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THE ACQUISITION OF THE ENGLISH CAUSATIVE-INCHOATIVE ALTERNATION BY ARABIC NATIVE SPEAKERS

Dissertation

by

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Abstract

The Acquisition of the English Causative-Inchoative Alternation by Arabic Native Speakers

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This study is an investigation of Arabic native speakers' (ANSs) acquisition of the English causative-inchoative alternation (e.g. *Tom broke the vase* vs. *The vase broke*). Emphasis is placed on the relationship between English proficiency, language transfer, and Universal Grammar mechanisms in ANSs' interlanguage representations. Four central research questions guide the study: (1) Does the English causative-inchoative alternation pose a learnability problem for ANSs? (2) Do ANSs distinguish between unaccusative and unergative verbs in English? (3) Are there L1 transfer effects on ANSs' acquisition of the English causative-inchoative alternation? (4) Are there differences across English proficiency levels with respect to the answers to questions 1-3? To address these questions, an acceptability judgment and correction task was administered to a total of 119 ANSs (from the Gaza Strip, Palestine) of different English proficiency levels. Additionally, 23 American native speakers of English served as controls.

The results obtained from data analyses indicated that the English causative-inchoative alternation posed a learnability problem for the Arab participants. They exhibited four major non-target behaviors: overpassivization (both ungrammatical and unnatural), overcausativization, underpassivization, and undercausativization. It is argued that these errors can largely be attributed to L1 transfer, since Arabic is significantly different from English in terms of how to encode the causative-inchoative alternation. The

results also revealed sensitivity to the unaccusative-unergative distinction in English, which supports the hypothesis that ANSs have access to the innate mechanisms of Universal Grammar. Moreover, while interlanguage development towards target-like behavior was observed across proficiency groups, certain test conditions revealed a strong influence of L1 transfer on even the high proficiency participants.

The findings from the study are inconsistent with the modular view of L1 transfer (Montrul, 2000), but they lend support to the hypothesis that L1 transfer operates not only on morphology, but on lexical argument structure as well (Whong-Barr, 2005).

The study is an attempt to fill a gap in the literature, since no research has specifically investigated the acquisition of the English causative-inchoative alternation by ANSs.

DEDICATION

To my dear mother

To my dear wife and children

To the soul of my dear father

May Allah shower him with abundant mercy

And admit him into Paradise

Amen

Do you love me?[1]

Do you love me?

Yes, I do! I sincerely love you! But why do you keep asking this question? You have asked it many times over the past seven months. Do you doubt my love, my care, my provision for you?

I don't know!

You don't know? But you know that I have sacrificed a lot for the sake of gaining you! Haven't I traveled about ten thousand miles through four continents so that I can achieve this goal? I traveled from Gaza (Asia) to Cairo (Africa). Then I flew to Boston (North America) via Frankfurt (Europe).

I know, but …

And I stay awake and don't go to bed till dawn every day, thinking of you and working for the day when you become mine, like a lover thinking of his dearly beloved woman!

Yes, but …

At this time, the phone rang. It was his wife's number. He canceled the call and called her back (to save her the cost). He talked with her and two of his children for about twenty minutes.

Sorry! It was my family in Gaza.

You see?

What's the matter, darling? You've known I *am* married, haven't you? I *have* a wife and children. It's not a secret that I'm ashamed of revealing. And I do love them!

So I am not your only love, aren't I?

But you are a true love of mine. Are you jealous of my wife? My wife *herself* doesn't have this feeling. She knows that I love you, and she supports this love.

Really?

Yes! Believe me! She loves you. She is a beautiful and kind woman. And when you meet her, you will love her.

Are you gonna take me to Palestine?

Of course, I will be proud when you are with me in Palestine. You will love my country and my people. They will be happy about your stay there.

Are we gonna stay there?

Yep! It will be your home, honey! There won't be a better place. 'East or west, home is the best.'

What can I do there?

You'll be with me wherever I go. My country is in bad need of your qualification. We'll work together and contribute to the progress of Palestine and making it a safe and peaceful place. You'll be part of my name, *Dr. El-Nabih*! You see how much I love you, my dear future Ph.D. degree? So please don't doubt it anymore!

---

[1] I wrote this short story for a Teaching Writing course in 2008.

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ABBREVIATIONS

Acc	accusative case
AJC	Acceptability Judgment and Correction
ANSs	Arabic native speakers
CA	Classical Arabic
C-C Scenario	Context encourages use of causative and structure is causative
CESL	Center for English as a Second Language
CoA	Colloquial Arabic
df	degree of freedom
D-structure	deep structure
EFL	English as a Foreign Language
ESL	English as a Second Language
ESP	English for Specific Purposes
FT/FA	Full Transfer/Full Access
Gen	genitive case
I-I Scenario	Context encourages use of intransitive and structure is intransitive
IP	Inflectional Phrase (or Sentence)
I-P Scenario	Context encourages use of intransitive but structure is passive
IUG	Islamic University of Gaza
L1	first language, native language, mother tongue
L2	second language
M	mean
MSA	Modern Standard Arabic
n	number of participants
Nom	nominative case
NP	noun phrase
P-I Scenario	Context encourages use of passive but structure is intransitive
P-P Scenario	Context encourages use of passive and structure is passive
RQ	Research Question

SD	standard deviation
SLA	Second Language Acquisition
SOV	Subject-Verb-Object
S-structure	surface structure
TESOL	Teaching English to Speakers of Other Languages
TOEFL	Test of English as a Foreign Language
UG	Universal Grammar
UH	Unaccusative Hypothesis
UTAH	Uniformity of Theta Assignment Hypothesis
V-en	past participle
VP	verb phrase
VSO	Verb-Subject-Object

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CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

As English has become the center of many globalization mechanisms, it is not surprising that more and more people are engaged in learning English as a second or foreign language (ESL/EFL[2]), in addition to acquiring it as a first language (Canagarajah, 2007; Crystal, 2003; Graddol, 2006; Meierkord, 2004; Wardhaugh, 2006). In his report, commissioned by the British Council, David Graddol argues:

> Within a few years, there could be around 2 billion people [i.e. nearly a third of the world's population] simultaneously learning English in the world's schools and colleges and as independent adults.
> (Graddol, 2006, p. 100)

There is no doubt that English has increasingly been viewed as a sign of upward mobility, especially in developing countries, including those within the Arab world. Therefore, improving proficiency in this global language has become a critical goal in education (Crystal, 2003; Graddol, 2006).

Policy makers and educators in the Arab countries have recognized the extreme importance of the English language (Zughoul, 2003), and Palestine, the site of the present study, is no exception. The Palestinian Ministry of Education has assigned English as a

[2] ESL (English as a second language) refers to learning English (by non-native speakers of English) in an English speaking country like the USA and UK, whereas EFL (English as a foreign language) refers to learning English in a non-English speaking country such as Palestine, the site of this dissertation project.

compulsory subject for all school students beginning from the first grade[3]. A new curriculum, *English for Palestine*, has been designed for students in all grades (1-12). Similarly, at the level of higher education, students (even non-English majors) must take certain EFL courses. Moreover, private language institutes have been established in many areas of the country to offer English for Specific Purposes (ESP) courses, such as business, medicine, and engineering.

Palestinian students, however, have little to no exposure to the English language outside the classroom; very few English native speakers visit the country, and Palestinian students very rarely travel outside the country, particularly to English-speaking countries. Nevertheless, advancements in technology and the more frequent use of the Internet and satellite-based media may provide Palestinian students, especially at the university level, with opportunities to improve their English outside EFL classrooms.

In the classroom, English is mainly taught by Palestinian teachers who have degrees in teaching English (generally BA at school level and MA/Ph.D. at university level). Of critical import is that these teachers have experienced the process of learning English as an additional language and also share the same language and cultural background as their students. Sharing such attributes is an advantage as it enables teachers to anticipate their students' linguistic problems (Phillipson, 1996). However, one argument advanced in this study is that, despite their considerable degree of proficiency,

[3] Prior to the establishment of the Palestinian National Authority in 1994, English was taught at Palestinian public schools from the seventh grade in the Gaza Strip and from the fifth grade in the West Bank. However, in 1996, English began to be taught from the fifth grade in the Gaza Strip before its introduction to all Palestinian school grades in 2000.

(Palestinian) Arab EFL instructors themselves may not model certain English structures in their classrooms, such as the causative-inchoative alternation, the focus of this study. This alternation is illustrated in (1).

(1) English causative-inchoative alternation

a. Tom broke the cup. (Causative)
b. The cup broke. (Inchoative)

As can be seen, the causative sentence (1a) has the verb *broke* used transitively, with Tom as the performer of the action (*Agent*), whereas *broke* in the inchoative counterpart (1b) is used intransitively, with the cup as the undergoer of the action (*Theme*). Therefore, (1a) can be paraphrased as *Tom caused the cup to break*, and (1b) as *The cup became broken* (Parsons, 1990).

The acquisition of the English causative-inchoative alternation by Arabic native speakers (ANSs) is the concern of the present study. Situated in the context of learnability of argument structure in second language acquisition (SLA), this study explores the relationship between English proficiency, language transfer, and properties of Universal Grammar (UG[4]) in ANSs' interlanguage representations.

1.2 Statement of the Problem

As a Palestinian university teacher of courses in Linguistics and EFL for ten years, I found that Palestinian ANSs have a considerable learnability problem with the English causative-inchoative alternation. Specifically, they tend to judge certain English inchoatives (e.g. 1b) to be ungrammatical, and prefer the passive instead. I also observed

[4] For details on UG, see Section 1.3.

similar rejections of inchoative structures by ANSs from other Arab countries, such as Egypt, Libya, Algeria, and Jordan. While both the passive and the inchoative are grammatical structures, they are not used interchangeably. The passive has a linguistically implied agent, whereas the inchoative lacks this linguistic component; that is, the inchoative situation is conceived as occurring spontaneously. Based on these observations, the current study was designed to investigate ANSs' acquisition of the English causative-inchoative alternation. Emphasis is placed on the relationship between English proficiency, language transfer, and mechanisms of Universal Grammar (UG) in ANSs' interlanguage representations.

A UG principle, the Unaccusative Hypothesis (Perlmutter, 1978; Burzio, 1986) divides intransitive verbs into two classes: unaccusatives and unergatives. Unaccusatives (e.g. *die, disappear*) typically have non-agentive (non-volitional) subjects, contrasting with unergatives (e.g. *laugh, cry*), which have agentive (volitional) subjects.

Unaccusative verbs may further be divided into two subclasses: alternating and non-alternating. Alternating unaccusatives (e.g. *break, open, melt*) are intransitive verbs that have causative/transitive counterparts and can be used in the passive, whereas non-alternating unaccusatives (e.g. *happen, occur, appear*) are intransitive verbs that have no transitive counterparts and, consequently, do not allow the passive (Levin & Rappaport Hovav, 1995). For illustration, consider the following examples. (The asterisk or star preceding a sentence is the linguistic convention for indicating that the sentence is ungrammatical or ill-formed according to the rules of the grammar.)

(2) Alternating Unaccusative verbs

a. The cup broke.
b. Tom broke the cup.
c. The cup was broken (by Tom).

(3) Non-alternating Unaccusative verbs

a. A rabbit appeared.
b. *The magician appeared a rabbit. (cf. The magician made a rabbit appear.)
c. *A rabbit was appeared (by the magician).

(4) Unergative verbs

a. The child laughed.
b. *The woman laughed the child. (cf. The woman made the child laugh.)
c. *The child was laughed (by the woman).

While (2a), (3a), and (4a) are all intransitive, their structures do not pose the same challenge to ANSs, who tend to accept (3a) and (4a) as grammatical, but judge (2a) to be ungrammatical, preferring the passive instead (e.g. *the cup was broken (by Tom)*). This acquisition problem is hypothesized to be largely attributable to the cross-linguistic variation in the causative-inchoative alternation between English and Arabic. English predominantly realizes the alternation by having an identical form for the causative verb and its inchoative counterpart, e.g. *broke* as in (2) above. However, most Arabic verbs that enter this alternation require some kind of overt morphology to distinguish between the alternant forms (e.g. *kasara* 'broke-causative', *inkasara* 'broke-inchoative', *thaba* 'melted-inchoative', *athaba* 'melted-causative'). In addition, while some English verbs do not participate in this alternation (e.g. *arrive, happen*), their counterparts in Arabic do alternate;

that is, they can be used in both *Subject-Verb* and *Subject-Verb-Object* patterns. More details are given below.

1.3 Theoretical Framework

A central topic in SLA research is defining the role that L1 properties play in interlanguage development. This concept has come to be known as language (or L1) transfer (Gass & Selinker, 2008). L2 learners have been assumed to rely on their mother tongue in a second language learning situation. As stated by Lado (1957, p. 2):

> individuals tend to transfer the forms and meanings, and the distribution of forms and meanings of their native language and culture to the foreign language and culture—both productively when attempting to speak the language and to act in the culture, and receptively when attempting to grasp and understand the language and the culture as practiced by natives.

However, more recent research has investigated the interaction of mechanisms of UG and L1 knowledge in SLA.

Initiated and largely developed by Noam Chomsky, UG is defined as "a characterization of the genetically determined language faculty... an innate component of the human mind that yields a particular language through interaction with presented experience" (Chomsky, 1986a, p. 3). The concept of UG has undergone several changes: from the Standard Theory in the 60's (e.g., Chomsky, 1965) to the Extended Standard Theory in the 70's (e.g., Chomsky, 1972; 1977), later to the Government and Binding (GB) Theory in the early 80's (Chomsky, 1981; 1982; 1986a; 1986b), and finally to the current Minimalist Program (Chomsky, 1993; 1995). Despite these shifts, the fundamental understanding of the purpose of UG has remained the same, that is, to

"determine how it is possible for a child to acquire knowledge of a language" (Chomsky, 1973, p. 12). More specifically, generative linguists are concerned with: (i) what constitutes knowledge of language; (ii) how knowledge of language is acquired; and (iii) how knowledge of language is put to use (Chomsky, 1986a, p 3).

Within the generative grammar framework, UG is assumed to involve principles (i.e. abstract rules) and parameters (i.e. markers, switches) that characterize the mind of every child and constrain language acquisition. Principles of UG are proposed to be operative in all natural languages, whereas parameters are proposed to account for cross-linguistic variation and are understood to be set to a particular value in a particular language[5].

According to UG, certain aspects of language structure are innate, which explains the fact that children complete the acquisition of their L1 at a very young age despite *poverty of the stimulus*, that is, even though "input alone is not sufficiently specific to allow a child to attain the complexities of the adult grammar" (Gass & Selinker, 2008, p. 520). Therefore, UG can be considered to be the initial state (S_0) in L1 acquisition, constraining every stage of grammatical development until the steady state (S_s), the adult grammar (White, 2003).

[5] An example of UG principles is structure dependency; that is, knowledge of language relies on the structural relationship in the sentence (e.g. noun phrase, verb phrase) rather than on the sequence of words. On the other hand, the Pro-drop (or null-subject) is an example of parameters. This parameter determines whether the subject of the clause can be suppressed in a particular language. UG principles relevant to the present study include the Unaccusative Hypothesis (Perlmutter, 1978), the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker, 1988) and the Case Filter (Vergnaud, 1977). For details, see Section 1.5.2.

UG is widely accepted to provide the primary explanation for the properties of L1 acquisition. However, with regard to L2 acquisition, there are different positions concerning the role of UG and L1 transfer in interlanguage grammars; these include Full Access/Full Transfer (Schwartz & Sprouse, 1994; 1996), Minimal Trees Hypothesis (Vainikka & Young-Scholten, 1994; 1996), and Full Access/No transfer (Epstein, Flynn & Martohardjono, 1996; 1998). On the basis of the arguments for and against these competing views reviewed by White (2003), the present study was conducted under the framework of Full Transfer/Full Access (FT/FA) of Schwartz and Sprouse (1994, 1996).

FT/FA is a generative SLA model that seeks to make the role of the learner's native language explicit, hypothesizing that UG in its entirety constrains L2 acquisition. Within this approach to SLA, 'full transfer' means that the entire L1 grammar constitutes the L2 initial state, and 'full access' refers to the hypothesis that the resulting interlanguage grammars are constrained by the UG principles throughout the course of development (White, 2003). Thus, the FT/FA hypothesis assumes that, in an L2 acquisition situation, learners bring their L1 grammar, along with complete knowledge of UG principles and the same UG-determined mechanisms that drive L1 acquisition.

As part of the lexicon, argument structure has been a major topic in recent SLA research. Special attention has been paid to certain phenomena such as the dative alternation, the locative alternation, and the causative-inchoative alternation (Balcom, 1997; Bley-Vroman & Joo, 2001; Bley-Vroman & Yoshinaga, 1992; Inagaki, 1997; Joo, 2003; Ju, 2000; Juffs, 1996; Kondo, 2005; Mazurkewich, 1984; Sawyer, 1995; Sorace, 1995; White, 1995; Whong-Barr & Schwartz, 2002; Yuan, 1999,

among others). Much of this research has focused on (i) whether learners can distinguish non-alternating verbs from alternating verbs in areas such as the dative alternation, the locative alternation, the causative-inchoative alternation (e.g. *break* is alternating, but *come* is not), and/or (ii) whether they have knowledge of the distinctive constructional meaning of each argument structure in the alternations (e.g. *X breaks Y* means 'X causes Y to break' and *Y breaks* means 'Y becomes broken').

A substantial body of SLA literature has addressed the problem of acquiring the English causative-inchoative alternation by L2 learners from various L1 backgrounds, including Arabic (Moore, 1993; Zobl, 1989), Chinese (Balcom, 1997; Ju, 2000; Yip, 1995), Hindi-Urdu (Helms-Park, 2001), Italian (Oshita, 1997), Japanese (Hirakawa, 1995; 2003; Kondo, 2005; Moore, 1993; Oshita, 1997; 2000; Zobl, 1989), Korean (Joo, 2008; Kim, 2005),), Persian (Samar and Karimi-Alvar, 2007), Spanish (Kondo, 2005; 2009; Matsunaga, 2005; 2007; Montrul, 1997; 2000; Moore, 1993; Oshita, 1997), Turkish (Can, 2000; 2007; Montrul, 1997; 2000), and Vietnamese (Helms-Park, 2001).

Much of this research has lent support to the argument that L1 has potential effects on the interlanguage representation of argument structure and alternation patterns. For example, Montrul (2000) shows that English, Spanish, and Turkish have different morphological alternation patterns[6], and argues that the difficulty of acquiring the alternating verbs varies, depending on the morphological pattern to which the verb belongs in the learners' L1. While English uses identical forms for the verbs in their

[6] For details on morphological patterns, see Section 1.5.3.1.

causative and inchoative alternants, Spanish and Turkish mark their alternations with overt morphology. Spanish has the anticausative pattern; that is, the inchoative form requires the reflexive clitic *se* to be added to the causative form. Turkish, however, has both verbs following an anticausative pattern, like Spanish, and verbs following a causative pattern, where overt morphology is added to the inchoative counterpart to derive the causative form. Therefore, Montrul (2000) predicted that Spanish learners of English would have more difficulty than Turkish learners with simple intransitive forms of alternating unaccusatives since morphologically simple inchoative forms can be found in Turkish, but not in Spanish.

Montrul has found clear L1 effects: Spanish learners rejected zero-derived (unchanged) forms but instead accepted alternating verbs with the *get* passive (e.g. *the window got broken*), whereas the Turkish group provided judgments much like that of the control group (English native speakers): the Turkish group accepted the inchoative forms, but were reluctant to accept *get* passives.

Only two previous studies (Moore, 1993; Zobl, 1989) have referred to Arabic-speaking learners of English having a learnability problem with the English causative-inchoative alternation. However, the fact that Arabic was one of the L1s was not taken to be an important factor in this phenomenon. In fact, Zobl (1989) argues that the learners' errors cannot be traced back to their first language. He examined a corpus of the written English of 114 university students enrolled in ESL programs in the United States and Canada. The participants were of differing L1 backgrounds (90 Japanese, 10 Arabic, 10 Spanish, 1 Chinese, 1 Turkish, 1 Thai, and 1 Indonesian).

One piece of evidence Zobl provided to support his claim that L1 has no effect in this learnability problem is that the majority of the participants were Japanese speakers, whose L1 has SOV word order. He found that there were 13 cases of verb-subject order with 80 unaccusative verb tokens, and 10 of the sentences with verb-subject order were produced by native speakers of Japanese, as illustrated in (5).

(5) *I was just patient until dried my clothes.
(Japanese L1; high intermediate learner, Zobl, 1989, p. 204)

Zobl showed that the non-target VS word order with unaccusatives—made by Japanese learners of English—does not conform to the word order in either their (SOV) L1 or their (SVO) L2. Consequently, Zobl concludes that the word order of the L1 is not the cause of these errors. While it is hard to see how the L1 word order could lead to a VS error, the real test of whether L1 matters is if VS errors arise in the L2 of speakers from different L1s. Zobl did not address this important question, but the expectation would be that they do. In addition, Zobl did not discuss cross-linguistic morphological differences in the patterning of the causative-inchoative alternation in an L2 learners' grammar.

