the cryptotype-based reading offered here.

5.3 Directions for Future Research

Two of the present findings are, on their face, awkward for a simple developmental account: BA learners outperformed MA learners on imperfective-marking accuracy (Table 12), and the marker-category association was, if anything, marginally stronger among MA learners than BA learners (Table 7) rather than weaker, as a straightforward relaxation-with-proficiency account would predict. Li and Shirai (2000, Ch. 8) offer a specific, testable explanation for exactly this kind of pattern: unlike L1 acquisition, L2 acquisition does not reliably show prototypical associations weakening as proficiency increases, in part because L2 learners rely more heavily on memorised, formulaic expressions whose frequent, unanalysed use can skew or delay the semantically-driven form-meaning mapping that underlies the classic prototype-to-non-prototype trajectory. This mechanism has since been substantiated with modern corpus and computational methods: recent work on formulaicity in L2 morphosyntax (Guo & Ellis, 2021; Murakami & Ellis, 2022) shows that the accuracy of grammatical morphemes is shaped measurably by how formulaic versus analytically-produced the surrounding language is. A natural next step for this line of research would be to code the BA and MA narratives for formulaic versus novel verb usage directly, to test whether the BA group’s narratives lean more heavily on rehearsed, high-frequency expressions in ways that could explain both of the present study’s counter-intuitive findings.

A second direction concerns first-language transfer. The present sample shares a first-language background (Arabic, frequently alongside French and/or Amazigh) with a rich aspectual system of its own, yet lexical aspect-specific transfer effects for Arabic-speaking learners of English remain comparatively underexplored: the closest existing work, Zhao and Shirai (2018), examined Arabic-speaking learners’ acquisition of English past tense morphology primarily through the lens of phonological saliency rather than lexical aspect category. Extending the present design to explicitly test for L1-specific transfer effects — for example, by comparing Moroccan learners against learners from typologically different L1 backgrounds on the same re-telling task — would help establish whether the patterns reported here are general to EFL learners or partly shaped by the learners’ first language.

Finally, in the twenty years since Li and Shirai’s (2000) volume, the field has continued to test, extend, and occasionally challenge the Aspect Hypothesis (see Bardovi-Harlig & Comajoan-Colomé, 2020, for a state-of-the-scholarship review of this period), including growing interest in advanced-proficiency populations specifically (Salaberry, 2021) and in more fine-grained, corpus-based approaches to individual learner variation. Building on the cryptotype-informed interpretation proposed in the Discussion, a productive future study would code the present narratives for Li and Shirai’s graded semantic features (dynamicity, punctuality, telicity) rather than discrete Vendlerian categories, and would sample proficiency levels further apart than BA-to-MA — or follow the same learners longitudinally — to test directly whether the marker-category association relaxes with proficiency, as the connectionist account predicts, or remains stable or strengthens, as the present cross-sectional data suggest.

6. Statements and Declarations

(a) Funding

This research received no external funding.

(b) Conflicts of Interest

The author declares no conflict of interest.

(c) Ethics Statement

Research ethics serve as a foundational pillar in all research methods, ensuring integrity, transparency, and the protection of participants. As outlined by Brown (2004), following rigorous procedures and obtaining ethical clearance guarantees ethical practice. Some key components in maintaining ethical standards in research include:

1. **Preliminary Procedures:** A pilot study aids in introducing the research problem to participants, establishing trust through conversations, and clarifying the study's objectives. This ensures transparency and helps participants understand their role (Creswell, 2022).
2. **Voluntary Participation:** Researchers courteously invite participants, emphasizing voluntariness, the right to withdraw, and providing study findings as gratitude.
3. **Data Collection & Analysis:** The data undergoes comprehensive processing, objective treatment, rigorous validation tests, and expert verification. This ensures the results are a genuine representation of the participants' responses.
4. **Privacy:** Participants' personal information is guarded with pseudonyms to ensure confidentiality, especially given the study's focus on their knowledge, which might cause potential embarrassment (Creswell, 2022).
5. **Interpretation & Reporting:** The data is reported accurately, strictly based on the observed evidence without any manipulation. The analysis is aligned with relevant literature.
6. **Integrity:** The research maintains academic honesty by citing sources using the APA style and diligently checking for any missed citations.

In essence, research ethics is not just about protecting participants but also ensuring the quality, trustworthiness, and credibility of the research in the academic community.

(d) Acknowledgments

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(e) Declaration on the Use of Artificial Intelligence

In line with current guidance from bodies such as COPE (Committee on Publication Ethics) and the policies of most peer-reviewed journals, which require transparent disclosure of AI use rather than prohibiting it outright, the following discloses the use of AI assistance in preparing this manuscript. AI tools cannot be credited as authors and do not bear responsibility for the work; the author takes full responsibility for the content, accuracy, and conclusions of this manuscript.