Another potential problem with Zobl's study is that he relied on spontaneous production data to examine unaccusative errors. White (2003) argues that these errors are quite infrequent and may in some sense be accidental. Therefore, relying on production data (even when examining a large corpus) is unlikely to be sufficient for evaluating learners' knowledge of unaccusativity in general.

Contrary to Zobl (1989), Moore (1993) found that the learners' L1 does play a role in their acquisition of the English causative-inchoative alternation. Her experimental study included 77 participants from different L1 backgrounds: 33 Spanish, 16 Japanese, 14 Arabic, 8 Korean, and 6 Chinese. However, when discussing how the learners' L1s encode the causative-inchoative alternation, Moore claims that Arabic usually reduplicates a stem consonant to mark this alternation (p. 8). This is not the only means that Arabic exploits to signal this alternation; Arabic has other common morphological patterns (discussed in Section 1.5.3.1 below). As it is argued that these L1 properties significantly affect the acquisition of L2 English causative-inchoative alternation, the fact that she does not consider the possible morphological patterns of the alternation in the participants' L1s constitutes a drawback of Moore's study (at least with regard to Arabic). If these L1 properties are transferred, it is predicted that L2 learners of English behave differently in assessing English alternating unaccusative verbs, depending on the pattern to which the verb belongs in their L1. For example, Arabic-speaking learners of English are expected to reject inchoatives with the verbs *break* and *open* because their equivalent inchoative verbs in Arabic are morphologically marked (i.e. a morpheme is added to the causative verb to derive the inchoative). On the other hand, these learners are predicted to accept inchoatives with the verbs *sink* and *melt* because their equivalent inchoative verbs in Arabic are morphologically unmarked (i.e. the causative is derived from the inchoative through affixation). Examples of these Arabic morphological patterns of alternation are provided in (6-7).

(6) a. fataha al-walad-u al-bab-a. (Causative)
opened the-boy-Nom the-door-Acc
'The boy opened the door.'

b. in-fataha al-bab-u. (Inchoative)
anticaus-opened the-door-Nom.
'The door opened.'

(7) a. thaba ath-thalj-u. (Inchoative)
melted the-ice-Nom.
'The ice melted.'

b. a-thaba-t ash-shams-u ath-thalj-a. (Causative)[7]
caus-melted-fem the-sun-Nom the-ice-Acc
'The sun melted the ice.'

Overlooking these L1 properties may have affected Moore's findings.

The current study investigated the acquisition of the English causative-inchoative alternation by ANSs, considering L1 transfer and UG-related mechanisms and suggesting that L1 transfer operates not only on morphology, but also on lexical argument structure. Following the FT/FA model, this study supports Whong-Barr's (2005) suggestion that "from a derivational view of syntax, transfer of morphology and transfer of argument structure do not stand in opposition, but instead are complementary processes" (p. 281).

[7] Another common Arabic verb equivalent to *melted* is *saha* (inchoative) and *sayyaha* (causative). The alternation here takes place through germination (i.e. doubling the middle radical of the root).

1.4 Significance of the Study

The present study is important for several reasons. First, it represents an attempt to fill a gap in the literature, since no research has specifically investigated the acquisition of the English causative-inchoative alternation by ANSs. This study is intended to explore cross-linguistic variation in the causative-inchoative alternation between English and Arabic with respect to the lexico-syntactic and morpho-syntax interfaces, and to investigate the relationship between English proficiency, language transfer, and UG constraints in ANSs' interlanguage representations.

Second, by providing an explanation for ANSs' observed errors with the English causative-inchoative alternation, this study contributes to research on the acquisition of this alternation in particular and the acquisition of the lexicon in the field of SLA in general.

Third, the present study has certain pedagogical implications for EFL ANS syllabus construction and classroom teaching. These implications aim to facilitate ANSs' the acquisition of the English causative-inchoative alternation toward the target grammar. Appropriate material should be developed to deal with the learnability problem posed by this alternation. Similarly, the more insights Arab EFL instructors can gain into this linguistic phenomenon, the more likely it is that they will be able to address it effectively in their classrooms. Raising ANSs' awareness of the factors that may impede their acquisition of certain English linguistic structures (e.g. inchoatives) can help them use these structures appropriately, and consequently, improve their proficiency level of

English. A high level of proficiency in English is increasingly viewed as a sign of upward mobility for Arab youth.

1.5 Key Terms

In this section, the basic linguistic concepts necessary to understand the problematic phenomenon of the acquisition of the English causative-inchoative alternation by ANSs are discussed. These concepts are *argument structure, intransitivity, unaccusativity, unergativity, causative*, *inchoative, passive*, and *diglossia*.

1.5.1 Argument Structure

Argument structure refers to "the system of structural relations holding between heads (nuclei) and arguments linked to them in the roster of syntactic properties listed for individual items in the lexicon" (Hale & Keyser 1998, p. 1). In other words, the lexical entries of certain categories (e.g. verbs) have not only a dictionary meaning but also structural aspects of meaning, or information concerning the participants (i.e. arguments) which enter into a relationship with them (White, 2003). Verbs that take just one argument are called *monadic.* For example, in the sentence *The bird appeared*, the noun phrase *the bird* is the argument which is in relationship with the verb *appeared*. Verbs that take two arguments are called *dyadic.* In the sentence *Tom painted a picture*, the noun phrases *Tom* and *the picture* each represents a different argument in relationship to the verb *painted*. Verbs that take three arguments are called *triadic*. In the sentence *John asked the teacher questions*, the noun phrases *John, the teacher,* and *questions* are three arguments which relate to the verb *asked*.

Arguments of verbs are often referred to in terms of their thematic (theta- or θ-) roles, including *Agent* (the instigator of an event), *Theme* (a participant affected by an event), *Experiencer* (a human participant who undergoes some change in mental state as the result of an event), and *Goal* (the target of an event) (Hawkins, 2001, p. 178)[8]. The arguments of a verb are usually, but not necessarily, obligatory. Consider the following sentences in (8) (from White, 2003, p. 205):

(8) a. Mary put the book on the table.
b. *Mary put the book.
c. *Mary put on the table.
d. Mary put the book on the table at 3pm.

As can be observed, the verb *put* in (8a) takes three obligatory arguments: an external argument *Mary* (subject, Agent) and two internal arguments, *the book* (object, Theme), and *on the table* (location). Omitting any of these arguments results in ungrammaticality, as in (8b) and (8c). On the other hand, the verb *put* can take other optional adjuncts (e.g. *at 3pm* in 8d).

It is assumed that languages show canonical or default mapping (i.e. regular relationship) between thematic roles, such as *Agent* and *Theme*, and syntactic functions such as *Subject* and *Direct Object* (Perlmutter & Postal, 1984; Baker, 1997), as illustrated in (9).

(9) Henry hit a ball.
<Subject> <Direct Object> (Syntactic function)
<Agent> <Theme > (Thematic function)

[8] Other θ-roles have also been proposed. For details, see Larson (1988) and Parsons (1995).

As can be seen, *Agent* is projected to the external argument *Henry* (*Subject*), whereas *Theme* is projected to the internal argument *a ball* (*Direct Object*).

Research on argument structure has focused on certain phenomena such as the dative alternation, the locative alternation, and the causative-inchoative alternation, exemplified in (10-12).

(10) Dative Alternation
   a. John gave Mary a book.
   b. John gave a book to Mary.

(11) Locative Alternation
   a. Bill loaded hay onto the truck.
   b. Bill loaded the truck with hay.

(12) Causative-Inchoative Alternation
   a. Peter opened the window.
   b. The window opened.

Much of the research on these phenomena has focused on whether learners can distinguish non-alternating verbs from alternating verbs (e.g. *open* is alternating, but *arrive* is not), and/or whether learners have knowledge of the distinctive constructional meaning of each argument structure in the alternations (e.g. *Peter opened the window* means 'Peter caused the window to open' and *The window opened* means 'The window became open').

1.5.2 Intransitivity

An intransitive verb is a verb that has only one argument (its subject). However, as mentioned earlier, intransitive verbs do not constitute a homogenous class. The Unaccusative Hypothesis (Perlmutter, 1978) addresses the characteristics of intransitive verbs, dividing them into two classes: unaccusatives and unergatives. Perlmutter argues that the distinction between the two verb classes is made on the basis of semantics, and that this is encoded in syntax, that is, deep (D-) structure.

Unaccusative verbs can further be subdivided into alternating and non-alternating (Levin & Rappaport Hovav, 1995). Table 1.1 exhibits examples of English intransitive classes and subclasses.

Table 1.1: Intransitive Verbs in English

Intransitives		
Unaccusatives		Unergatives
Alternating	Non-alternating	e.g. *swim, laugh, speak, run, walk, play, cry, talk, smile, sing, study, work, dance*
e.g. *break, close, open, bend, melt, sink, freeze, dry, boil, die*	e.g. *arrive, appear, happen, disappear, exist, enter*	

1.5.2.1 Unaccusativity vs. Unergativity

Unaccusatives are intransitive verbs denoting unwilled or non-volitional acts, whereas unergative verbs are intransitives that entail willed or volitional acts. In other words, an unaccusative verb has a non-agentive subject (semantically similar to the direct object of a transitive verb, or to the subject of a verb in the passive voice), while an unergative verb has an agent subject. Let us consider the following sad situation:

(13) a. John died. (Unaccusative) 

b. Mary cried. (Unergative) 

Sentences (13a) and (13b) seem to have identical representations; each has a subject NP and a VP that has an intransitive verb, shown in (14).

(14) a. John died. (Unaccusative)
<Subject> (Syntactic function)

b. Mary cried. (Unergative)
<Subject> (Syntactic function)

However, there are significant differences between the two sentence types. Syntactically, under current analyses, unaccusatives and unergatives are associated with distinct D-structure configurations: an unaccusative verb takes a D-structure object and no subject, whereas an unergative verb takes a D-structure subject and no object (Levin & Rappaport Hovav, 1995). *John* in (13a) is base-generated in direct object position complementing the verb *died*, and the subject position is empty. Unaccusative verbs behave like passives in their inability to assign accusative case to the internal *Theme* argument in direct object position. In order to satisfy the Case Filter[9], this internal argument must move to the (derived) subject position where it receives nominative case. Therefore, (13a) has different deep (D-) and surface (S-) structures. On the other hand,

[9] Initially proposed by Vergnaud (1977), the Case Filter is a UG principle stating that all overt NPs must have Case (*NP, if NP does not have Case).

Mary as the subject of the verb *cried* in (13b) underlyingly occupies the subject position; thus, the sentence has nearly identical D- and S-structures.

In terms of argument structure, an unaccusative verb has a direct internal argument but no external argument, whereas an unergative verb has an external argument but no direct internal argument (Levin & Rappaport Hovav, 1995). Regarding theta roles of arguments, the sole argument of unaccusative verbs is *Theme*, or undergoer of the action (e.g. dying happened to John), but the sole argument of unergative verbs is *Agent* (e.g. Mary performed the crying), as illustrated in (15a) and (15b) respectively.

(15) a. John died. (Unaccusative)
<Theme> (Thematic function)

b. Mary cried. (Unergative)
<Agent> (Thematic function)

It has been noted that, canonically, *Agent* maps to subject position, whereas *Theme* maps to direct object position (Perlmutter & Postal, 1984; Baker, 1997). It could be argued, however, that unaccusatives represent a mismatch between thematic roles and syntactic functions; although *John* functions as a subject (14a), it has a *Theme* thematic role (15a). However, this apparent mismatch of unaccusatives can be explained for by two principles of Universal Grammar: the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker, 1988) and the Case Filter (Vergnaud, 1977).

(16) Uniformity of Theta Assignment Hypothesis (UTAH)

> Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure (Baker, 1988, p. 46).

According to the UTAH, a given thematic role consistently maps to the same syntactic position at D-structure; thus, the *Theme* thematic role consistently originates in the D-structure object position. With respect to unaccusatives, as noted earlier, the internal (*Theme* in object position) argument moves to the (derived) subject position, where it receives nominative case, thus satisfying the requirement of the Case Filter.

While the examples cited here belong to the English language, it should be noted that the distinction between unaccusativity and unergativity is observed in all languages, although different languages exhibit different morpho-syntactic reflexes in distinguishing their unaccusatives and unergatives.

1.5.2.2 Alternating vs. Non-Alternating

As can be seen in Table 1.1, English unaccusative verbs can be classified into two subclasses depending on alternation in transitivity: alternating (i.e. with a transitive/ causative counterpart) and non-alternating (i.e. without a transitive/causative counterpart). However, English unergatives are only non-alternating. These types are exemplified in (2-4), reproduced in (17-19).

(17) Alternating Unaccusative verbs

a. The cup broke.
b. Tom broke the cup.

(18) Non-alternating Unaccusative verbs

a. A rabbit appeared.
b. *The magician appeared a rabbit. (cf. The magician made a rabbit appear.)

(19) Unergative verbs

a. The child laughed.

b. *The mother laughed the child. (cf. The mother made the child laugh.)

The items (18b) **The magician appeared a rabbit* and (19b) **The mother laughed the child* are ungrammatical English sentences since the verbs *appear* and *laugh* are non-alternating. In order to express the causative meaning in such cases, English uses verbs like *make* or *cause* (e.g. *the magician made a rabbit appear*; *the mother made the child laugh*). This type of causation is called *periphrastic causative* (or *syntactic causative*), distinguished from *lexical/morphological causative*[10] (e.g. *Tom broke the cup*).

However, as has been noted, languages vary in how they exhibit their unaccusativity and unergativity. For example, most verbs which are categorized as non-alternating verbs in English (unaccusatives as well as unergatives) allow the alternation in Arabic through overt morphology, as illustrated in (20) and (21).

(20) a. thahara arnab-un.
appeared a rabbit-Nom
'A rabbit appeared.'

b. a-thhara as-sahir-u arnab-an
Caus-appeared the-magician-Nom a rabbit-Acc
'The magician appeared a rabbit.' (lit. 'The magician made a rabbit appear').

(21) a. Dahika aT-Tifl-u.
laughed the-child-Nom
'The child laughed.'

[10] The present study is concerned with the lexical rather than the periphrastic type of causation.

b. a-Dhaka-t al-'um-u aT-Tifl-a
Caus-laughed-fem the-mother-Nom the-child-Acc
'The mother laughed the child.' (lit. 'The mother made the child laugh').

1.5.3 Causative, Inchoative, and Passive

For a better understanding of the learnability problem posed by the causative-inchoative alternation for ANSs, special attention was paid to the distinction between the causative, inchoative, and passive structures.

1.5.3.1 Causative vs. Inchoative

The causative-inchoative alternation is characterized by verbs (e.g. *break, open*, *close*, *melt*) that have a transitive as well as an intransitive use. Such verbs are typically called *causatives w*hen occurring in transitive structures and *inchoatives* when occurring in the related intransitive structures. According to Parsons (1990), causatives can be paraphrased in terms of 'cause' (e.g. *Tom broke the cup* = Tom caused the cup to break), while inchoatives can be paraphrased in terms of 'become' plus an adjective (e.g. *the cup broke* = the cup became broken). This means that causatives denote a bringing about of change of state, while inchoatives only denote this change of state (Piñón, 2001). Therefore, a causative-inchoative pair of verbs

> express the same basic situation…and differ only in that the causative verb meaning includes an agent participant who causes the situation, whereas the inchoative verb meaning excludes a causing agent and presents the situation as occurring spontaneously.
>
> (Haspelmath, 1993, p. 90)

Put another way, the subject in the inchoative use bears the same semantic relation to the verb as the (direct) object in the causative use; causatives verbs have two theta roles (*Agent*[11], *Theme*), but their inchoative counterparts have just a (*Theme*) role.

Although the causative-inchoative alternation is a universal phenomenon (Levin & Rappaport Hovav, 1994), languages vary in their choice of encoding this alternation (Croft, 1990; Haspelmath, 1993; Nedjalkov, 1969; 1990). Surveying 31 alternating pairs of verbs in 21 languages, Haspelmath (1993) found different morphological marking patterns (within and across languages) for causative-inchoative verbs. These patterns are *anticausative, causative,* and *non-directed*; non-directed alternations are further subdivided into *labile, equipollent*, and *suppletive* alternations.

In anticausative alternations, inchoative verbs are derived from their causative counterparts by the addition of an affix, a causative auxiliary, or stem modification. In the causative pattern, in contrast, an affix, a causative auxiliary, or stem modification marks inchoatives to derive their corresponding causatives. In non-directed alternations, however, neither the inchoative nor the causative verb is derived from the other: both forms are derived from a common stem in equipollent alternations, whereas the causative

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[11] In addition to *Agent*, the subject of a causative structure can be filled with other thematic roles. Mendikoetxea (1999, cited in Koontz-Garboden 2009, p. 85) provides examples where the subject of the causative verb *break* can be not only an agent, but also an instrument, a natural force, or a stative eventuality (a-d below, respectively).

a. *Juan broke the table.*
b. *The axe broke the table.*
c. *The hurricane broke the table.*
d. *The weight of the books broke the table.*

On the other hand, Van-Valin and Wilkins (1996) use the term *Effector* as a kind of generalized thematic role to refer to the different thematic roles filling the subject position in such examples. However, for simplification (following many other studies), the term *Agent* will be maintained in this dissertation.

and its inchoative counterpart have the same form in the labile pattern; finally, in suppletive alternations, the alternating pairs of verbs are not morphologically related (i.e. different roots are used).

It has been argued (e.g. Montrul, 2000; 2001) that L2 acquisition of the correct lexico-syntactic classification of the causative-inchoative alternation verbs is constrained by the learners' L1 morphological patterns of these verbs. This dissertation focuses on the acquisition of the English causative-inchoative alternation by Arabic native speakers (ANSs). Emphasis, however, is placed on the morphological patterns as well as the lexical argument structure of verbs entering the alternation.

According to Haspelmath's survey, English favors the labile pattern of the causative-inchoative alternation. The underlined verbs in the following examples are illustrative:

(22) a. The boy <u>opened</u> the window. (Causative)
b. The window <u>opened</u>. (Inchoative)

(23) a. The man <u>boiled</u> the water. (Causative)
b. The water <u>boiled</u>. (Inchoative)

Both causative and inchoative structures in (22) and (23) have identical verb forms (*opened* and *boiled*). While this labile (zero-morphology) pattern is predominantly used in English, very few English verbs alternate suppletively (e.g. *kill-die, drop-fall, bring-come, teach-learn*). The following pair of sentences exhibits the suppletive pattern in English.

(24) a. The boy dropped the bag. (Causative)
b. The bag fell. (Inchoative)

Arabic, on the other hand, significantly differs from English in the ways of marking the inchoative-causative alternation[12]. This contrast is illustrated in the following examples[13].

(25) a. ghala ar-rajul-u al-ma:'-a. (Causative)
boiled the-man-Nom the-water-Acc
'The man boiled the water.'

b. ghala al-ma:'-u. (Inchoative)
boiled the-water-Nom
'The water boiled.'

The example above follows the labile pattern; the causative and inchoative constructions have an identical verb form, *ghala*. While the labile pattern is predominantly used in English, it is very rare in Arabic.

(26) a. qatala al-qiT-u al-fa'r-a. (Causative)
killed the-cat-Nom the-mouse-Acc
'The cat killed the mouse.'

b. mata al-fa'r-u. (Inchoative)
died the-mouse-Nom
'The mouse died.'

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[12] Arabic linguists use the term *muTa:wi*ʕ 'obedient' to refer to the 'Western' term of *inchoative*. Obedience in this sense means accepting some kind of change.

[13] The examples provided here are from Modern Standard Arabic (MSA); however, with slight difference (e.g. loss of case marking), the sentences are also used in dialectical Arabic, such as Palestinian Arabic (PA). The diglossic situation (MSA vs. PA) is discussed in Section 1.5.4 below.

The two sentences in (26) exemplify the suppletive alternation pattern in Arabic; that is, to mark the alternation, different roots are used (*qatala* 'killed' vs. *mata* 'died'). This pattern is also uncommon in Arabic. However, more common patterns require overt morphology be affixed to the causative alternant (i.e. anticausative pattern, as in (27)) or to the inchoative alternant (i.e. causative pattern, as in (28)).

(27) a. fataha al-walad-u al-bab-a. (Causative)
opened the-boy-Nom the-door-Acc
'The boy opened the door.'

b. in-fataha al-bab-u. (Inchoative)
anticaus-opened the-door-Nom.
'The door opened.'

c. *fataha al-bab-u. (Inchoative)
opened the-door-Nom.
'The door opened.'

As can be seen, the prefix (*in-*) is added to the causative (unmarked or simple) form (27a) to derive the (marked) inchoative variant (27b); such a morpheme functions as an intransitivizer (or anticausativizer). Accordingly, the absence of this obligatory affixation in this frame results in an ungrammatical inchoative sentence, as in (27c). It should be noted that anticausativization is a very common pattern in Arabic. Another, but less common, pattern that involves overt morphology in Arabic is the causative pattern, exemplified in (28).

(28) a. thaba ath-thalj-u. (Inchoative)
melted the-ice-Nom.
'The ice melted.'

b. a-thaba-t ash-shams-u ath-thalj-a. (Causative)
caus-melted-fem the-sun-Nom the-ice-Acc
'The sun melted the ice.'

c. *thaba-t ash-shams-u ath-thalj-a. (Causative)
melted-fem the-sun-Nom the-ice-Acc
'The sun melted the ice.'

Compared to (27), overt morphology also marks the alternation in (28), but in the opposite directionality of derivation; that is, an affix (*a-*) is required to derive the marked causative *athaba* 'melted' (28b) from its corresponding unmarked inchoative *thaba* 'melted' (28a). Such an affix acts as a transitivizing (or causativizing) morpheme, without which the Arabic causative construction with alternants belonging to this pattern is not licensed, as in (28c).

Another crucial difference between English and Arabic is that while some English unaccusative verbs do not participate in the causative-inchoative alternation (e.g. *appear, arrive, happen*), their counterparts in Arabic do alternate, as illustrated in (20) above.

1.5.3.2 Causative vs. Passive

In order to compare between causative and passive constructions, let us examine these English and MSA sentences:

(29) a. The boy broke the cup. (English Causative)
b. The cup was broken (by the boy). (English Passive)

(30) a. kasara al-walad-u al-finja:n-a. (MSA Causative)
broke the-boy-Nom the-cup-Acc
'The boy broke the cup.'

b. kusira al-finja:n-u. (MSA Passive)
broke-Pass the-cup-Nom
'The cup was broken.'

The examples above illustrate some important facts. First, English has a relatively fixed word order; it is a Subject-Verb-Object (SVO) language, whereas the basic word order for Arabic is VSO[14] (Mohammad, 2000).

Second, passive (voice) differs from causative (active voice) in that passive allows the thing (or person) that receives the action of the verb (i.e. the internal argument—*the cup, al-finjan*) to occupy the subject position (Langacker, 1987). This also involves demoting/deleting the external argument (*the boy, al-walad*).

Third, as the internal argument (*the cup, al-finjan*) moves from the object position to the subject position, it receives nominative case; this case is realized morphologically in MSA (e.g. the *-u* suffix on *al-finjan-u* 'the cup'), but in English, overt (morphological) case marking is limited to personal pronouns[15].

[14] Due to its rich case-marking, MSA tolerates other word orders.

[15] For example, *He called me* is passivized as *I was called (by him)*.

Fourth, English passive requires a form of *BE*[16] followed by the past participle (*V-en*) of the causative verb. On the other hand, forming passives in MSA entails vowel change; that is, morphologically, a passive verb form differs from its active (causative) counterpart in the vowel pattern within the verb (e.g. *kasara* 'broke' > *kusira* 'was broken')[17]. More examples include faʕal-a 'did' > fuʕila 'was done', kataba 'wrote', kutiba > 'was written', 'ya-fʕalu 'do' > yu-fʕalu 'is done', and yaktubu 'write' > yuktabu 'is written'.

Fifth, the demoted external argument (*the boy*) is optional in English, but realizing it overtly in the passive structure requires a (*by*-) phrase. On the other hand, in MSA, the agent is normally not mentioned in passive structures[18] (El-Yasin, 1996). However, an agentive particle (e.g. *min qibali* 'on the part of', *biwaasitati* 'by means of', '*ala yadi* 'at the hand of') is sparingly used to make the implicit argument (agent) overt. In this regard, it should be noted that the use of agentive phrases in the Qur'an like (31) refutes the claim

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[16] The *GET* construction can also be used to express English passivization (e.g. *The chair got broken*.). It should be noted that, if no specific context is provided, *The chair was broken* is ambiguous in English as it can involve eventive/dynamic passive (referring to an activity performed upon the chair) or stative/resultative passive (merely specifying a state of the chair, i.e. the chair is not intact)). On the other hand, *GET* passives in English have only the dynamic/eventive interpretation. In this dissertation, however, passive sentences, regardless of having agentive (*by*-) phrases (e.g. *by the boy*), are intended to be dynamically interpreted.

[17] Arabic typifies the Semitic morphological system, which is based on discontinuous morphemes (Ryding, 2005). In this system, consonant roots interdigitate (i.e. interlock) with patterns of vowels (and sometimes certain other consonants) to form words or word stems. A great many Arabic nouns, verbs, and adjectives can be created by interdigitating a single three-consonant root—KTB (k-t-b)—and other morphemes (e.g. kita:ba 'writing, 'ka:tib 'writer,' makatab 'office,' maktaba 'library,' maktu:b 'letter'). In addition to its derivational power, Arabic morphological system is able to signal grammatical categories like case, number, and definiteness on nouns and to signal person, number, gender, and tense on verbs (Finegan, 2008).

[18] Passive voice in Arabic is termed *al-majhu:l* 'the unknown', or *maa lam yu-samma faa il-u-hu* 'that whose agent is not named'.

by some linguists (Mace, 2007) that this concept is a contemporary innovation to imitate a Western practice.

(31) …'unzila 'alay-hi 'a:yat-un min rabb-i-hi
…sent-down-Pass on-him sign-Nom from Lord-Gen-his
'… a sign was sent down on him from his Lord.' (Qur'an, X, 20)

1.5.3.3. Passive vs. Inchoative

The passive and the inchoative share the fact that they both do not assign accusative case to their D-structure object (*Theme* argument that originates in object position), which moves to the subject position, where it receives nominative case, thereby satisfying the Case Filter. However, the passive and inchoative structures are crucially different. The passive has a linguistically implied agent (external argument), whereas the inchoative lacks this linguistic component; that is, we conceive the inchoative situation as occurring spontaneously. The variation in agentivity, therefore, accounts for how passives and inchoatives differ in the licensing of certain expressions, such as an agentive (*by*-) phrase, agent-oriented adverb, purpose clause, and adverbial *by-itself* phrase (Levin & Rappaport Hovav, 1995; Schäfer, 2009). Passives but not inchoatives allow agentive (*by*-) phrases, agent-oriented adverbs, and purpose clauses[19] as in (31-34), respectively. On the other hand, non-agent oriented adverbs, such as *spontaneously*, *by itself*[20] and *on its own* are licensed in inchoatives, but not in passives, as in (35).

[19] Passives allow purpose clauses as their implicit argument can control the covert PRO-subject of purpose clauses, i.e. *The cup was broken [PRO to awaken a sleeping child]*. However, control fails in inchoatives due to the lack of implicit argument (Schäfer, 2009).
[20] The adverbial *by-itself* phrase has two interpretations: 'without outside help' and 'alone'. Only the first interpretation is found with inchoative verbs. (Levin & Rappaport Hovav, 1995, p. 88).

(32) a. The cup was broken by Tom.
b. *The cup broke by Tom.

(33) a. The cup was broken on purpose/carelessly.
b. *The cup broke on purpose/carelessly.

(34) a. The cup was broken to awaken a sleeping child.
b. *The cup broke to awaken a sleeping child.

(35) a. *The cup was broken by itself/spontaneously.
b. The cup broke by itself/spontaneously.

With respect to Arabic, its passives and inchoatives exhibit the same properties discussed above; the MSA examples (36-39) correspond to the English ones (32-35).

(36) a. kusira al-finja:n-u biwaasitati l-walad-i.
broke-Pass the-cup-Nom by-means-of the-boy-Gen
'The cup was broken by the boy.'

b. *in-kasara al-finja:n-u biwaasitati l-walad-i.
anticaus-broke the-cup-Nom by-means-of the-boy-Gen
'The cup broke by the boy.'

(37) a. kusira al-finja:n-u 'amdan / bi'ihma:lin.
broke-Pass the-cup-Nom on-purpose / carelessly
The cup was broken on purpose / carelessly.

b. *in-kasara al-finja:n-u 'amdan / bi'ihma:lin.
anticaus-broke the-cup-Nom on-purpose / carelessly
'The cup broke on purpose / carelessly.'

(38) a. kusira al-finja:n-u li'iqa:Di Tifl-in na:imin.
broke-Pass the-cup-Nom for-purpose-of awakening child-Gen sleeping-Gen
'The cup was broken to awaken a sleeping child.'

b. *in-kasara al-finja:n-u li'iqa:Di Tifl-in na:imin.
anticaus-broke the-cup-Nom for-purpose-of awakening child-Gen sleeping-Gen
'The cup broke to awaken a sleeping child.'

(39) a. *kusira al-finja:n-u bi-nafshili.
broke-Pass the-cup-Nom by-itself
'The cup was broken by itself.'

b. in-kasara al-finja:n-u bi-nafsihi /tilqa:'yyan.
anticaus-broke the-cup-Nom by-itself /spontaneously
'The cup broke by itself/spontaneously.

From the evidence presented so far, it is clear that there are cross-linguistic differences in the morphological realization of the causative-inchoative alternation between English and Arabic: English predominantly employs the labile pattern, with no overt morphology required; whereas Arabic commonly encodes its alternation via morphological marking, added to either the inchoative or causative alternant form. In addition, some non-alternating verbs in English have alternating counterparts in Arabic.

These differences form the background to the present study's investigation of the potential effects of language transfer on ANSs' acquisition of this alternation in English. It is argued that the challenge ANSs face with the English alternation verbs varies,

depending on the morphological pattern to which the verb belongs to in their L1[21]. For example, ANSs are unlikely to reject English inchoatives with verbs like *boil, die,* and *melt* because these verbs are unmarked in English, and their equivalents are also unmarked in Arabic. On the other hand, ANSs are expected to reject English inchoatives like *The door opened* due to the fact that the inchoative verb *open* is unmarked in English, but its equivalent is marked in Arabic.

Previous research (e.g. Montrul, 2000) has shown that L2 learners transfer morphological components when acquiring the causative-inchoative alternation, but not the underlying argument structure. The current study tests this assumption with ANSs, suggesting, however, that L1 transfer operates not only on morphology, but on lexical argument structure as well.

1.5.4 Diglossia

The term *diglossia* consists of two elements, the prefix (*di-*) meaning 'two', and (*glossia*) meaning "language" or "tongue" (Bakalla, 1984, p. 85). This term describes a sociolinguistic situation in which two different functional varieties of a language co-exist for communication (Ferguson, 1959; 1991). This coexistence of two dialects is exemplified in language communities of, for example, Arabic, Greek, and Swiss German.

Regarding Arabic, it is one language in the abstract sense as it has a number of varieties such as Classical Arabic (CA), Colloquial Arabic (CoA), and Modern Standard Arabic (MSA). CA refers to the Arabic of the poetry of the Pre-Islamic Arabia, the Holy

[21] The study also addresses the transfer of lexical argument structure.

Qur'an, and the classical literature of the golden age (8^{th}-11^{th} centuries). The Qur'an has preserved Arabic throughout the ages. However, the spread of Islam led to a very rapid and significant evolution in the common language itself, and CoA branched off into many dialects; each major region of the Arab world (such as the Levant. the Arabian Gulf, the western Arabian peninsula, western North Africa, and Egypt) has as its own speech norm. In order to meet the requirements of modern life, CA has been adjusted into MSA, which is the written norm for all Arab countries as well as the major oral medium of expression used in formal situations, such as religious sermons, radio newscasts, and international conferences (Bakalla, 1984). Colloquial Arabic, however, is more appropriate in all non-formal situations—at home, at work, social occasions, etc. It should be noted that there are no native speakers of MSA (Kaye, 1994); as formal schooling is usually required to learn it, sound knowledge of MSA is a "mark of prestige, education, and social standing" (Ryding, 2005, p. 7).

The diglossic situation in the Arab world[22] differs from country to country in terms of the relative linguistic distance which exists between MSA and the country's dialect. Mutual intelligibility among Arabs is a relative matter; one's understanding of a dialect depends on his/her familiarity with this dialect and the geographical distance between his/her country and the country where it is spoken. While varieties of CoA are all linguistically related to MSA, they are remarkably distinct from it phonologically, morpho-syntactically, lexically, and semantically (Saiegh–Haddad, 2004).

[22] Some researchers (e.g. Badawi, 1973; Blanc, 1960; Hary, 1996; Meiseles, 1980) characterized the linguistic situation in the Arabic-speaking countries as constituting a continuum. In this dissertation, however, the more common dichotomous analysis of this phenomenon is maintained.

In Palestine, the site of this study, the diglossic situation discussed above also holds; MSA is deemed more appropriate for formal settings, while Palestinian Arabic (PA) is more appropriate in all non-formal situations. Despite the relatedness between MSA and PA, they exhibit certain phonological, syntactical, and lexical differences. For example, while MSA is highly inflectional with case endings for number, gender and tense, PA (like other dialects) lost most inflections and case endings. There are significant lexical differences as well; for example, the word 'money,' translates to *nuqu:d* in MSA, but to *maSari* in PA.

One significant difference between the two varieties is that MSA has two distinct morphological structures for passive and inchoative, whereas PA usually collapses the two forms; specifically, PA passivizes its transitive verbs (e.g. *haT* 'put', *shirib* 'drank') and its unmarked causatives (e.g. *kasar* 'broke', *fatah* 'opened') by following the anticausative morphological pattern. As a result, the anticausative inchoative and the passive are superficially identical in PA. This difference between MSA and PA is illustrated in Table 1.2 and Table 1.3.

Table 1.2 Causative, Inchoative, and Passive in MSA

Causative	Inchoative	Passive
kasara al-walad-u al-finja:n-a.	in-kasara al-finja:n-u.	kusira al-finja:n-u.
broke the-boy-Nom the-cup-Acc	anticaus-broke the-cup-Nom.	broke-Pass the-cup-Nom.
'The boy broke the cup.'	'The cup broke.'	'The cup was broken.'

Table 1.3 Causative, Inchoative, and Passive in PA

Causative	Inchoative and Passive
kasar l-walad l-finja:n.	(i)n-kasar l-finja:n.
broke the-boy the-cup	anticaus-broke the-cup. Or broke-Pass the-cup
'The boy broke the cup.'	'The cup broke.' Or 'The cup was broken.'

Palestinian children acquire their PA subconsciously from parents, siblings, peers, etc.; there are no PA classes offered to Palestinians in Palestine (and this seems to be the case with CoA in other Arab countries). On the other hand, Palestinians learn MSA (including its grammatical rules) in formal settings—normally, at school. While there are no studies examining the age at which Palestinian (or other Arab) children begin to make a contrast between passive and inchoative in Arabic, this distinction seems to be acquired fairly early (maybe around the age of three). For this point, I recall hearing one of my children, Isma'il (aged 2 years and 10 months at that time) saying, "*inkab lhali:b.*" This PA sentence is ambiguous; it could be interpreted inchoatively 'The milk spilled,' or passively 'The milk was spilled (by someone)'. Trying to identify the intended meaning of my son's utterance, I said to him, "*intta kabbeituh ya Isma'il!*" 'You spilled it [i.e. the milk], Isma'il!' He replied, "*huwwa inkab lahaluh*" 'It spilled by itself.' Responding this way, my son excluded any responsibility on his part (or someone else's) for causing the spilling; that is, the situation occurred spontaneously.

1.6 Overview and Research Questions

The intent of the present study is to provide a deeper understanding of ANSs' mental representation of the English causative-inchoative alternation. Emphasis is placed on the

relationship between English proficiency level, language transfer, and UG mechanisms in this linguistic phenomenon.

An acceptability judgment and correction (AJC) task was administered to a sample purposively selected from the Gaza Strip, Palestine. The participants included undergraduate students as well as teachers of English at high schools[23]. Such participants are familiar with both varieties of their Arabic language (or the diglossic situation)—that is, the use of MSA for formal settings and PA for non-formal situations. As the participants were expected to have different levels of English proficiency; a cloze test was used for objective measurement of proficiency. In addition to these Arabic-speaking participants, a group of American native speakers of English served as controls.

In order to explore this linguistic phenomenon at hand, the present study was guided by the following central research questions:

(1) Does the English causative-inchoative alternation pose a learnability problem for Arabic native speakers?

(2) Do Arabic native speakers distinguish between unaccusative and unergative verbs in English?

(3) Are there L1 transfer effects on Arabic native speakers' acquisition of the English causative-inchoative alternation?

[23] Unless distinction is necessary, both undergraduates and school teachers are referred to as ELF Arabs or Arabic native speakers (ANSs).

(4) Are there differences across English proficiency levels with respect to the answers to questions 1-3?

1.7 Organization of the Study

This research study is presented in five chapters. Chapter One covers the background of the study, statement of the problem, theoretical framework, significance of the study, key terms, and research questions. Chapter Two presents a review of the literature that is pertinent to the study. Chapter Three introduces the methodology employed for the purpose of the study, including the selection of participants, instrumentation, data collection, and data analysis procedures. The data analysis and results are reported in Chapter Four. Finally, the major findings of the study, as well as avenues for future research and pedagogical implications, are discussed in Chapter Five.

CHAPTER TWO

REVIEW OF THE LITERATURE

2.0 Organization

This chapter reviews previous research pertinent to the acquisition of the English causative-inchoative alternation. The chapter is organized as follows. In Section 2.1, research on the acquisition of the lexicon in general and argument structure in particular is introduced. In Section 2.2, studies on child L1 acquisition of the English causative-inchoative alternation are reviewed. The rationale for reviewing such studies is that it has been reported that children acquiring English as their L1 tend to overgeneralize the alternation pattern, producing structures that are unacceptable in the adult grammar (e.g. **don't giggle me*; **I disappeared a bear* (Bowerman 1982)). Getting an idea of how children acquire knowledge of lexical properties of alternating verbs in their English L1 may provide a better understanding of the acquisitional challenge L2 learners of English face in the area of the English causative-inchoative alternation. In Section 2.3, L2 English acquisition studies relevant to the area under discussion are reviewed. Non-target behavior has been observed, particularly, overpassivization, (e.g. **my car has been broken down* (Yip, 1995)). Section 2.4 concludes this chapter with pointing out the need of a more comprehensive study on the acquisition of the English causative-inchoative alternation by Arabic native speakers (ANSs) to clarify what role their L1 plays in this linguistic phenomenon.

2.1 Introduction

Over the past three decades, research has witnessed much development in investigating the acquisition of the lexicon in both L1 and L2. Acquiring the lexicon (as part of language) used to be viewed behavioristically, that is, as a product of habit formation borne of repeated stimuli (Bloomfield, 1933; Lado, 1957; Skinner 1957). However, with the emergence of generative grammar, language acquisition has been shown to be rule-governed, involving complex knowledge about lexical items (Chomsky, 1959; 1986a; 1986b; 1995; 2000; 2002; Juffs, 1996; 2000; 2009; Levelt 1989; Pinker 1989; 1994; 1999; Talmy 1985). According to Juffs (2009),

> the lexicon is *central* to the whole system because the lexicon encodes phonological and morphological information that is vital in establishing *meaning contrasts*. In addition, it is the source of important syntactic information in verb argument structure. Last, but certainly not least, it stores concepts (p. 181, emphasis original).

Within this recent generative approach to the lexicon, the acquisition of argument structure has become a major topic (Balcom, 1997; Bley-Vroman & Joo, 2001; Bley-Vroman & Yoshinaga, 1992; Inagaki, 1997; Joo, 2003; Ju, 2000; Juffs, 1996; Mazurkewich, 1984; Pinker, 1989; Sawyer, 1995; Sorace, 1995; White, 1995; Whong-Barr & Schwartz, 2002; Yuan, 1999, among others). Special attention has been paid to certain phenomena such as the dative alternation, the locative alternation, and the causative-inchoative alternation. Examples of these alternations are presented in (1-3).

(1) Dative Alternation

a. John showed Mary a picture.

b. John showed a picture to Mary.

(2) Locative Alternation

a. Tom sprayed water on the wall.

b. Tom sprayed the wall with water.

(3) Causative-Inchoative Alternation

a. Susan closed the window.

b. The window closed.

The acquisition of the English causative-inchoative alternation by ANSs is the concern of this dissertation. As illustrated in (3), the causative sentence (3a) has the verb *closed* used transitively, with Susan as the performer of the action (*Agent*), whereas *closed* in the inchoative counterpart (3b) is used intransitively, with the window as the undergoer of the action (*Theme*). Therefore, (3a) can be paraphrased as 'Susan caused the window to close,' and (3b) as 'The window became closed.' While both sentences express the same basic situation, the inchoative sentence (3b) presents the situation as occurring spontaneously, with no agentivity involved (Haspelmath, 1993).

The causative-inchoative alternation has been extensively studied in both L1 and L2 acquisition research. Many of the L1 studies have been conducted on English-speaking children (Bowerman, 1974; 1982; 1990; 1996; Braine, Brody, Fisch, Weisberger, and Blum, 1990; Hochberg, 1986; Lord, 1979; Pinker, 1989; Randall, 1990; Theakston; 2004, among others). L1 researchers have also investigated the acquisition of this

alternation in other languages, e.g., Hebrew (Berman, 1982; 1993), Japanese (Morikawa, 1991), Inuktitut (Allen, 1996), and French (Naigles & Lehrer, 2002).

In the domain of SLA, the learnability problems associated with the acquisition of L2 causative-inchoative alternation have received special attention. One aspect of this specific alternation that makes it of particular interest is the fact that the core set of verbs that undergo the alternation appears to be stable across languages. "The verbs meaning break, hang, open and close, for example, are more likely than not to exhibit the alternation in a given language" (Marantz, 1984, p. 181). However, languages vary in their means of marking the causative-inchoative alternation (Croft, 1990; Haspelmath, 1993; Nedjalkov, 1969; 1990).