During the preparation and revision of this manuscript, the author used an AI assistant (Claude, Anthropic) to support the following tasks: verifying and re-analysing the study's quantitative data, including parsing the underlying SPSS data files and running inferential statistical tests (chi-square tests of independence, standardised residual analysis, independent- and paired-samples t-

tests, Pearson correlations, and a Monte Carlo simulation to check a low-expected-count cell) that supplement the descriptive statistics originally reported; identifying and helping correct inconsistencies in the manuscript, including an arithmetic discrepancy in a data table, a sample-size inconsistency between the abstract and a methodology table, and duplicate or inconsistently formatted reference-list entries; and drafting revised text for consideration, including expanded Methodology, Results, Discussion, and Limitations passages, which the author reviewed and is responsible for. The AI assistant did not design the study, collect or code the underlying data, or determine the study's theoretical conclusions; these remain the sole responsibility of the author. A small number of items identified during this process — noted in the Limitations section, and including the exact scope of the Additional Scoring measure described in section 3.7 — still require the author's direct verification against original data and source materials before this manuscript is finalised for submission.

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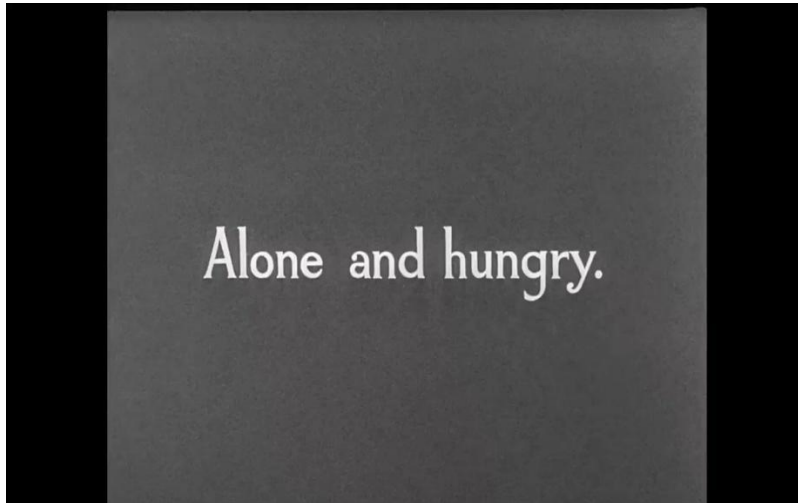
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Appendices

Appendix A: Re-telling Task



Narratives (Re-telling story)

(Use simple past and past progressive)

Kindly, watch the following video titled " Alone and Hungry" and narrate its events in the past using "Past simple and past progressive. Please find the link attached :(https://drive.google.com/open?id=1u8Uwj1lmap_3h7qbkd4jJarRMvldrTju)

In the film excerpt, Charlie Chaplin befriends a young woman who has stolen a loaf of bread, and at the same time tried to ensure his return to jail where he has previously found food and shelter. The segment has four distinct episodes:

1)On the street

2) In the cafeteria

.....

3) In the police wagon

.....

4) Imagined sequence: Charlie and the woman in a blissful domestic scene.

.....

Appendix B: Learners' Production Sample

Re-telling story

BA writing sample (Participant 1, anonymised)

In the film excerpt, Charlie Chaplin befriends a young woman who has stolen a loaf of bread, and at the same time tried to ensure his return to jail where he has previously found food and shelter. The segment has four distinct episodes:

1) On the street

On the street, there was a young woman who was very hungry walking by a bakery. For an instant, she was staring at the bread, and she had the courage to steal a loaf of bread and run. Fortunately, the owner didn't notice her stealing, but there was another woman who saw her and told the seller of bread about her. Suddenly and by coincidence, the policemen were walking around that place and they knew about the bread thief, then they caught her. In this regard, Charlie showed and he said "this young woman doesn't steal, I do". So, they take him away. Another time, the witness re-told them that she saw the young woman who stole not the man. The latest, told the policemen and run, they followed him...

2) In the cafeteria

Charlie entered the cafeteria, and he took all the plates which were in the menu, because he was hungry too, he was enjoying all those meals. When he done eating, he received an expensive bill. But, the shock is Charlie didn't wait until they call the police, he surrendered himself. The question is: Why did he do this? Is because he knew himself going to jail due to the thief of bread or what? While he was catching by the police, Charlie smoked a cigarette, and took something to those kids who were there without paying.

3) In the police wagon

Charlie was towing to the police wagon, he didn't look sad or angry. However, it was a funny action there which is he was sitting on the foot of a fat woman. Therefore, the young woman who stole the loaf of bread went also to the wagon and she was standing up because she didn't find a place to sit. Of course, the gentleman Charlie gave her his place to have a sit and told her "Do you remember me? I am the guy of the bread". she was cheering up and told him "yes of course" with a happy face. She couldn't forget the man who tried to help her from jail, who saved her life. Moreover, the mobster Charlie decided to run away with the lady from that police wagon. Because it was the only chance they have to escape. For an instant, the driver lost control and it caused an accident. They run together.

4) Imagined sequence: Charlie and the woman in a blissful domestic scene

Charlie and the lady run together and they were holding hands. After a long period escaping, they sat under a tree near to a house, they were talking, asking some questions such as "Where do you live?" and watching right and left. I think they fall in love. So, they started imagine themselves in a big house like they are marrying, they wish they could live together. They imagined a life full of happiness between them, the lady cooked to him lunch in a beautiful kitchen, while Charlie milking the cow. At the end, this imagined sequence made them both full in happiness.