A substantial body of L2 research on the acquisition of the causative-inchoative alternation has focused on acquiring this alternation in English by learners from different L1 backgrounds, including Arabic (Moore, 1993; Zobl, 1989), Chinese (Balcom, 1997; Ju, 2000; Yip, 1995), Hindi-Urdu (Helms-Park, 2001), Italian (Oshita, 1997), Japanese (Hirakawa, 1995; 2003; Kondo, 2005; 2009; Moore, 1993; Oshita, 1997; 2000; Zobl, 1989), Korean (Joo, 2008; Kim, 2005), Persian (Samar & Karimi-Alvar, 2007), Spanish (Kondo, 2005; 2009; Matsunaga, 2005; 2007; Montrul, 1997; 2000; Moore, 1993; Oshita, 1997), Turkish (Can, 2000; 2007; Montrul, 1997; 2000), and Vietnamese (Helms-Park, 2001).

Research in SLA has also investigated the acquisition of this alternation in languages other than English, such as Spanish (Cabrera, 2005; Montrul, 1997; 2005;

Toth, 1999), Turkish (Montrul, 1997; 2001), Korean (Joo, 2008; Kim, 2005) Japanese (Hirakawa, 2003; Okamoto, 2006), and Chinese (Yuan, 1999).

This review of the literature focuses on L1 and L2 studies that address the acquisition of the English causative-inchoative alternation.

2.2 L1 English Acquisition Studies

It has been documented that, in the course of L1 acquisition, children occasionally produce structures that are not licit in the adult grammar. These 'errors' are often characterized by overgeneralization from which children eventually recover despite the *poverty of the stimulus*. The following section reviews studies focusing on children learning English as their first language: Bowerman (1974; 1982; 1990), Lord (1979), Pinker (1989) and Theakston (2004).

2.2.1 Bowerman (1974; 1982; 1990) and Lord (1979)

Based on observation and diary keeping of her two daughters, Christy (C) and Eva (E), Bowerman (1974; 1982; 1990) noted that her children sometimes produced expressions unattested in the adult system. Examples related to the causative-inchoative alternation include:

(4) a. C 2;3[1] *I *come* it closer so it won't fall.
'I'll make it closer (bring it closer) so it won't fall.'

b. C 2;9 *I'm gonna just *fall* this on her.
'I'm gonna just make this fall on her; I'm gonna just drop this on her'

[1] Age is in years; months. Thus, C 2;3 means that C(hristy) was at the age of 2 years and 3 months when she produced this utterance.

c. C 3;1 *I'm *singing* him.
'I'm making him sing.'

d. C 4;3 *It always *sweats* me.
'It always makes me sweat.' (Christy doesn't want to wear a sweater.)

e. C 4;8 *I saw a witch and she *disappeared* them.
'… and she made them disappear.' (Pretending some blankets have disappeared)

f. C 5,0 *Eva's gonna die it.
'Eva's gonna kill it.' (Eva is about to touch a moth.)

g. C 7,8 *Did they *vanish* "knock-knock" cups?
'Did they make "knock-knock" cups vanish? (Christy notices dixie cups in new pack no longer have knock-knock jokes on them.)

h. E 3;0 *Don't *giggle* me!
'Don't make me giggle!'

i. E 5;3 *You *cried* her!
'You made her cry!'

The examples in (4) include English verbs—both unaccusatives (*disappear, vanish, fall, come, die*) and unergatives (*cry, giggle, sing, sweat*)[2]—in causative/transitive constructions even though they do not alternate for adults. Bowerman, however, noticed that other errors (though less frequent) included intransitivization; that is, her two

[2] Unaccusatives typically have non-agentive (non-volitional) subjects, whereas unergatives have agentive (volitional) subjects. For more details, see Section 1.5.2.1.

children occasionally created novel inchoative structures from causative verbs, as exemplified in (5).

(5) a. C 2;3 *It *blowed* up. (After blowing up a beachball)
'It inflated.'

b. C 2;11 *Bert *knocked* down. (C sees Bert topple over on TV.)
'Bert fell down.'

c. E 1;11 *Will it *hold*? *Think it will *hold*? (E wants M to hold a card up.)

d. E 2;0 Can I plant them? *Will they *plant*? (E refers to dried beans.)

Lord (1979) also reported examples similar to the ones cited in (4-5). She found over 80 different intransitive verbs used transitively in a total of 200 utterances produced by her two children, Jennifer (J) and Benjy (B). Here are some examples:

(6) a. B 2,5 *I did *fall* my vitamin.
'I dropped my vitamin (accidentally)'

b. B 2,5 *I'm *dancing* Jeremy Fisher.
'I'm causing Jeremy Fisher (stuffed toy) to dance'

c. B 2,7 *Let's, let's *stay* him in the car.
'Let's, let's leave him (bear) in the car.'

d. B 2,8 *She *calls* Fluffy Cat.
'I call her Fluffy Cat.'

e. B 3,7 *I better put it down there so it won't *lose*.
'I better put it down there so I won't lose it.'

f. J 3,1 *It *coughs* me!
'It makes me cough.'

g. J 3,8 *You can *drink* me the milk.
'You can help me drink the milk.'

h. J 8,3 *Do you think it'll *fix*?
'Do you think we can fix it?'

While the utterances in (4-6) are readily understandable, they seem strange to adult speakers of English. Interestingly, when children make such errors, they receive little or no corrective/negative feedback from adults. Despite this poverty of the stimulus, children recover from overgeneralization errors, which creates what is known as the logical problem of language acquisition, or Baker's Paradox (from Baker, 1979). A number of explanations attempt to account for children's retreat from overgeneralization errors.

2.2.2 Accounting for Children's Overgeneralization

Literature has reported different views that may account for children's overgeneralization errors. These views include zero-derivation rule (Bowerman, 1982); paradigmatic correspondence and bi-directionality (Lord, 1979), entrenchment (Theakston, 2004), and innate mechanisms (Pinker, 1989).

2.2.2.1 Zero-Derivation Rule

Bowerman (1982) argues that overgeneralization errors represent a reorganization of the child's developing grammatical system as progressing

towards the adult system. She claims that children's extension of the causative frame to intransitive verbs can be attributed to positive feedback (the set of grammatical sentences children have access to, that is, by observing how other speakers talk about things). According to her,

> [t]he child simply takes a received non-causative form and uses it directly, without morphological modification, in a causative sense. A child could presumably formulate a rule for performing such an operation on the basis of her observation of the morphological and semantic relationship between members of received causative-noncausative pairs like transitive and intransitive *open*.
>
> (Bowerman 1982, p. 20)

Bowerman assumes that, in the causative-inchoative alternation, the inchoative is basic (unmarked), from which the causative counterpart is derived through zero-derivation. Children hypothesize a word-formation rule in which zero-morphology adds a causal element to the semantic composition of the predicate and licenses an external argument (subject-Agent). As children hear alternating unaccusative verbs like *break* and *melt* used both transitively and intransitively, they overgeneralize the pattern[3] by assuming that other types of intransitives (non-alternating unaccusatives and unergatives) can alternate. Having this rule as part of their linguistic knowledge, children create two lexical entries for each verb: an intransitive entry (e.g. $giggle_1$) and a transitive one (e.g. $giggle_2$). When children become aware that *giggle* is not used transitively, they 'fine-tune' the verb's semantic representation and stop producing novel causatives with $giggle_2$ like **Don't giggle me*. Children repeat this process with other problematic

[3] As noted in Section 1.6.3.1, Haspelmath (1993) uses the term *labile pattern* to refer to the alternation in which the causative and its inchoative counterpart have the same form.

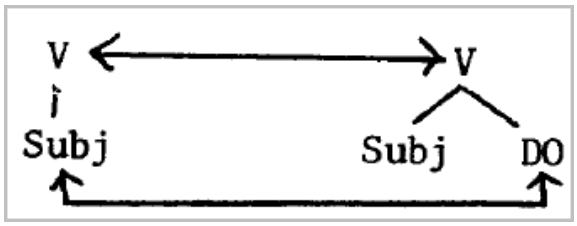
lexical entries until their causative-inchoative alternation is appropriately restricted. Bowerman claims that children's overgeneralized causatives include non-alternating unaccusatives and unergatives with no preference for a specific verb class.

With respect to children's occasional overgeneralization errors in the other direction, i.e. causative-to-inchoative, as in (5) (e.g. **Bert knocked down*), Bowerman suggests that children reverse (or *undo*) the same set of steps of word-formation to yield the basic inchoative form from a causative verb. Bowerman claims that this backformation process is more complicated; therefore, children apply it less frequently, producing fewer overgeneralized intransitives.

2.2.2.2 Paradigmatic Correspondence and Bi-Directionality

Compared to Bowerman's diary data, however, Lord's data have much more examples of novel intransitivization; about 55 different transitive verbs used intransitively. On this basis, Lord claims that the frequency of intransitivization errors in child's speech is similar to that of transitivization errors. She argues that there is no directionality to the error process, and that children's errors can be explained in terms of paradigmatic correspondences between syntactic structures, as illustrated in (7). The subject of an intransitive verb is allowed to correspond to the (direct) object of its transitive counterpart, and vice-versa.

(7)



From Lord, 1979, p. 87

Bowerman's and Lord's diary studies are significant because they were the first to document errors in the L1 English causative-inchoative alternation. However, the problem with these studies is that the frequencies observed in the spontaneous speech of the four children (C, E, B, J) are not necessarily representative of the population. In addition, according to Marcotte (2005, p. 27), such diary studies have limitations: (i) They include only data that the diary authors notice and care to write down; (ii) the fact that errors have to be written down means that there are certain situations in which the diary authors are unable to take notes and must work from memory to include errors that have occurred in such situations; and (iii) naturally, only the parts of these diaries that have been published are available to theorists.

In order to overcome such problems, different L1 English experimental studies with larger sample sizes (e.g. Braine et al., 1990; Hochberg, 1986; Theakston; 2004) have been conducted, where specific variables can be manipulated to test certain hypotheses related to children's acquisition of the English causative-inchoative alternation. Theakston's (2004) study is reviewed below.

2.2.2.3 Entrenchment

Theakston (2004) evaluates the role of entrenchment[4] (Braine & Brooks, 1995) in constraining argument structure overgeneralization errors. Two groups of children (59 5-year-olds and 55 8-year-olds) and 36 adults[5] (university students) participated in the study. The participants were asked to rate sentences containing overgeneralization errors with high and low frequency verbs matched for semantic class (from the Manchester corpus)—e.g. **Somebody fell/tumbled it off*, **I'm gonna disappear/vanish it*, **Don't laugh/giggle me, *I poured/dribbled you with water*. Children made binary judgments, while adults used a seven-point scale.

Results showed that adults rated overgeneralization errors with low frequency verbs (e.g. *disappear*) as more acceptable than corresponding errors with higher frequency verbs (e.g. *vanish*), and larger numbers of children rated the former than the latter errors as acceptable. Theakston (2004) argues that these findings support the

[4] Theakston (2004, p. 17) explains the *entrenchment hypothesis* as follows: In this account, the likelihood that children will produce an overgeneralization error with a particular verb is closely related to its frequency in the input. The more often children hear a particular verb used in a particular construction or range of constructions in the input, the less likely they are to overgeneralize use of that verb to a novel construction not modeled in the input. In other words, the familiarity of individual verbs is seen to play an important role in determining the likelihood that children will produce overgeneralization errors. Over the course of development as children are exposed to more linguistic input, the familiarity of individual verbs is expected to increase and thus the number of errors found in children's speech will decrease toward levels in the adult grammar. The direct prediction from this approach, therefore, is that children will be more likely to make argument structure errors with verbs that have lower frequency in the input and are acquired later in development than with verbs that are of higher frequency in the input and acquired earlier in development.

[5] The adults participated in a separate experiment to investigate whether similar frequency effects could be observed in their grammaticality judgments of verb argument structure errors.

entrenchment hypothesis and "suggest that verb frequency plays an important and continuing role in determining a speaker's choice of verb argument structure" (p. 15).

The views discussed above with respect to children's overgeneralization errors do not assume innate linking rules mediating between syntax and semantics. This aspect of these accounts, however, has been challenged by researchers working within the generative tradition (e.g. Baker, 1979; Gropen, Pinker, Hollander, & Goldberg, 1991; Levin & Rappaport Hovav, 1995; Pinker, 1989; Randall, 1990). This nativist (innateness) model is discussed below with reference to Pinker (1989).

2.2.2.4 Innate Mechanisms

The view that Universal Grammar (UG) plays a central role in L1 acquisition seems to be the most widely accepted currently. UG is defined as "a characterization of the genetically determined language faculty... an innate component of the human mind that yields a particular language through interaction with presented experience" (Chomsky, 1986a, p. 3). UG is assumed to involve principles and parameters that characterize the mind of every child and constrain language acquisition. Principles of UG (such as those leading to the causative-inchoative alternation) are proposed to be true for all languages, whereas parameters (such as those determining how alternations are encoded) are proposed to account for cross-linguistic variation, because they must set to a particular value in a particular language.

According to UG, certain aspects of language structure are innate, which explains the fact that children complete the acquisition of their L1 at a very young age despite

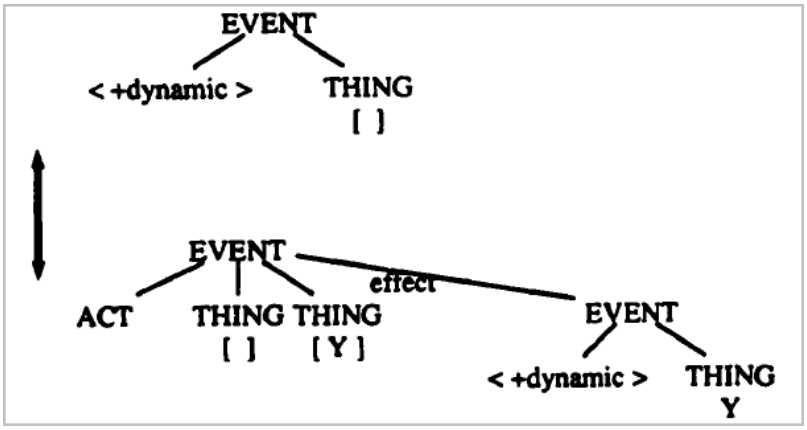
poverty of the stimulus; that is, "input alone is not sufficiently specific to allow a child to attain the complexities of the adult grammar" (Gass and Selinker, 2008, p. 520). Therefore, UG is thought to be the initial state (S_0) in L1 acquisition, constraining every stage of grammatical development until the child's grammar reaches the steady state (S_s), the adult grammar (White, 2003).

Within this 'Chomskyan' generative theory of grammar, Pinker (1989) attempts to explain how children retreat from overgeneralization errors while acquiring the L1 English causative-inchoative alternation. Based on a reanalysis of Bowerman's data, Pinker argues that innate grammatical knowledge and mechanisms are largely responsible for children's recovery from overgeneralization. Children have inborn knowledge of linking rules between thematic roles and syntactic functions and are guided by this mechanism to acquire the lexicon. Pinker distinguishes between two types of lexical rules: *broad-range* and *narrow-range* rules. The broad-range rule for a particular alternation (e.g. causative-inchoative) captures what all the verbs that undergo the alternation have in common. Although a given broad-range rule is semantically restricted, many verbs that satisfy its requirements still do not alternate, which Pinker claims is the cause of children's overgeneralization. Some innate mechanism then enables children to identify and reject incorrect grammatical hypotheses without recourse to negative/corrective evidence (Baker, 1979; Gropen, et al., 1991; Pinker, 1989; Randall, 1990). In the course of their linguistic development, children abandon the broad-range rule in favor of a narrow-range rule—semantically a more specific version of the broad-range rule. As a result, children

correctly establish the meaning of a verb and the semantic subclass to which it belongs. It can be concluded that children would not make overgeneralization errors if they learned only narrow-range rules, not broad-range ones.

Under this account, a broad-range rule governing the causative-inchoative alternation allows verbs with a <+dynamic> feature, that is, verbs that specify "an event involving a thing to be embedded as an effect of an agent acting on that thing. The predicate of the effect event can be either GO or ACT" (Pinker, 1989, p. 223). Accordingly, this broad-range rule cannot be applied to intransitive verbs with BE or HAVE in their semantic representation (e.g., *be, exist, stay, have*).This rule is diagrammed in (8). (The arrow indicates that the rule functions bidirectionally.)

(8)



From Pinker, 1989, p. 223

However, some English verbs like *go, fall,* and *disappear* are <+dynamic>, but still they do not alternate (e.g. **the magician disappeared the rabbit*). Therefore, narrow range rules provide the sufficient criteria for alternation by specifying semantically coherent subclasses of verbs of the large classes defined by broad-range rules. Two

subclasses of verbs meeting these criteria are given in (9). On the other hand, (10) lists subclasses of verbs that lack a narrow-range rule, and therefore, do not alternate.

(9) English verbs with a narrow-range rule for the causative-inchoative alternation (Pinker, 1989, p. 130)

a. Verbs of externally-caused change of physical state
e.g. *open, close, melt, shrink, shatter*

b. Verbs of contained motion taking place in a particular manner
e.g. *slide, skid, float, roll, bounce*

(10) English verbs without a narrow-range rule for the causative-inchoative alternation (Pinker, 1989, pp. 131-132)

a. Verbs of motion in a lexically specified direction
e.g. *go, come, rise, fall, enter, exit, ascend, descend, leave, arrive*

b. Verbs of volitionally- or internally-caused actions
e.g. *jump, hop, run, eat, drink, sing*

c. Verbs of coming into or going out of existence
e.g. *die, expire, decease, pass away, vanish, appear, disappear*

d. Most verbs of emotional expression
e.g. *smile, cry, laugh, frown, blink*

e. Most verbs of emission of lights, sounds, and substances
e.g. *glow, glitter, blaze, buzz, bubble, erupt, smoke, ooze, leak, bleed, shed*

Therefore, Pinker's nativist model can be summed up as follows. Argument structure alternations (e.g. causative-inchoative) in adult speech are governed by narrow-range rules, but in child speech by broad-range rules (related to innate linking rules). Children overgeneralize because they use verbs that meet necessary but not sufficient

conditions for alternation. However, children's recovery from the error phase is realized when they acquire the narrow-range rules for alternation and abandon the broad-range ones.

2.2.3 Summary of L1 English Studies

It has been observed that, in the course of L1 acquisition of the English causative-inchoative alternation, children occasionally overgeneralize the alternation pattern, producing structures that are not permissible in the adult grammar. Different accounts have been proposed: (i) children incorrectly apply a zero-derivation rule to non-alternating verb classes; (ii) children's errors are bidirectional, involving paradigmatic correspondences between syntactic structures; (iii) children's overgeneralization is related to their familiarity with individual verbs, that is, the frequency of the verbs in the input; and (iv) innate linking rules guide children's acquisition of the alternation. However, the last account, i.e. the nativist model, has received much support in the literature both in L1 and L2 acquisition research. Assuming the availability of UG, the current study attempts to lend more support to the argument that some innate mechanisms play a significant role in language acquisition.

2.3 L2 English Acquisition Studies

It has been reported that the English causative-inchoative alternation poses a challenging learnability problem for L2 learners of various L1 backgrounds. Several structural patterns and phenomena have been noticed: overpassivization, avoidance of inchoatives

(and use of passive instead), use of postverbal NP structures, and causativization (transitivization), as illustrated in (11-14).

(11) Overpassivization

a. *The most memorable experience of my life was happened 15 years ago.
(Arabic L1; advanced learner, Zobl, 1989, p. 204)

b. *My mother was died when I was just a baby.
(Thai L1; high intermediate learner, Zobl, 1989, p. 204)

c. *This problem is existed for many years.
(Hubbard, 1994, p. 55)

d. *Something strange was happened before I could open the door.
(Hubbard, 1994, p. 55)

e. *Rush hour traffic can be vanished because working at home is a new version.
(Chinese L1, Yip, 1995, p. 130)

f. *Mary was appeared in front of the door.
(Turkish L1, Can, 2000, p. 148)

g. *The letters were arrived yesterday.
(Turkish L1, Can, 2000, p. 149)

h. *After the war, there were appeared a lot of women who believed...
(Japanese L1, Oshita, 1997, pp. 333)

(12) Rejection/Avoidance of inchoatives and use of passive instead

	Judgment task	Learners' Corrections
a.	My car has broken down.	… has been broken/was broken down.
b.	We had some ice cream, but it has melted.	… has been/was melted.

(Chinese L1, Yip, 1994, p. 129)[6]

[6] As Yip (1994) points out, sentences (12a-b), embedded in discourse contexts, are intended to denote no implied agent (i.e. inchoative interpretation). Therefore, the two sentences are well-formed English structures. However, on the grammaticality judgment task, many participants judged these two sentences as ungrammatical, and when invited to make corrections, they produced inappropriate passive structures.

(13) Postverbal NP

(i) [*e-V-NP*]

a. *Sometimes comes a good regular wave.

(Japanese L1; low intermediate learner, Zobl, 1989, p. 204)

b. *I was just patient until dried my clothes.

(Japanese L1; high intermediate learner, Zobl, 1989, p. 204)

(ii) [*It-V-NP*]

a. *...it existed a lot of restrictions.

(Italian L1, Oshita, 1997, p. 331)

b. *...it will happen something exciting.

(Spanish L1, Oshita, 1997, p. 331)

c. *I think it continue of today condition forever.

(Japanese L1; intermediate learner, Zobl, 1989, p. 204)

(14) Causativization/Transitivization [NP_1-*V*-NP_2]

a. *The shortage of fuels occurred the need for economical engine.

b. *Careless currency devaluation will go back us to old habits.

c. *This construction will progress my country.

(Rutherford, 1987, 89)

The non-target behaviors exemplified in (11-14) have been the subject of considerable debate. Some researchers (e.g. Balcom, 1997; Ju, 2000; Zobl, 1989) argue that L2 learners' overgeneralization errors are observed regardless of L1. Other researchers (e.g. Kondo, 2005; 2009; Montrul, 1997; 2000; Moore, 1993) suggest that L1 transfer has a significant role in the learners' acquisition problem with the English causative-inchoative alternation. Studies representing these competing positions are reviewed below.

2.3.1 Absent L1 Transfer Effects

In some previous studies, it has been argued that L2 English learners' non-target behaviors in the area of the causative-inchoative alternation occur regardless of L1 background; that is, there are no L1 transfer effects in this phenomenon. These studies include Zobl (1989), Balcom (1997) and Ju (2000).

2.3.1.1 Zobl (1989)

Zobl (1989) examined a corpus of the written English of 114 university students enrolled in ESL (English as a second language) programs in the United States and Canada. These participants were of different L1 backgrounds: 90 Japanese, 10 Arabic, 10 Spanish, 1 Chinese, 1 Turkish, 1 Thai, and 1 Indonesian, and they were advanced enough to be marking English tense distinctions. Zobl argues that the errors he noticed (as cited in (11) and (13)) can be explained within the Unaccusative Hypothesis (Perlmutter, 1978), which divides intransitive verbs into unaccusatives and unergatives. As the learners' passivization of unaccusatives was much higher than that of unergatives (a ratio of roughly 1:4.5 with unaccusatives, but 1:16 with unergatives), Zobl concluded that the learners were sensitive to the unaccusative-unergative distinction; that is, they knew that unaccusative subjects are base-generated in object position, whereas unergative subjects (like transitive subjects) are projected in subject position.

Accounting for the passive errors, Zobl claimed that the L2 learners knew that unaccusatives and passives share the same "configurational representation of thematic roles, specifically [*e* [V NP $_{theme}$]]" (p. 218); that is, both structures have a logical

object, lack a logical subject at D-structure, and prepose the logical object (i.e. NP $_{theme}$) at S-structure to the grammatical subject position, where it receives nominative case. NP movement in passives, but not in unaccusatives, entails morphological marking *be-V-en*. Zobl claimed that the L2 learners of English who produced (11a, b) subsumed unaccusatives under passivization and added, unnecessarily and ungrammatically, passive morphology in order to promote the unaccusative NP (base-generated in object position) to subject position.

Zobl argued that the learners' errors could not be traced back to their first language. To support this claim, he argued that the majority of the participants were Japanese speakers, whose L1 has SOV word order. He found that there were 13 cases of verb-subject order with 80 unaccusative verb tokens and 10 cases of verb-subject order produced by native speakers of Japanese. The non-target VS word order with unaccusatives exhibited in (13a, b)—made by Japanese learners of English—does not conform to the word order in either their (SOV) L1 or their (SVO) L2.

Zobl's (1989) work has pioneered the investigation of the learnability problem of unaccusatives by L2 learners of English within the Unaccusative Hypothesis (learners have access to UG as they are sensitive to the unaccusativity-unergativity distinction). However, his conclusion that L1 plays no role in these errors may be too strong. While it is hard to see how the L1 word order could lead to a VS error, the real test of whether L1 matters is if VS errors arise in the L2 of speakers from different L1s. Zobl did not address this important question, but the expectation would be that they do. In addition, according to Hawkins (2001), the SOV word order of Japanese does not necessarily imply that VS

errors in the English L2 could not have arisen from the L1, and properties of Case assignment in Japanese could account for the VS errors as well.

Hawkins (2001, p. 186) observes that there is some evidence for the view that arguments of unaccusative verbs in Japanese receive case in place, without moving from the VP. Under such an analysis, Japanese learners of English could transfer this property from their L1, the result of which would be VS order in English unaccusatives. Based on this view, Japanese learners of English transfer this property (i.e. the arguments of unaccusative verbs remain within the VP) from their L1. Moreover, the L2 learners in Zobl's study were from different L1 backgrounds, including Arabic (the focus of the present study); however, he did not discuss cross-linguistic morphological differences in the patterning of the causative-inchoative alternation in an L2 learners' grammar.

Furthermore, Zobl's study relied on spontaneous production data to examine unaccusative errors. White (2003) argues that these errors are quite infrequent and may in some sense be accidental. Relying on production data, even when examining a large corpus, is unlikely to be sufficient for evaluating learners' knowledge of unaccusativity in general. To investigate properly "whether or not…production [unaccusative] errors…indeed reflect underlying interlanguage competence," a more experimental approach, with elicited production tasks and grammaticality-judgment tasks, is required (White, 2003, p. 231).

2.3.1.2 Balcom (1997)

Balcom (1997) aimed to "support, amplify and question with empirical evidence" Zobl's (1989) account for L2 learners' passive unaccusatives errors (i.e. the error in which L2 English learners subsume unaccusatives under passivization and add passive morphology when moving the unaccusative NP to subject position). Balcom administered two tasks (a grammaticality judgment task and a controlled production task) to 38 Chinese university students and a control group of English native speakers. The Chinese students were of roughly high intermediate to advanced English proficiency levels.

The grammaticality judgment task consisted of 35 sentences, 20 grammatical and 15 ungrammatical (containing inappropriate *be-V-en*). The participants were asked to mark the sentences as grammatical, ungrammatical or not sure, and to correct those they considered ungrammatical. The task included nine verb subclasses, as illustrated in (15):

(15) a. Experiential verbs with a [-human] Theme subject
The riot occurred after the police officers had been acquitted.

b. Experiential verbs with a [+human] Experiencer subject
The child underwent the operation, even though it was expensive.

c. Psych-verbs with a [-human] Theme subject which is a Cause
The results pleased the students, although the professor was unhappy.

d. Psych-verbs with a [+human] Experiencer subject
Many people like their coffee before they get out of bed.

e. Unaccusative verbs with transitive counterparts (Theme subject) [i.e. alternating]
*The door was closed smoothly because Mary had remembered to oil the hinges.

f. Middle constructions (Theme subject)

This bread cuts easily when it isn't frozen solid.

g. Verbs with an Instrument subject

The key will open the door if you insert it properly.

h. Verbs of measure (Theme subject)

*This dress was only cost $40, because Janet bought it on sale.

i. Stative unaccusative verbs (Theme subject)

*This soup was tasted good after the cook had added some salt.

(Balcom, 1997, p. 3)

In the controlled production task, a cloze test of a passage with 39 blanks was used. The participants had to supply the correct morphology to the base form of the verb provided after each blank. The verbs were mostly from the judgment task subclasses, shown in (15).

Results of the judgment task showed that the learners' acceptance of passivization varied between the verb subclasses, ranging from 4% to 71%. Passive was accepted significantly more often with alternating unaccusatives, middle constructions, and experiential, stative and measure verbs, "all of which have a Theme subject and describe a state or change of state and are thus by definition unaccusatives" (Grimshaw, 1990, cited in Balcom, p. 4). Similar results were found in the cloze passage task.

Balcom concluded that her study confirms Zobl's findings, although the two studies differ in data collection and participants: Zobl used spontaneous written production data, whereas Balcom used both a judgment task and a controlled production task. In terms of participants, only Chinese learners of English participated in Balcom's

study; on the other hand, Zobl's study had learners from different mother tongues (yet 80% of them were Japanese). It is clear that Balcom did not assume any effect of the L2 learners' native language.

Balcom found that the English native speakers also accepted some passives of putative unaccusatives, which suggests that some sentences may have an implicit agentive interpretation. For example, item (15e) has the possibility of being interpreted agentively; that is, Mary or someone else could have performed the action (i.e. closing the door). Therefore, considering (15e) ungrammatical within the context given, restricting it to the inchoative (spontaneous) reading, seems to be inappropriate[7].

2.3.1.3 Ju (2000)

Ju (2000) argues that the source of English L2 overpassivization errors is "the availability of conceptualizable agents in the discourse" rather than L1 transfer (p. 86). She tested 35 Chinese learners of English graduate students in an American university, classified as having an advanced level of English proficiency. Ten English native speakers also participated as controls in the study. Ju claims that L2 learners are more likely to passivize unaccusative verbs in externally caused events (where a conceptualizable agent causes the event) than in internally caused events. Consider the following examples:

(16) a. A fighter jet shot at the ship.
The ship sank slowly.

[7] This point was checked with a linguist and a native speaker of English, Professor Paul Hagstrom, who judged (15e) to be perfectly fine. If so, (15e) should have been excluded from Balcom's results.

b. The rusty old ship started breaking up.
The ship sank slowly. (Ju, 2000, p. 92)

In (16a), one can infer an agent or a causer of the event (i.e. a fighter jet), as the event is externally caused. On the other hand, the agent is not as apparent in (16b) because the event is internally caused. As a result, L2 English learners are more likely to make overpassivization errors with situations like (16a), but not with ones like (16b).

To test this hypothesis, a forced-choice task was conducted using 18 unaccusatives: 13 alternating and 5 non-alternating. The target sentences included adverbials such as *quickly* and *immediately* since they are associated with activities rather than states, hence ensuring the target sentences were interpreted as activities. To disguise the target sentences, Ju added 18 transitive distractors, which also served to ensure homogeneity in the learners' proficiency. (These sentences were used as an independent test of the participants' general knowledge of passivization; only participants who made three errors or less on these sentences were included in the analysis[8].)

The participants were asked to read a pair of sentences, the first one setting up a context for the event in the second sentence; they had to identify the more grammatical form (either active or passive), as shown in (17).

(17) Last night was very cold.
The water (froze/was frozen) quickly.

[8] Two participants did not meet this criterion, and two others did not complete the questionnaire. Therefore, out of the 35 learners, 31 were included in the analysis.

Results showed that the L2 learners chose passivized unaccusative sentences as more grammatical in externally caused events than in internally caused events. Ju concluded that discourse pragmatics (i.e. whether the source of event causation is internal or external) plays a significant role in overpassivization errors. In other words, in internally caused events, the discourse leads the reader to conclude that there is no apparent agent for the event (and no passive is used), whereas in externally caused events, the reader tends to conclude that there is a conceptualizable agent for the event (and the passive is used). In addition, considering the advanced English proficiency level of the learners and the similarity between Chinese and English unaccusatives (no morphology is required to mark unaccusativity), Ju concluded that neither a lack of L2 structural knowledge nor L1 influence is the source of overpassivization errors.

There are a few methodological problems in Ju's study. Some of the items used in the forced-choice task are ambiguous; for example, the context provided in (18) makes it possible to acceptably interpret the target sentence with either the inchoative meaning (*broke*) or the passive meaning (*was* broken).

(18) Heavy trucks put more and more pressure on the bridge.
It (broke/was broken) gradually.

Another weakness is that the study does not include any unergative verbs. According to Ju's argument, we expect the presence of "a pragmatically conceptualizable agent" to trigger overpassivization errors with unergatives to the same extent as unaccusatives. Taking these methodological issues into consideration, Kondo (2005) replicated Ju's study, which is reviewed later in this chapter.

2.3.2 Significant L1 Transfer Effects

It seems that the claims that deny the presence of L1 in the acquisition of the linguistic phenomenon at hand have failed to explain the learners' non-target behaviors. Following is a review of some of the studies that contest these claims.

2.3.2.1 Moore (1993)

Moore (1993) argues that the learners' L1 plays a significant role in their acquisition of the English causative-inchoative alternation. She used three different experiments: a free production task, a controlled production task, and a judgment task with novel verbs. The participants were 77 students[9] from the English Program for Internationals (EPI) at the University of South Carolina, an intensive English program designed to prepare students for the TOEFL[10] and study in American Universities. The students were from different L1 backgrounds: 33 Spanish, 16 Japanese, 14 Arabic, 8 Korean, and 6 Chinese, and their proficiency was either high or intermediate (based on testing and placement scores given by the EPI). In addition, 8 English native speakers participated as controls.

In the first experiment, Moore used a list of 10 verbs, containing unaccusatives (alternating and non-alternating) and unergatives: *come, die, walk, arrive, roll, melt,*

[9] Not all 77 students participated in all three experiments because they were conducted on different times (some students were absent on different test days, or arrived too late to participate).

[10] TOEFL is an abbreviation for Test of English as a Foreign Language, a standardized test for non-native speakers of English required by many English-speaking colleges and universities (especially in the United States and Canada).

disappear, cry, drive, and *eat*[11]. The experiment aimed to test whether the participants correctly acquired the argument structure associated with each verb in the absence of discourse context, that is, "to determine what argument structures students preferred for given verbs and whether or not the preference was a correct argument structure, given native speaker targets" (p. 86). The participants were asked to write each of the verbs in a sentence of their own; no tense or situation was specified. L2 learners used the verbs mostly correctly, and there were no significant differences in sentence patterns by level of proficiency. A few non-target structures, however, were produced, as illustrated in (19), which, interestingly, involved overpassivization of unaccusatives (19a-c), and unergatives (19d-e), as well as overcausativization (19f-g).

(19) a. *When the dictator was died, everybody thanked it. (p. 197)
b. *I'm just arrived from Paris. (p. 200)
c. *The man has been two days disappeared. (p. 203)
d. *The baby was cried when she was hungry. (p. 201)
e. *I am come from Seoul, Korea. (p. 197)
f. *The magician disappeared man. (p. 203)
g. *The father is cry his son. (p. 202)

Moore's second experiment was a controlled production task, which examined L2 English learners' willingness to produce a causative structure for a given verb. They were shown 10 pictures of different actions; with each picture, there was a question of the form *What did X do to Y*? To answer the question, the participants had to use a verb given in

[11] As *drive* and *eat* permit an optional *Theme*, Moore (p. 91) does not categorize them as unergative; she calls them 'alternating transitive' verbs (contrasted to 'alternating causative' ones, e.g. *roll*, *melt*).

parentheses; the verbs were *melt, roll, walk, drive, leave, cry, come, disappear, appear,* and *eat*. Results revealed that L2 learners generally distinguished between the subclasses of the verbs; however, "target-like responses were influenced by verb and by proficiency, and the particular verb which showed improvement varied by language" (p. 109). Errors included incorrect causativization of verbs such as *appear* and *disappear*; in addition, when the discourse context called for using walk causatively (e.g. *he walked the dog*), many learners deviated from the target behavior and preferred a non-causative construction (e.g. *James with his dog walk to his house*).

In her third experiment, Moore used novel verbs to examine the intuitions (or competence) underlying the L2 learners' progress towards the English causative rule. Eight novel (unaccusative and unergative) verbs were used, classified according to the semantic subclasses defined by Pinker (1989) (e.g. manner of motion, change of state, bodily process, means of transportation[12]). The verbs were presented in a paragraph context; each paragraph was followed by four sentences containing the novel verb in different syntactic configurations (causative, intransitive, periphrastic causative, and passive). The participants were asked to rate the sentences on a 7-point scale ranging from -3 (very strange) to +3 (very normal, with 0 representing not having any idea about the sentence. Moore adapted this scale from Bley-Vroman and Yoshinaga (1992); however, the scale seems to be too complicated for L2 learners, especially with the use of 'very normal'.

[12] For example, *borg* was used as an unergative verb of the means-of-transportation semantic subclass.

Results of the third experiment showed significant effects of L1; the participants' intuitions varied according to language background. For example, the Spanish speakers showed a pattern of causativization similar to that of the native speakers. Moore suggested that the good performance by the Spanish speakers may be due to the fact that "Spanish has a productive zero-derived causative for unaccusative verbs, in contrast to the other languages involved in the experiment" (p. 152).

Moore's research is one of the first studies that examined the role of the mother tongue of L2 learners' in their acquisition of the English causative-inchoative alternation. However, when discussing how the learners' L1s encode the causative-inchoative alternation, Moore claims that Arabic (the focus of the present study) usually reduplicates a stem consonant to mark this alternation (Moore, 1993, p. 8). This is not the only means that Arabic exploits to signal this alternation, however; Arabic has other more common morphological patterns[13]. As it is argued that these L1 properties significantly affect the acquisition of L2 English causative-inchoative alternation, a drawback of Moore's study is that it does not consider the possible morphological patterns of the alternation in the participants' L1s (at least with regard to Arabic). If these L1 properties are transferred, it is predicted that L2 learners of English behave differently in assessing English alternating unaccusative verbs, depending on the pattern to which the verb belongs to in their L1. For example, Arabic-speaking learners of English are expected to reject inchoatives with the verbs *break* and *open* because their equivalent inchoative verbs in Arabic are

[13] The morphological patterns of the causative-inchoative alternation are discussed in some details in Section 1.5.3.1.

morphologically marked (i.e. a morpheme is added to the causative verb to derive the inchoative). On the other hand, these learners are predicted to accept inchoatives with the verbs *sink* and *melt* because their equivalent inchoative verbs in Arabic are morphologically unmarked (i.e. the causative is derived from the inchoative through affixation). Therefore, overlooking such L1 properties must have negatively affected Moore's findings.

2.3.2.2 Kondo (2005)

Contesting Ju's (2000) argument, Kondo (2005) replicated the study using two experimental groups:(13 L1 Japanese and 7 L1 Spanish university students in Britain. Their English proficiency levels ranged from lower intermediate to advanced; the Quick Placement Test (2001) determined proficiency. Kondo chose Japanese and Spanish learners since these two languages have morphological reflexes with some of the unaccusative verbs unlike English or Chinese. Kondo modified several of the original sentences in Ju's forced-choice task as she thought that their ambiguity could have been the cause of overpassivization errors in Ju's study. Moreover, she reduced the number of the alternating unaccusative sentences and added some unergative sentences. (Ju's study did not include any unergatives.)

The results showed that both Japanese and Spanish learners of English produced ungrammatical passive constructions with unaccusative verbs much more frequently than with unergative verbs. Kondo concluded that the learners' distinction between unaccusatives and unergatives was an indication of their access to Universal Grammar. In addition, as there was no effect of external causation on overpassivization, Kondo argued

that, contrary to Ju (2000), "overpassivization in L2 English is not determined by contextual factors" (Kondo, 2005, p. 160). Finally, as the Japanese and Spanish groups (and the Chinese group in Ju's study) differed in their responses, there is, Kondo argued, possible influence of the morphological properties of the L1.

2.3.2.3 Montrul (2000)

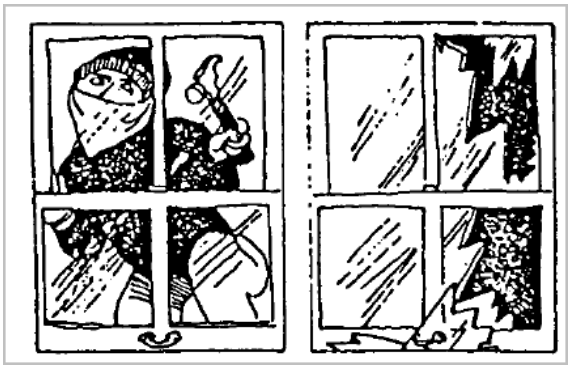
Montrul (2000) conducted a three-way study—L2 English, L2 Spanish, and L2 Turkish—to investigate the interaction of universal principles and L1 knowledge in interlanguage grammars in the area of the causative-inchoative alternation. The same tests were used in the three studies. Montrul found clear L1 transfer of morphology. The focus here is on the L2 English study.

The participants in the L2 English study included 12 high-intermediate level Spanish speakers, 17 intermediate level Spanish speakers, and 18 low-intermediate Turkish speakers; 19 English-speaking served as controls. A cloze test was used to measure English proficiency, followed by a vocabulary translation task consisting of 40 verbs in the infinitive to ascertain whether L2 learners knew the meaning of the lexical items involved in the main task, which was a picture judgment task (PJT). Montrul considers the PJT advantageous over a production task as the PJT does not require producing any form; learners just judge correct and incorrect forms. On the other hand, with production tasks, learners often fail to produce the structure(s) that the researcher is looking for, which results in discarding many of the answers (p. 250).

The PJT included 83 pictures, each accompanied by two sentences to be judged for grammaticality and meaning in the context of the picture on a scale from -3 (very

unnatural) to +3 (very natural), with 0 representing ‘unable to decide’. Half of the pictures involved causativization; that is, they showed actions with two arguments (e.g., the window as *Theme* and the thief as *Agent* in (20)). The other half involved inchoativization; that is, they showed actions involving only one argument (e.g., the window as *Theme* in (21)).

(20)



The thief broke the window.	-3	-2	-1	0	1	2	(3)
The thief made the window broke.	(-3)	-2	-1	0	1	2	3

(21)

The window broke.	-3	-2	-1	0	1	2	(3)
The window got broken.	(-3)	-2	-1	0	1	2	3

(Montrul, 2000, p. 251)

Montrul argued that L2 learners rely on a universal mechanism when acquiring the causative-inchoative alternation; however, interlanguage differences are due to cross-linguistic morphological differences. She showed that English, Spanish, and Turkish have different causative-inchoative alternation patterns. While English has identical forms for the causative and inchoative alternants, Spanish and Turkish mark their alternations with overt morphology. Spanish has the anticausative pattern: the inchoative form requires the reflexive clitic *se* to be added to the causative form. Turkish, however, has both the anticausative pattern, like Spanish, and the causative pattern, where overt morphology is added to the inchoative form to derive the causative variant. Therefore, Montrul predicted that Spanish learners of English would have more difficulty than Turkish learners with simple intransitive forms of alternating unaccusatives since morphologically simple inchoative forms can be found in Turkish, but not in Spanish.

Montrul found clear L1 morphological effects: Spanish learners rejected zero-derived forms but instead accepted alternating verbs with the *get* passive (e.g. *the window got broken*), whereas the Turkish group provided judgments much like that of the control group; they accepted the inchoative forms, but they were reluctant to accept *get* passives. With respect to the transitive sentences, there were no significant differences between groups with lexical causatives.

Arguing against an unrestricted formulation of the Full Transfer hypothesis, Montrul claims that "UG and L1 knowledge may not affect all linguistic domains in the same way at a given stage of development" (p. 229), and she concluded that L1 transfer is modular (i.e. selective) in that it implicates morphology but not argument structure.

Montrul (2000) deserves much credit for further specifying what transfers in L2 acquisition of the causative-inchoative alternation; however, the study has some drawbacks. One problem is that Montrul uses *get*-passive constructions (e.g. *the window got broken*) instead of *be*-passive ones (e.g. *the window was broken*). The *be* passive *the window was broken* can be understood as eventive/dynamic passive (referring to an activity performed upon the window) or stative/resultative passive (merely specifying a state of the window, i.e. the window is not intact). On the other hand, the *get* passive has only a dynamic/eventive interpretation. It seems that Montrul used *get* passives in her main task (PJT) in order to exclude the stative/resultative interpretation of the *be* passive. However, as it has been reported, in previous studies (and my own observation[14]), L2 learners of English usually tend to use *be* passives instead of inchoatives. Therefore, Montrul's experiment would have been more reliable had it tested this non-target behavior. Another problem is that the context in some of the pictures in the main task is not clear enough. For example, (21) above can be understood in two different ways: either no agent was involved and the situation occurred spontaneously, or some agent was responsible for breaking the window. Therefore, contrary to Montrul's example, the two accompanying sentences can be judged by circling +3 (i.e. very natural). Moreover, while Montrul's use of 'very natural' can be understood to mean 'the most appropriate in terms of grammar and meaning', this term appears not to be ideal for this purpose.

[14] See Section 1.2.

2.3.2.4 Kondo (2009)

In a more recent study, Kondo (2009) examines L1 morphological influence over the use of specific English causative-inchoative alternations by the Japanese learners. The study participants were 62 Japanese learners of English and 18 English native speakers (serving as controls). Based on their scores on the Quick Placement Test (Oxford University Press 2001), the Japanese participants were divided into five proficiency groups: elementary, lower-intermediate, upper-intermediate, advanced and very advanced. An acceptability judgment task was used as an outcome measure. Each item included a context sentence followed by two possible continuations. Each continuation sentence was followed by a 7-point Likert scale from -3 (very natural) to 3 (very natural); scores in between meant different degrees of certainty, whereas 0 represented uncertainty. The items included English unaccusative, unergative, and transitive verbs.

The results revealed that the participants transferred the requirement for morphological realization of one specific type of morpheme (the anticausative morpheme) but not other morphemes that are present in Japanese (the decausative and transitivizing morphemes). Kondo (2009) concludes that what L2 learners transfer is not simply morphology (the surface morphological shape) but also lexical argument structure. That is, a combination of overt morphology and its position in the structure gives rise to overpassivization.

2.4 Summary and Conclusion

In this chapter, a considerable number of L1 and L2 English studies investigating the acquisition of the English causative-inchoative alternation have been reviewed. L1 acquisition research has observed overgeneralization errors; children overuse an intransitive form in a transitive context or a transitive form in an intransitive context. Interestingly, despite the poverty of the stimulus, children retreat from these overgeneralization errors, creating what is known as the logical problem of language acquisition, or Baker's Paradox. Different accounts have been proposed to explain this linguistic development. One account which has been widely accepted is that children have inborn knowledge of linking rules between thematic roles and syntactic functions and are guided by this mechanism to acquire argument structure, including the causative-inchoative alternation (Baker, 1979; Gropen, et al., 1991; Pinker, 1989; Randall, 1990).

With respect to L2 acquisition, it has been reported that the English causative-inchoative alternation poses a learnability problem for learners from different L1 backgrounds. There has been a debate whether L1 plays a role in this linguistic phenomenon. Some researchers do not assume influence of language transfer, whereas others argue that learners' mother tongue has a significant effect on their acquisition of the English alternation. The current study attempts to lend support to the latter position.

As a university teacher of courses in Linguistics and EFL for ten years in Palestine, I found that Palestinian (Arabic-speaking) students have a considerable

acquisitional challenge with the English causative-inchoative alternation. No study has specifically investigated the acquisition of this English alternation by Arabic native speakers; therefore, the present study is an attempt to fill this gap in the SLA literature.

Exploring this linguistic phenomenon, this study considers the interaction of English language proficiency, L1 transfer, and UG-related mechanisms. Within the framework of *Full Transfer/Full Access* (FT/FA) of Schwartz and Sprouse (1994, 1996), this study suggests that L1 transfer operates not only on morphology, but on lexical argument structure as well.

CHAPTER THREE

METHODOLOGY

3.0 Organization

The purpose of this study was to provide a deeper understanding of Arabic native speakers' (ANSs) mental representation of the English causative-inchoative alternation. This chapter is devoted to the methodology employed to test the research hypotheses. First, the research questions and hypotheses are presented. Next, the selection of participants is discussed. After that, the research instruments used for data collection are described. The chapter concludes with an outline of the procedures followed to analyze the data obtained.

3.1 Research Questions and Hypotheses

This study was guided by four central research questions that were outlined in Section 1.6. These questions are reproduced below, each followed by its related hypothesis.

3.1.1 Research Question #1 (RQ #1)

Does the English causative-inchoative alternation pose a learnability problem for Arabic native speakers?

In this study, it is hypothesized that the English causative-inchoative alternation poses a learnability problem for ANSs. Specifically, ANSs tend to reject certain English inchoatives (e.g. *the vase broke*) and use the passive instead. They may also causativize/transitivize English non-alternating verbs (e.g. *appear, happen*).

3.1.2 Research Question #2 (RQ #2)

Do Arabic native speakers distinguish between unaccusative and unergative verbs in English?

Taken to be true for all languages, the Unaccusative Hypothesis (Perlmutter, 1978 Burzio, 1986) addresses the specific characteristics of intransitive verbs, dividing them into two classes: unaccusative and unergative. Unaccusatives (e.g. *die, disappear*) typically have non-agentive (non-volitional) subjects, contrasting with unergatives (e.g. *laugh, cry*), which have agentive (volitional) subjects. Despite the superficially identical representations of unaccusatives and unergatives in English (i.e. *S-V* pattern), they have different underlying structures. Unaccusatives represent a derived structure, with a D-structure object and no underlying subject, whereas unergatives represent a basic, canonical structure, taking a D-structure subject and no object. In terms of argument structure, the sole argument of unaccusatives is *Theme*, whereas the sole argument of unergatives is *Agent* (Hawkins, 2001; Levin & Rappaport Hovav, 1995).

The apparent mismatch between thematic roles and syntactic functions of unaccusatives (i.e. *Theme*, not *Agent*, maps to subject position) can be accounted for by two principles of Universal Grammar (UG): the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker, 1988) and the Case Filter (Vergnaud, 1977). According to the UTAH, a given thematic role consistently maps to the same syntactic position at D-structure; thus, the *Theme* thematic role consistently originates in the D-structure object position. Since unaccusative verbs (like passives) do not assign accusative case to their sole, internal argument (*Theme* in object position), the internal argument must move to

the (derived) subject position, where it receives nominative case, thus satisfying the requirement of the Case Filter (i.e. each overt NP must have Case).

If EFL ANSs are guided by innate UG principles, including the Unaccusative Hypothesis, Case Filter, and Uniformity of Theta Assignment Hypothesis, the prediction is that they will distinguish between English unergatives and unaccusatives because these two classes of verbs are represented differently at the level of argument structure in UG.

One source of evidence for this distinction can come from finding EFL ANSs performing well, but still differently, on tests that differentiate unaccusativity and unergativity. This hypothesis was addressed in the second research question of this study.

3.1.3 Research Question #3 (RQ #3)

Are there L1 transfer effects on Arabic native speakers' acquisition of the English causative-inchoative alternation?

This study will determine whether there are L1 transfer effects that contribute to the learnability problem posed for ANSs by the English causative-inchoative alternation. It is hypothesized that Arabic lexical argument structure plays a key role in ANSs' interlanguage grammars, especially as Arabic is significantly different from English in terms of how to encode the causative-inchoative alternation.

English predominantly realizes the causative-inchoative alternation following the labile pattern; that is, no overt argument-changing morphology is involved, resulting in an identical form for the causative verb and its inchoative counterpart (e.g. *Tom broke the cup* vs. *The cup broke*). In addition, very few English verbs participate in the alternation

suppletively, assigning a different root to each alternant (e.g. *kill-die, drop-fall, bring-come, teach-learn*).

On the other hand, Arabic has two major morphological patterns to mark the causative-inchoative alternation: anticausative and causative. For example, verbs that mean 'break', 'open', and 'close' have the anticausative pattern; that is, their transitive form is morphologically simple (or unmarked) and the intransitive/inchoative form is morphologically complex (or marked). However, verbs that mean 'melt', 'freeze', and 'sink' have the causative pattern[1]; that is, their intransitive/inchoative form is morphologically simple, while the transitive counterpart is morphologically marked. As noted before, the labile and suppletive patterns are not common in Arabic, although they are attested for a few verbs. The verb *ghala* 'boil' exemplifies the labile pattern, whereas *qatala* 'killed' and *mata* 'died' make a suppletive pair.

Therefore, if these properties are transferred, the prediction is that EFL ANSs will behave differently in assessing English alternating unaccusative verbs, depending on the pattern to which the corresponding verb belongs in Arabic. For example, ANSs are likely to reject English constructions where the verbs *break, open,* and *close* are used inchoatively because the inchoative forms of these verbs are unmarked (simple) in English and their Arabic equivalents are marked. However, ANSs are less likely to reject the inchoative use of the verbs *melt, freeze,* and *sink* because these English verbs and their Arabic counterparts are unmarked in the inchoative construction.

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[1] The Arabic equivalent of *freeze* can also be classified as an equipollent-pattern verb, with both inchoative (*tajammada*) and causative (*jammada*) forms deriving from a three-consonant common root (*J-M-D*).

Likewise, it is argued that Arabic L1 knowledge may affect areas related to the acquisition of the English causative-inchoative alternation, namely, non-alternating unaccusatives and unergatives. Most of these verbs do alternate in Arabic (that is, they can appear in either an *S-V* or an *S-V-O* pattern). Consequently, EFL ANSs' observed errors may include ill-formed causativization/transitivization of verbs like *happen* (non-alternating unaccusative) and *cry* (non-alternating unergative).

3.1.4 Research Question #4 (RQ #4)

Are there differences across English proficiency levels with respect to the answers to questions 1-3?

The present study also examines the role of ANSs' English proficiency in their acquisition of the English causative-inchoative alternation (RQ #1) and their sensitivity to the unaccusative-unergative distinction in English (RQ #2), along with the interaction of their Arabic language in these phenomena (RQ #3). It is hypothesized that development towards target-like behavior can be observed across ANSs' interlanguage stages, yet language transfer largely affects their acquisition of the English causative-inchoative alternation.

3.2 Selection of Participants

In order to seek answers to the research questions presented above, a three-instrument experiment was administered to two groups of EFL Arabic-speaking participants selected from the Gaza Strip, Palestine: (1) undergraduates and (2) high school teachers of English. In addition, a group of American native speakers of English served as controls.

3.2.1 Experimental Group (Arab EFL Participants)

3.2.1.1 Arab EFL Undergraduates

The first Arab EFL group participating in this study was a total of 71 Palestinian undergraduate students. These participants were students majoring in English at different levels (i.e. freshman, sophomore, junior, senior) at the Islamic University of Gaza (IUG) in the academic year 2009-2010.

The IUG was established in 1978 as the first Palestinian university in the Gaza Strip. The IUG has gained a reputation for its commitment to high quality learning, teaching, and training. Currently, it has ten faculties: Medicine, Engineering, Information Technology, Science, Nursing, Usoul Addin 'Foundations of Religion', Sharea 'Islamic Law', Commerce, Arts, and Education. Compared to the other Palestinian universities in the Gaza Strip, the IUG has the largest student population; 20,165 undergraduates and 1,531 graduates (masters) were enrolled in the academic year 2009-2010[2].

The IUG Department of English is part of the Faculty of Arts. Admission to this department is highly competitive, especially for females. Most of those who receive their BA from the department secure a job (usually as a school EFL teacher). EFL instruction in the department is generally provided by Palestinian teachers who have obtained their MA/Ph.D. degrees in Linguistics, TESOL, or English Literature; many of these instructors have had the chance to pursue graduate study in English-speaking countries.

[2] Personal communication with the IUG Deanship of Admission (August 4, 2010).

Palestinian students rarely travel outside the country, and very few English native speakers visit the Gaza Strip. Despite the limited access to native speakers of English, Palestinian university students, particularly in departments of English, make use of the Internet, TV, and radio to improve their English outside EFL classrooms.

The undergraduates participating in this study were 52 females and 19 males, and their mean age was 21.59 years. Most of them were first exposed to English around the age of 11. None of these participants had been to an English speaking country, and few of them reported being taught an English language course by an English native speaker. Only 16 of these participants had any knowledge of a foreign language other than English (Hebrew, French, Spanish, Japanese, Bulgarian, or Russian).

The study instruments were administered, in one material packet, to the undergraduate participants as part of their regular class time in the second semester of the academic year 2009-2010. They were approached in their classrooms (Palestinian traditional college classrooms, which commonly had bench-style seating for two or three students with a table in front of them). Permission was obtained from the IUG, and Palestinian colleagues teaching there provided access to these classes.

The rationale for selecting Palestinian undergraduate English majors was due to the fact that the tasks administered in this study were rather long and thought to require relatively good English proficiency, particularly reading ability. Therefore, this population was one of convenience and necessity.

3.2.1.2 School EFL Teachers

Another group of Palestinian participants included 48 teachers of English at public high schools in the Gaza Strip. Generally speaking, Palestinian school EFL teachers hold a BA in English from local universities. They have experienced the process of learning English as an additional language, and they also share the same language and cultural background as their students. It is believed (e.g. Phillipson, 1996) that these characteristics are an advantage as they enable teachers to anticipate their students' linguistic problems.

One reason for selecting Palestinian EFL teachers for this study was that, despite the considerable assumption of proficiency, it is argued by the researcher that such instructors are likely to face a challenge with the English causative-inchoative alternation, and thus, they may not model certain target-like expressions (e.g. inchoatives) in their classrooms.

The participating EFL teachers belonged to 17 different high schools run by four directorates of education in the Gaza Strip[3]. The teachers were 31 females and 17 males, with a mean age of 36.45 years. All but one had a BA in English as the highest degree they attained, the other having received an MA. Most of them graduated from Palestinian universities: the Islamic University of Gaza (19), Al-Azhar University of Gaza (8), Al-Aqsa University-Gaza (8), and Al-Quds Open University (4). Other participants graduated from non-Palestinian universities: Egypt (7), Algeria (1), and India (1).

[3] In the Gaza Strip, there are 6 directorates of education, running 129 public high schools. A total of 430 Palestinian EFL teachers work in these schools (Personal communication with the Planning and Information Department - Palestinian Ministry of Education, September 12, 2010).

The participating teachers' experiences of teaching English ranged from 1-31 years (*Mean* = 10.02 years). A few of these participants reported having a course of English language where the teacher was a native speaker of English. With respect to staying in an English speaking country, only two participants had had this experience; Participant #86 had stayed in India for 6 years and Participant #110 in the USA for 15 years. In addition, eight of the participants reported having some knowledge of a foreign language other than English (Hebrew, German, French, Spanish, or Russian).

The participating EFL teachers were approached at their respective schools during the second semester of the school year 2009-2010. Permission was obtained from the Palestinian Ministry of Education to gain access to these schools. The instruments were administered, in one material packet, to the teachers during their free time in school administrative offices (e.g. teacher room, school library).

It should be noted that, unless distinction is necessary, the Palestinian undergraduates and school teachers participating in this study would be referred to as EFL Arabs or Arabic native speakers (ANSs).

From another perspective, for the purpose of investigating the L2 English acquisition phenomenon under discussion, there was no need to measure these participants' proficiency in Modern Standard Arabic[4] (MSA); it was presumed that, given

[4] Palestine, like other Arab countries, exhibits a diglossic situation. That is, there are two varieties of language (i) Modern Standard Arabic (MSA), normally acquired through many courses at school (and university), and (ii) dialectical or Palestinian Arabic (PA), acquired subconsciously at early age (from parents, siblings, peers, etc.) and used in non-formal situations. For more information about diglossia, see Section 1.5.4.

that all of them were either university students or school teachers, they were guaranteed to have relatively high and comparable levels of MSA proficiency.

3.2.2 Control Group (English Native Speakers)

In addition to the two Palestinian participating groups, 23 American native speakers of English participated in this study, serving as controls. They were graduate (MA) students at the Lynch School of Education of Boston College in the United States, where this doctoral work was undertaken. The participants were of different majors: physics, chemistry, biology, history, reading & literacy, curriculum & instruction, and special education. Fourteen of the participants were females and 9 were males, with a mean age of 27.26 years. Thirteen of the participants had considerable knowledge of at least one foreign language (Spanish, Hebrew, Korean, Chinese, Irish, Greek, Arabic, Portuguese, Italian, Latin, French, Wolof).

The native speaker controls were approached in one session as part of their regular class time in the summer semester of the academic year 2009-2010. One of their professors provided access to the classroom (an American traditional college classroom that had single seats in rows, all facing forward).

The rationale for selecting these controls was that this study investigated whether there were significant differences between English natives and non-natives (i.e. EFL ANSs) with respect to the acquisition of the English causative-inchoative alternation. Table 3.1 presents a brief profile of the study participants.

Table 3.1: Participants by Group, Mean Age, and Gender

Participants	Mean Age	Males	Females	Total
EFL Undergraduates	21.59 (19-37)	19	52	71
EFL Teachers	36.45 (24-56)	17	31	48
English Natives	27.26 (21-58)	9	14	23

While the numbers of participants mentioned above were those included in the data analysis, it should be noted that, in the process of screening, 12 other participants were excluded from the study for (i) not completing the cloze test (9 EFL participants), (ii) not providing any corrections to the items judged as unacceptable in the acceptability judgment and correction (AJC) task (one control participant), or (iii) leaving all items on a whole page of the AJC task unanswered (2 EFL participants).

3.2.3 Ethics and Confidentiality

Throughout this study, there was adherence to all policies of the Boston College Institutional Review Board for the Protection of Human Subjects (IRB). The data gathered for this research were not sensitive in nature (e.g. grammaticality judgment), and the procedures followed to gather and analyze these data did not entail any problems of confidentiality or deception. Permission was obtained from the IUG, where the EFL undergraduates were studying, from the Palestinian Ministry of Education supervising the schools where the participating EFL teachers were working, and from the controls' professor at Boston College in the United States. Moreover, at the time they were approached to participate in the study, the participants were given verbal and written information about the nature and scope of the study, and their informed consent was

sought. The participants were also told that they still had the right to discontinue their participation at any time, for whatever reason.

3.3 Instrumentation

For the purpose of data collection for this study, three research instruments were used: (i) a demographic information questionnaire, with different versions for the different groups; (ii) a cloze test to evaluate the participants' English proficiency; and (iii) an acceptability judgment and correction task to examine the participants' acquisition of the English causative-inchoative alternation. A booklet containing the three instruments was used. At the very beginning of the booklet, the participants were provided with an explanation of the purpose of the study, the voluntary nature of participation, and the guaranteed anonymity of their responses.

All three instruments were administered in the same session. To eliminate test timing anxiety, no time limit was assigned. Doing these tasks took the experimental group about 45 minutes and the control group about 30 minutes.

3.3.1 Demographic Information Questionnaire

A demographic information questionnaire was utilized to obtain background information on the participants of the study. Three versions of the questionnaire were used: one for EFL undergraduates, another for school EFL teachers, and the third for the control group.

The information provided by the EFL undergraduates included age, gender, university, year of study (freshman, sophomore, etc.), major field of study, age of first exposure to English, stay (in months) in English-speaking countries, and foreign

languages other than English. Similarly, EFL teachers provided age, gender, highest degree attained (Diploma, BA, MA), university where they graduated, year of graduation, school where they currently work), years of experience teaching English, stay (in months) in English-speaking countries, and foreign languages other than English. Finally, English native speakers' demographics included age, gender, university, year of study, major, and foreign languages.

3.3.2 Control Measure - Cloze Test

The participants in the study were expected to differ in terms of level of English proficiency, which was examined as an independent factor that may have influenced the acquisition of the English causative-inchoative alternation. Since the main task of this study was rather demanding and long, it was decided to use an effective and at the same time not particularly time-consuming independent measure that could allow for comparison of the participants' levels of English proficiency. A cloze test was used for this purpose.

In a cloze procedure, the examinee is required to restore words that have been removed from a normal prose passage. Words are usually deleted at regular intervals (fixed-ratio or every n^{th} word). A considerable body of literature has supported this kind of test as a reliable and valid measure of language knowledge at the lexical, grammatical, and textual levels, indicating high correlations between cloze test results and total scores on established language proficiency measures (e.g. Abraham & Chapelle, 1992; Bachman, 1985; Brown, 1980; 1983; 1993; Chapelle and Abraham, 1990; Fotos, 1991;

Hanania & Shikhani, 1986; Hinofotis; 1980; 1987; Jonz, 1990; Lange & Clausing, 1981; Oller, 1979; Yamashita, 2003; Yamauchi, 1990).

Cloze tests can be scored by using either the exact-answer or the acceptable-answer method. The exact-answer method counts as correct only responses corresponding exactly to the words deleted from the original passage, whereas the acceptable-answer method counts as correct any grammatical and contextually appropriate words. Although the acceptable-answer scoring method is more expensive and time-consuming, it is believed to yield a more accurate assessment of language proficiency than the exact-answer method (Abraham & Chapelle, 1992; Hinofotis, 1980; Lange & Clausing, 1981; Oller, 1979).

To confirm the superiority of the acceptable-answer scoring method, Hinofotis (1980) administered a cloze test to 107 foreign students studying ESL at the Center for English as a Second Language (CESL) at Southern Illinois University. Both exact-answer and acceptable-answer methods were used to score the cloze test. As criterion measures against which the cloze test was evaluated, Hinofotis used two ESL proficiency tests: the TOEFL (Test of English as a Foreign Language) and the CESL Placement battery. Correlations were computed for all the scores on the TOEFL and CESL Placement with the scores obtained from the two scoring methods of the cloze test. Results indicated that while the cloze procedure is a viable proficiency testing tool, the exact-answer method "does not discriminate among levels to the extent the acceptable-answer method does" (Hinofotis, 1980, p. 127).

The cloze test administered in this project (see Appendix A) was successfully used as a baseline of proficiency in several L2 English studies (e.g. Al-Thubaiti, 2009; Avery & Radišić, 2007; Chen, 1996; Montrul, 1997; 2000; Slabakova, 1999; 2001). Adapted by Chen (1996) from a text passage in *American Kernel Lessons: Advanced Student Book* (O'Neill, Cornelius, and Washburn, 1991), the test followed the every 7th word method (i.e. every seventh word was omitted from the text); however, to provide contextual information, no words were deleted from the first sentence. There were 40 blanks in the passage, and the participants had to fill each blank with one and only one word; they had to generate these words since no word options were provided.

3.3.3 Outcome Measure - Acceptability Judgment and Correction Task

In order to investigate the participants' knowledge of the English causative-inchoative alternation, an acceptability judgment and correction task was administered to all participants.

Acceptability judgment tasks are one of the most widespread data-collection methods that linguists use to test their research hypotheses. In these experimental tasks, "speakers of a language are presented with a set of linguistic stimuli to which they must react. The elicited responses are usually in the form of assessments, wherein speakers determine whether and/or the extent to which a particular stimulus is 'correct' in a given language" (Tremblay, 2005, p. 129). According to Schütze (1996), there are four key reasons for the use of acceptability judgments: (i) examining reactions to sentence types that might occur only very rarely in spontaneous speech or recorded corpora; (ii) obtaining negative evidence in the form of strings that are not part of the language; (iii)

distinguishing reliably slips, unfinished utterances, and so forth, from grammatical production; (iv) minimizing the extent to which the communicative and representational functions of language skill obscure our insight into its mental nature (Schütze, 1996, p. 2).

A bulk of language acquisition research has supported the reliability of acceptability judgment tasks as measures of linguistic knowledge (Chaudron, 1983; Gass, 1994; Han, 2006; Hyltenstam & Abrahamsson, 2003; Leow, 1996; Long, 1993; Mandell, 1999; Schütze, 1996; Tremblay, 2005). For example, Mandell (1999) administered an acceptability judgment task and a dehydrated sentence test[5], in one material packet, to 204 university students of L2 Spanish. The two instruments targeted verb movement in Spanish. Mandell compared the data from both instruments, considering the correlation an indicator of reliability. The findings showed that the results of the two tests were correlated, lending support for the acceptability judgment task as a reliable measure of interlanguage competence.

The acceptability judgment and correction (AJC) task used in this study was designed with the help of linguists who are native speakers of English. Moreover, a group of native speakers of English, who were mainly university students, participated in piloting the task[6], contributing to its development. While it assured the overall effective

[5] A dehydrated test (also known as a slash-sentence test) is "typically composed of constituents separated by slashes, and subjects are required to combine them to construct what they consider to be acceptable sentences" (Han, 2006, p. 77).

[6] I would like to thank Professor Paul Hagstrom for helping me design the AJC task and pilot it in one of his classes at Boston University. More thanks go to all those who participated in the piloting for their time and insightful feedback.

design of the task, the piloting phase showed that a few items had to be revised with respect to punctuation, word choice, and pragmatics. The AJC task is presented in Appendix B.

Four different verb types were tested in the AJC task. Each type had three English verbs, and each verb appeared in five different scenarios. The total number of the test items was 60 (4 verb types × 3 verbs × 5 scenarios). The 60 items targeted the linguistic phenomenon under consideration.

3.3.3.1 Verbs Types

The twelve English verbs tested in the AJC task are classified as follows:

(i) ***Type-1 Alternating Unaccusatives***: This verb type includes the verbs *open, close,* and *break* as English unaccusatives whose Arabic equivalents have an anticausative pattern; that is, overt morphology is required to derive the inchoative/intransitive form from its causative/transitive counterpart.

(ii) ***Type-2 Alternating Unaccusatives***: This verb type includes *melt, freeze,* and *sink* as English unaccusatives whose Arabic equivalents have a causative pattern; that is, overt morphology is required to derive the causative/transitive form from its inchoative/ intransitive counterpart.

(iii) ***Non-alternating Unaccusatives:*** This verb type includes *arrive, appear,* and *happen* as English unaccusatives that do not participate in the alternation (e.g. **the magician appeared a rabbit*; cf. *the magician made a rabbit appear*). The Arabic equivalents of

these verbs, however, do alternate; an affix is added to the intransitive form to derive its corresponding causative.

(iv) ***Unergatives:*** This verb type includes *laugh, cry,* and *swim*. While these verbs do not alternate in English (e.g. **the clown laughed the children*; cf. *the clown made the children laugh*), their Arabic equivalents alternate through an affix added to the intransitive form to derive its causative counterpart. Table 3.2 summarizes the tested verbs and their types used in the AJC task.

Table 3.2: Verbs Tested in the AJC Task

English Verbs	Verb Type	Pattern of Arabic Equivalents
open, close, break	Type-1Alternating Unaccusatives	anticausative
melt, sink, freeze	Type-2 Alternating Unaccusatives	causative
arrive, appear, happen	Non-alternating Unaccusatives	causative
laugh, cry, swim	Unergatives	causative

Each of the 60 items had a pair of sentences. The first sentence functioned as a short introductory context, and the second sentence, which was a continuation to the first, had an underlined part. The participants were required to read both sentences in each item carefully and decide whether they thought that the underlined part in the second sentence would be acceptable (that is, grammatical and meaningful within the context provided). They were instructed to put a tick (✓) in the space provided if they felt sure that the underlined part was acceptable, or a cross (✗) if they felt sure that it was not acceptable. They were instructed to leave the space blank if they could not decide.

A few words used in the task items were thought by the researcher to be likely to be unfamiliar to some participants in the experimental group (i.e. Arab participants). To counter this possible lack of familiarity, the meanings of these words (all of which are nouns) were provided in Arabic[7].

To control the task variables, the 60 items were presented on eight pages in a pseudo-random order, where no two verbs from the same verb type appeared in two successive test items. In addition, two different orderings of the 60 items were used (i.e. each version had the same items in a different order), so that no two participants sitting next to each other had the same version. Moreover, to encourage the participants to draw on their intuitions and unconscious `feel' of English, they were instructed not to go back and change their answers.

In addition to judging the underlined parts on the task for acceptability (i.e. grammaticality and meaningfulness), the participants were also asked to supply English corrections for the parts they judged as unacceptable. (A space was provided beneath each of the task items.) The purpose of correction was to ensure that the participants responded to the task items in a relevant way. For example, if a participant rejected *several accidents were happened* (i.e. he/she put a cross (✗) in the space provided) and corrected it as *several accidents happened*, this would indicate that the item was rejected for an appropriate reason; *happen* is an English non-alternating verb and cannot appear in a passive construction. The scoring method is reviewed in more detail in Section 3.4.3.

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[7] The words for which Arabic translations were provided were *clown, coach, collision*, *elevator, flies, greedy*, *insurance, magician, preserve, punctuality*, *purse, recipe, robbery*, *rocket*, *smelly, turkey,* and *vase.*

To help ensure that the participants understood the criteria for making judgements and corrections, they were asked to read the instructions carefully before starting the task. In addition, three examples were provided, presenting items judged (and corrected when necessary) in terms of both meaning and grammaticality; however, these examples did not involve structures related to the English causative-inchoative alternation.

3.3.3.2 Item Scenarios

The five items in which each of the tested verbs appeared included five different scenarios, which are as follows:

(i) Context encourages use of passive and structure is passive (P-P Scenario)

In this scenario, the context promotes having an implied agent as an entity responsible for the event denoted by the verb in the underlined part. Unless the verb tested in this scenario can be passivized, the item is deemed unacceptable. The AJC task has the following items, which require two different judgments.

(1) Suddenly there were a lot of flies outside.
__✓__ So, immediately <u>all the windows were closed</u>.

(2) Mary was very depressed, and her friends wanted to help.
__×__ To make her feel better, <u>Mary was laughed</u>.

The verb *close* in (1) allows passivization which fits the context (i.e. the windows were closed by someone to prevent the flies from going in). Therefore, the underlined part must be judged as acceptable (✓). On the other hand, the underlined part in (2) must be deemed unacceptable (×), because the verb *laugh* is used passively which is not

permissible in English. This erroneous part could be corrected by using the periphrastic causative (*her friends/they made Mary/her laugh*), by using the verb *laugh* intransitively (*Mary laughed*), or by using the passive form of a different, passivizable verb (*Mary was amused/cheered up*).

(ii) Context encourages use of passive but structure is intransitive (P-I Scenario)

If a passivizable verb is used intransitively in a context implying agentivity, the item is considered unacceptable, as illustrated in (3). In contrast, the item is acceptable if the verb at hand does not permit passivization, as illustrated in (4).

(3) Two customers complained about their food.
× Therefore, some butter melted on the fish in order to improve the taste.

(4) Jennifer got seriously ill.
✓ Her husband called an ambulance, and soon she arrived at the hospital.

In (3), there is a mismatch between the structure of the underlined part *some butter melted* and the context of the item; the context implies agentivity, whereas the structure expresses spontaneity. In order to fix this problem, the verb must be passivized (*some butter was melted*). In (4), however, the intransitivity involved in *she arrived* is acceptable, although the context is one that encourages the passive, *arrive* cannot enter passivization, leaving the intransitive form here as the best option.

(iii) Context encourages use of intransitive and structure is intransitive (I-I Scenario)

The underlined part in this scenario includes an intransitive verb with a non-agentive subject (unaccusative verb), as in (5), or an agentive subject (unergative verb), as in (6).

In both cases, the item is intended to elicit acceptability.

(5) My aunt had a beautiful vase, but it was cracked.
___✓___ Yesterday <u>the vase broke</u>

(6) Pablo studied very hard, but he got a low grade.
___✓___ <u>He cried</u> when he heard the news.

In these two examples, both context and structure fit together. The verb *broke* in (5) is used intransitively (inchoatively) to denote an event occurring spontaneously, whereas *cried* in (6) is an intransitive (unergative) verb used with an agentive subject.

(iv) Context encourages use of intransitive but structure is passive (I-P Scenario)

The underlined part in this scenario includes either a superfluously passivized verb, as in (7), or a non-passivizable verb that is incorrectly passivized, as in (8). Both cases are erroneous.

(7) Mary put some orange juice into the freezer.
___×___ <u>The juice was frozen</u> gradually.

(8) Yesterday the weather was very foggy.
___×___ <u>Several accidents were happened</u>.

In (7), the freezing process context does not involve agentivity, which is superfluously expressed by *the juice was frozen*. This part can be corrected by using *freeze* inchoatively (*the juice froze*). Similarly, the passive form in (8) is erroneous; *happen* is a non-passivizable (intransitive) verb. The underlined part can be corrected as *several accidents happened.* Note that both passive and inchoative forms of *freeze* in (7) are grammatical, but only the inchoative form is appropriate in the given context.

(v) Context encourages use of causative and structure is causative (C-C Scenario)

In this scenario, an explicit agent causes the situation expressed by the underlined part. However, unless the verb in the underlined part allows transitivity, the item is to be judged unacceptable. Examples (9-10) require two different judgments.

(9) The fishermen jumped into the sea before the enemy attacked their boat.
___✓___ However, a rocket sank the fishing boat.

(10) The magician performed several tricks.
___×___ In one of the tricks, he appeared a bird from the box.

The verb *sink* is an alternating unaccusative verb; it can be used intransitively and transitively. Since the causative (transitive) structure in (9) denotes what caused the fishing boat to sink, the item must be judged as acceptable. However, the verb *appear* is non-alternating, and its use in a causative structure in (10) is intended to elicit unacceptability. This erroneous part can be corrected by using the verb *appear* in a periphrastic causative structure (*he made a bird appear*), by using it intransitively (*a bird appeared*), or by using a different verb that allows transitivity (*he showed/brought/pulled/ took a bird*).

3.4 Data Analysis

The data obtained from the three instruments (the demographic information questionnaire, cloze test, and acceptability judgment and correction task) were expected to respond to the four research questions. The data were imported into the Microsoft

Office Excel and Statistical Package for the Social Sciences (SPSS) programs for a series of descriptive and inferential statistical analyses.

3.4.1 Demographics

The demographic information obtained from the three participating groups (EFL undergraduates, EFL teachers, and English native speakers) was reported above as part of the discussion of the selection of participants (Section 3.2).

3.4.2 Cloze Test

As noted above, two methods can be used to score cloze tests: exact-answer or acceptable-answer method; however, the acceptable-answer method is thought to provide more accurate information about language proficiency levels than the exact-answer method (Abraham & Chapelle, 1992; Hinofotis, 1980; Lange & Clausing, 1981; Oller, 1979). Therefore, for scoring the cloze passage used in this study, the acceptable-answer criterion was employed.

There was considerable variation in the participants' responses (especially the Arabs') for most of the passage blanks. In order to score the responses consistently, two native speakers of English were consulted for judgment[8]. In deciding the plausibility of an answer, coherence of the text, pragmatic appropriateness and stylistic fit were taken into account. Minor spelling errors and the confusion of upper and lower case were tolerated, but grammatical errors in the area of tense and number were not. One point was given for each acceptable answer, so the maximum score was 40.

[8] Special thanks go to Professor David Scanlon and Professor Bret Doyle for their efforts in this regard.

The cloze test scores of the control group (23 participants) were high, as expected; the lowest score was 35 and 9 participants got 40. In terms of proficiency, they were referred to as 'Natives'. On the other hand, the ANSs' scores on the cloze task were normally distributed across the range of possible scores, ranging from 8 to 35. Based on these scores, they were grouped into three proficiency levels. The cutoff points between levels were decided to maximize the internal coherence of each group while having sufficiently large numbers of participants in each group. The three proficiency levels assigned to the Arab participants were advanced (27 and above), intermediate (20-26), and low (19 and below).

This classification was supported by statistical procedure. A one-way ANOVA (Analysis of Variance) test was conducted to examine if the average cloze test scores for the groups were statistically different. The results indicated that the means had statistically significant differences amongst groups ($F = 546.05$, $df = 3$, $p < .001$). In addition, post-hoc analysis using the Tukey test revealed that significant differences were observed between all groups. The mean scores and standard deviations of the cloze task of the participants by group are presented in Table 3.3.

Table 3.3: Means and Standard Deviations by Group in the Cloze Test

Group	English Proficiency Level	Mean	Std. Deviation
Experimental Group (EFL Arabs)	Low ($n = 36$)	14.47	3.34
	Intermediate ($n = 51$)	23.20	2.04
	Advanced ($n = 32$)	30.19	2.16
Control Group	Natives ($n = 23$)	38.74	1.42

3.4.3 Acceptability Judgment and Correction Task

The scoring of the AJC task was based on the correspondence between the participants' responses and predetermined expected answers to the 60 items; the maximum possible score on this task was 60[9]. The answers of each participant were checked, and their responses were categorized based on the following criteria:

(i) A response was counted as a correct judgment and was given a point if:

a. an underlined part of an item was intended to be judged as acceptable (in terms of grammaticality and meaning), and the participant marked the space provided with a tick (✓).

b. an underlined part of an item was intended to be judged as unacceptable (in terms of grammaticality and/or meaning), and the participant marked the space with a cross (✗) and, at the same time, supplied a relevant, acceptable correction.

c. an underlined part of an item was intended to be judged as acceptable (in terms of grammaticality and meaning), but the participant marked the space with a cross (✗) followed by a correction addressing an irrelevant issue. For illustration, consider the following examples, drawn from the responses given by Participants #24 and #60.

[9] The results obtained from the preliminary analysis of the data revealed a possible problem with the wording of one of the AJC task 60 items, as it caused confusion even for the native speaker controls. Therefore, the item was excluded from data analysis; that is, the actual number of the analyzable items of the AJC task was 59. For details, see Section 4.1.

(11) The weather was extremely cold yesterday.
X The river froze.
So the river froze (Participant #24)

(12) The comedian's story was very funny.
X Everybody laughed.
Everybody was laughing (Participant #60)

Within the context provided, (11) targets the inchoative/intransitive usage of the verb *froze* (i.e. NP-V pattern). Since Participant #24 accepted this usage, she was given a point, even though she judged the item as incorrect and irrelevantly corrected it by adding the transition signal *so*.

Similarly, Participant #60 corrected the underlined part in (12) by using the past progressive tense of the verb *laugh* instead of the simple past. However, this irrelevant tense correction was ignored and a point was given for accepting the intransitivity (i.e. NP-V pattern) of the verb *laugh*.

(ii) A response was counted as an incorrect judgment (and no point was given) if:

a. an underlined part of an item was intended to be judged as acceptable (in terms of grammaticality and meaning), but the participant marked the space with a cross (×).

b. an underlined part of an item was intended to be judged as unacceptable (in terms of grammaticality and/or meaning), and the participant marked the space with a cross (×), but he/she supplied an irrelevant correction. This point can be

illustrated by the following example, drawn from the Participant #119's responses.

(13) The house was on fire.
x Within ten minutes, fire fighters were arrived at the house.
Firemen were arrived (Participant #119)

In (13), the verb *arrived* is incorrectly passivized (*NP BE V-en* pattern). Although Participant #119 marked the item with a cross (×), her correction (i.e. changing *fire fighters* into *firemen* and keeping the verb *arrived* passivized) verified that she failed to provide a correct judgment (a relevant, acceptable correction might have been *fire fighters arrived*). Consequently, no point was given.

The three examples (11-13), drawn from the participants' responses, show the usefulness of the correction part of the AJC task for obtaining more accurate information about the participants' knowledge with respect to the acquisition of the English causative-inchoative alternation.

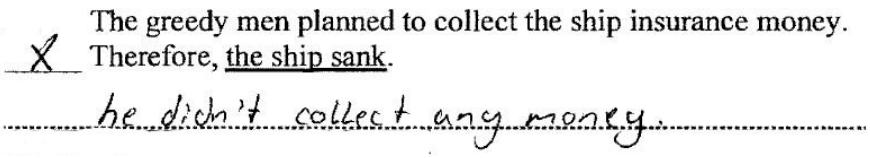
(iii) A response was counted as an indeterminate judgment and was excluded from the analysis if:

a. an underlined part of an item was not judged or judged as 'don't know'; that is, the participant left the space blank.

b. an underlined part of an item was intended to be judged as unacceptable (in terms of grammaticality and/or meaning), and the participant marked the space with a cross (×); however, no correction was supplied.

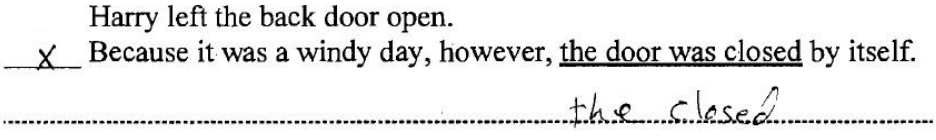
c. an underlined part of an item was intended to be judged as unacceptable, and the participant marked the space with a cross (×) followed by a correction; however, the correction provided was not interpretable. There were very few of these cases. The following examples illustrate this situation.

(14)



(Participant #62)

(15)



(Participant #79)

As can be seen, it is difficult to interpret the two participants' responses above. The underlined part in (14) has the verb *sank* used inchoatively/intransitively. This structure was intended to be judged unacceptable since the context promotes the use of agentivity (e.g. the passive *the ship was sunk*). However, neither part of the underlined clause (*the ship sank*) was used in the response provided. Was the cross mark (×) a rejection of the intransitive usage of the verb *sank*? Did the participant accept the intransitive usage, but feel the sentence was incomplete so he finished it with *he didn't collect any money* (which is still unclear)? Or was the item so difficult that the participant could not respond to it appropriately? These questions are not possible to answer. Therefore, the participant's response to this item was excluded from the data analysis.

Similarly, the underlined part in (15) was intended to elicit unacceptability; the structure is passive while the context encourages the use of the verb *close* inchoatively.

Although Participant #79 marked the item with a cross (✗), the correction provided (*the closed*) is not a well-formed string. Did the participant forget to use the noun *door* after the definite article *the*? Maybe! Or did she have other structures in mind? Since these questions are unanswerable, the participant's response to this item was considered an indeterminate judgment and excluded from the analysis.

It could be argued that the three types of indeterminate judgments discussed above should be counted as incorrect judgments, that is, wrong answers with no points given[10]. However, doing so risks underestimating the participants' abilities; that is, penalizing them for something we cannot be certain of was incorrect. Alternatively, it could be suggested that the participants who had any indeterminate judgments be entirely excluded from the analysis. Doing so, however, would yield a substantially smaller sample without sufficient Arab EFL participants in proficiency groups to test the research questions[11]. The rationale for excluding the indeterminate judgments from the analysis was to factor out the uninterpretable data, since we could count them as neither correct nor incorrect.

As already pointed out, some items were judged as unacceptable but the corrections provided were irrelevant to what the items were intended to investigate (e.g. adding a transition signal while keeping the underlined part unchanged). These cases

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[10] An alternative method, counting indeterminate judgments as wrong responses was also explored, and the results were compared to the ones obtained from the method of excluding indeterminate judgments from the analysis. Although excluding indeterminate judgments resulted in slight score 'inflation', no substantial differences in the error patterns were found.

[11] It was found that only 65 participants had no indeterminate judgment responses: 18 native English participants (out of 23) and 47 EFL participants (out of 119). For discussion of the relationship between indeterminacy and proficiency, see Section 4.4.1.

were treated as if the underlined part had been judged acceptable (i.e. the cross was counted as a tick and the correction was ignored)[12].

Therefore, unless the participant used a tick (✓) to indicate acceptability or a cross (✗) followed with a clear correction to indicate unacceptability, it was not possible to consider the judgment correct or incorrect.

With respect to the first type of indeterminate judgments (i.e. a space was left blank), the participants were explicitly given instructions to leave the space blank when they were not sure whether the underlined part of an item was acceptable or unacceptable. Had they put something in the blank, it could have been a correct or incorrect judgment; we cannot know which. Therefore, leaving one blank was not exactly like responding erroneously to an item. Assigning no points to such responses could result in underestimating the participants' abilities.

Similarly, in regard to the other two types of indeterminate judgments (i.e. a space was marked with a cross but no correction was supplied, and a space was marked with a cross followed by a correction that was not possible to interpret), it was also not possible to consider the response a correct rejection when the item was intended to elicit unacceptability or an incorrect rejection when the item was intended to be judged acceptable. Counting the response as a correct rejection (and assigning it a point) could overestimate the participant' abilities, whereas counting it as an incorrect rejection (and assigning it no point) could underestimate the participant's abilities. In order to minimize

[12] For illustration, see the examples drawn from the responses given by Participants #24, #60, and #119 in (11-13).

the over-/underestimation problem, all instances of indeterminate judgments were considered as 'noise' in the data to be excluded from the analysis.

3.4.4 Statistical Procedures

In order to test the research questions of this study, several statistical analyses were conducted on the participants' scores on the cloze test and AJC task.

As noted, based on cloze test scores, the Arab EFL participants were grouped into three proficiency levels (Low, Intermediate, and Advanced), whereas the control participants were classified as Natives. This classification was statistically supported. The results from one-way ANOVA followed by Tukey post-hoc analysis performed on cloze test mean scores revealed statistically significant differences between all groups.

The first research question (i.e. *Does the English causative-inchoative alternation pose a learnability problem for Arabic native speakers?*) was tested using a two-sample *t*-test in order to determine if there was a statistically significant difference in unaccusative mean score of the AJC task between the two independent samples of the study: the Arab experimental and the English control group.

In order to test the second research question (i.e. *Do Arabic native speakers distinguish between unaccusative and unergative verbs in English?*) a two-sample *t*-test was conducted on the control and experimental groups' mean performances on the unergative items of the AJC task. After that, the Arab participants' performance on the unergatives was compared to their performance on the unaccusatives. This comparison aimed to examine whether the participants' performance on the unaccusative items

differed from that on the unergatives, since the two verb classes are hypothesized to be represented differently at the level of argument structure in Universal Grammar.

The third research question (i.e. *Are there L1 transfer effects on Arabic native speakers' acquisition of the English causative-inchoative alternation?*) was addressed by conducting two-sample *t*-tests on the two participating groups' performances on the different verb types and scenarios of the AJC task. It was argued that the Arab participants' non-target behaviors can largely be attributed to the cross-linguistic variation of the causative-inchoative alternation between English and Arabic.

Finally, in order to test the fourth research question (i.e. *Are there differences across English proficiency levels with respect to the answers to questions 1-3?*), one-way ANOVA analyses were conducted to investigate if there was a statistically significant difference amongst proficiency groups' performances on the AJC task by verb type and scenario. When an ANOVA yielded a significant *F*-ratio, it meant that there was a statistically significant mean difference among the groups. In such a case, the Tukey post-hoc test was used to specify what kind and where these differences were. It was hypothesized that development towards target-like behavior can be observed across ANSs' interlanguage stages with respect to their acquisition of the English causative-inchoative alternation (RQ #1) and their sensitivity to the unaccusative-unergative distinction in English (RQ #2); however, language transfer still largely affects these phenomena (RQ #3).

3.5 Summary

The present study adopted an experimental approach to investigate the learnability problem ANSs face in the area of the English causative-inchoative alternation. A total of 119 participants were purposively selected from Palestinian undergraduates and high school EFL teachers. Additionally, 23 English native speakers participated in the study as a control group. A demographic information questionnaire with different versions was administered in order to obtain background information on the participating groups. The participants' English proficiency levels were identified based on their scores on a cloze test. In order to investigate the participants' knowledge of the English causative-inchoative alternation, an AJC task was administered. The data obtained were analyzed using several statistical procedures, including two-sample *t*-test, one-way ANOVA, and Tukey post-hoc analyses. The following chapter focuses on the results of the data analysis of the AJC task as the main task conducted to test the research questions.

CHAPTER FOUR

RESULTS OF DATA ANALYSIS

4.0 Organization

The present study is an investigation of Arabic native speakers' (ANSs) acquisition of the English causative-inchoative alternation. For the purpose of data collection, three instruments were used: (i) a demographic information questionnaire; (ii) a cloze test to evaluate the participants' English proficiency; and (iii) an acceptability judgment and correction (AJC) task to examine the participants' acquisition of the English causative-inchoative alternation. The data obtained from the demographic questionnaires and the cloze test were presented in the previous chapter. This chapter is largely devoted to the presentation of the results obtained through the analysis of the data of the AJC task as the study outcome measure. The presentation of these results is arranged by the central research questions. The chapter concludes with three other related analyses: (i) the relation between the participants' proficiency and indeterminate judgments (i.e. uninterpretable responses); (ii) a comparison between the performances of the two Arab participating groups (i.e. undergraduates and school teachers); and (iii) the effect of ESL experience on ANSs' acquisition of the English causative-inchoative alternation.

4.1 Preliminary Analysis

As noted earlier, the AJC task had 60 items targeting the linguistic phenomenon at hand. It was expected that the EFL Arab participants (i.e. experimental group) would on average either be outperformed by or perform as well as the English natives (i.e. control

group), but not outperform them on the task items by verb type or scenario. Preliminary analysis of the participants' responses to these items indicated that this expectation was met except in one item scenario. The results from the two-sample *t*-tests revealed that, on average, the experimental group responded correctly to 95.52% of the items of the P-P scenario of the type-1 alternating unaccusatives (*SD* = 12.78), while the control group responded correctly to only 88.86% of these items (*SD* = 15.68). Further investigation of the scenario items revealed a possible problem with the wording of one of the items. This item is shown in (1).

(1) Susan was washing the dishes after the meal. <u>One of the new plates was broken</u> accidentally.

The item above was intended to elicit acceptability, since the context promotes the use of passive and the structure is passive. However, 7 (out of 23) native speakers of English judged the underlined part of the item as unacceptable; they corrected it as (*One of the new plates broke accidentally*). The other 16 controls accepted the use of passive in the context given. One possible explanation for this discrepancy in judgment is that the 7 participants might have confused the meaning of *accidentally*, conceiving the event to have occurred spontaneously (i.e. the new plate broke on its own). Given that this particular item caused confusion even for the native speaker controls, it was excluded from all subsequent data analyses. Reanalysis of the data using a two-sample *t*-test showed that, on average, the Arab EFL participants responded correctly to 96.22% of the P-P scenario items of the type-1 alternating unaccusatives (*SD* = 14.79), whereas the native controls had perfect accuracy (100% correct) on these items.

4.2 Research Question #1 (RQ #1)

Does the English causative-inchoative alternation pose a learnability problem for Arabic native speakers?

The AJC task had 44[1] items testing 9 alternating and non-alternating unaccusative verbs (*open*, *close*, *break*, *sink*, *melt*, *freeze*, *arrive*, *appear*, and *happen*); each of these verbs appeared in 5 different items related to the English causative-inchoative alternation. Seeking an answer to the first part of RQ #1 (i.e. whether the English alternation poses a learnability problem for ANSs), the participants' correct responses to the 44 unaccusative items were counted and calculated as a percentage correct. Then, a two-sample *t*-test was performed to determine if there was a statistically significant difference between the mean scores of the two independent samples of the study (the Arab experimental group and the English control group). The results indicated that the variances of the two groups were different (Levene's Test: $F = 31.28$, $df = 1$, $p < .001$). Therefore, equal variances were not assumed, and the degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups. The results also revealed a significant difference between the means of the two groups ($t = 20.81$, $df = 135.168$, $p < .001$). On average, the control group responded correctly to 99% of the unaccusative items ($SD = 1.51$), whereas the ANSs responded correctly to 76.93% of these items ($SD = 11.05$). This significant difference indicates that the English causative-inchoative alternation poses a learnability problem for ANSs.

[1] Originally, there were 45 unaccusative items. However, as highlighted above, one of these items was excluded from data analysis.

The following section contains a review of the results from a further investigation undertaken to determine the performance on the unaccusative items with respect to the individual verb types (i.e. type-1 alternating, type-2 alternating, and non-alternating).

4.2.1 Performance on Unaccusatives by Verb Type

4.2.1.1 Performance on Type-1 Alternating Unaccusatives

This subclass of verbs includes *open*, *close*, and *break*, tested in 14 different items of the AJC task[2]. While these English verbs have identical forms in both causative and inchoative structures (i.e. labile pattern), their Arabic equivalents have an anticausative pattern; that is, overt morphology is required to derive the (marked) inchoative form from its simple (unmarked) causative counterpart.

In order to determine if the control group was statistically significantly different from the experimental group in term of performance on this subclass of verbs, the percent correct scores of both groups were analyzed using a two-sample *t*-test. The results indicated that the variances of the two groups were different (Levene's Test: $F = 41.46$, $df = 1$, $p < .001$). Therefore, equal variances were not assumed, and the degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups. The results also revealed a significant difference between the means of the two groups ($t = 24.65$, $df = 138.846$, $p < .001$). On average, the control group responded correctly to 99.38% of the type-1 alternating unaccusative items ($SD = 2.06$), whereas the ANSs responded correctly to 69.34% of these items ($SD = 12.44$).

[2] Originally, this subclass had 15 items. However, as highlighted above, one of these items was excluded from data analysis.

4.2.1.2 Performance on Type-2 Alternating Unaccusatives

The tested verbs that belong to this subclass include *sink, melt,* and *freeze*. These verbs appeared in 15 different items of the AJC task. Similar to the type-1 verbs above, the type-2 verbs follow the labile pattern to encode their alternation; that is, the same verb form is used in both causative and inchoative structures. However, the two types are different with respect to their Arabic equivalents. While Arabic type-1 equivalents have the anticausative pattern, as illustrated above, Arabic type-2 equivalents have the causative pattern; that is, their inchoative form is 'simple' from which the corresponding causative form is derived through overt morphology.

A two-sample *t*-test was run to determine if the control group was statistically significantly different from the experimental group in term of performance (percent correct scores) on the type-2 subclass of verbs. The results revealed a significant difference between the two groups' variances (Levene's Test: $F = 19.88$, $df = 1$, $p < .001$), so equal variances were not assumed. The degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups. The results also revealed a significant difference between the means of the two groups ($t = 12.18$, $df = 111.160$, $p < .001$). On average, the control group responded correctly to 97.68% of the type-2 alternating unaccusative items ($SD = 4.32$), whereas the ANSs responded correctly to 78.95% of these items ($SD = 13.60$).

4.2.1.3 Performance on Non-alternating Unaccusatives

Three non-alternating unaccusative verbs (*arrive*, *appear*, and *happen*) were tested on the AJC task, appearing in 15 different items. This subclass of English verbs is distinct from the two verb types above in that they are intransitive verbs that have no transitive counterparts, and consequently do not allow the passive (Levin & Rappaport Hovav, 1995).

In order to determine if the control group was statistically significantly different from the experimental group in term of performance on the non-alternating unaccusative items, the percent correct scores of both groups were analyzed using a two-sample *t*-test. The results indicated that the variances of the two groups were different (Levene's Test: $F = 47.03$, $df = 1$, $p < .001$). Therefore, equal variances were not assumed, and the degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups. The results also revealed a significant difference between the means of the two groups ($t = 11.28$, $df = 118.00$, $p < .001$). The control group responded perfectly to the non-alternating unaccusative items ($M = 100$, $SD = .00$), whereas, on average, the ANSs responded correctly to 81.96% of these items ($SD = 17.44$).

The following analyses were performed to examine the participants' performance on the unaccusative items by the five item scenarios for each verb type.

4.2.2 Performance on Unaccusatives by Scenario

As illustrated in the previous chapter (Section 3.3.3.2), each of the tested verbs used in the AJC task involved five different scenarios, which are as follows:

P-P Scenario: Context encourages use of passive and structure is passive.

P-I Scenario: Context encourages use of passive but structure is intransitive.

I-I Scenario: Context encourages use of intransitive and structure is intransitive.

I-P Scenario: Context encourages use of intransitive but structure is passive.

C-C Scenario: Context encourages use of causative and structure is causative.

The participants' percent correct scores by scenario were calculated for each unaccusative verb type. Comparisons were made between the two independent samples of the study (i.e. the control and experimental groups) using two-sample *t*-tests.

4.2.2.1 Performance on Type-1 Alternating Unaccusatives by Scenario

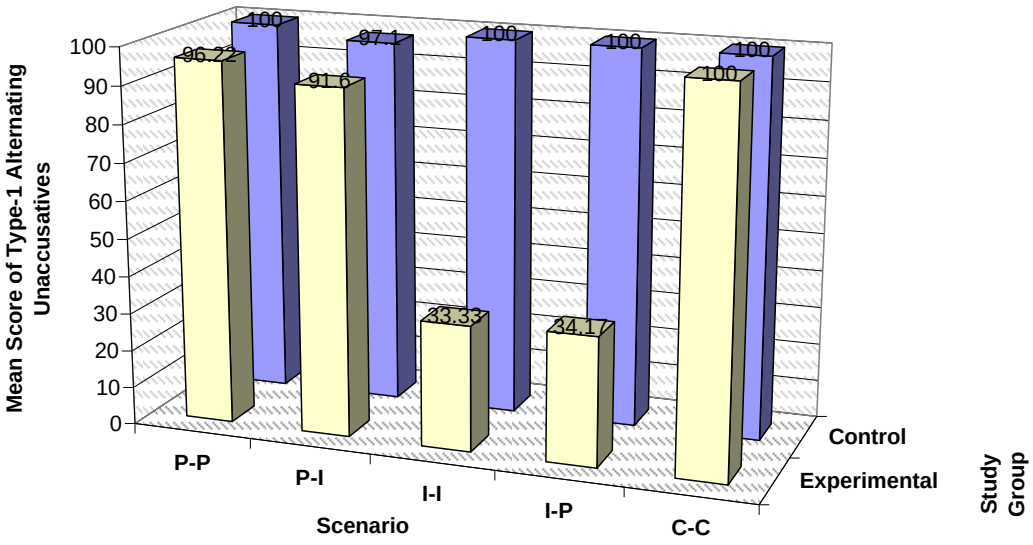
Table 4.1 and Figure 4.1 summarize the results from the two-sample *t*-test analyses performed to compare between the control group's and experimental group's percent correct mean scores of the type-1 alternating unaccusatives.

Table 4.1: Independent Samples *t*-Test – Type-1 Alternating Unaccusatives by Scenario

Scenario	Experimental Group (n = 119)		Control Group (n = 23)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	96.22	14.79	100	.00	6.76	.010	-2.79 (118)†	.006
P-I	91.60	18.27	97.10	9.60	9.76	.002	-2.11 (58.219)†	.039
I-I	33.33	31.52	100	.00	41.23	< .001	-23.07 (118)†	< .001
I-P	34.17	37.57	100	.00	68.77	< .001	-19.11 (118)†	< .001
C-C	100	.00	100	.00	††	††	††	††

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.
†† In the C-C scenario, the values of *F, t,* and *p* could not be computed because the standard deviations of both study groups were 0.

Figure 4.1: Independent Samples *t*-Test – Type-1 Alternating Unaccusatives by Scenario



The results revealed unequal variances and significant differences between mean scores of the control and experimental groups (Control > Experimental) for the first four scenarios (P-P, P-I, I-I, and I-P) of the type-1 alternating unaccusatives. (The degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups.) However, in the C-C scenario, the values of *F, t,* and *p* could not be computed because the standard deviations of both groups were 0 (i.e. they had perfect scores). The control group participants had perfect scores ($M = 100\%$) in all scenarios except the P-I scenario ($M = 97.1\%$, $SD = 9.60$). On the other hand, the experimental group performed very well on the P-P, P-I, C-C scenarios (with percent correct mean scores of 96.22, 91.60, and 100, respectively), but very poorly on the I-I and I-P scenarios (with a percent correct mean score of 33.33 and 34.17, respectively).

4.2.2.2 Performance on Type-2 Alternating Unaccusatives by Scenario

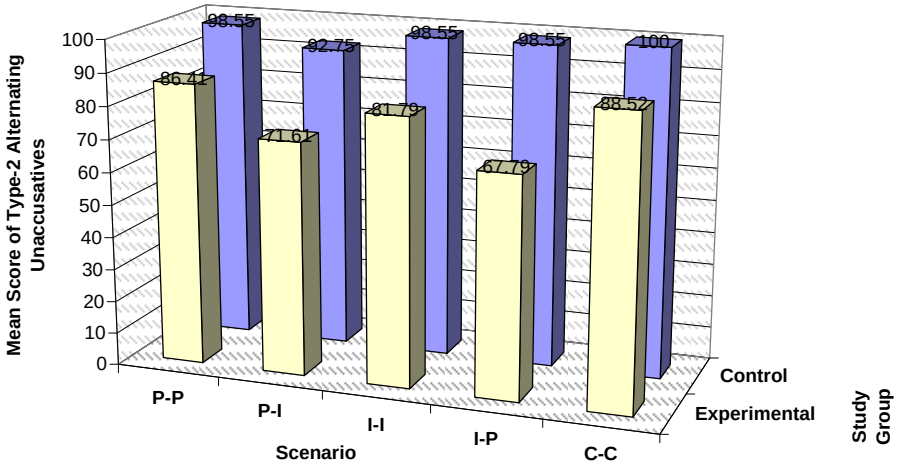
Both control and experimental groups were compared in term of performance on the type-2 alternating unaccusative items by the five scenarios. A two-sample *t*-test was conducted on the groups' percent correct scores; the results of analysis are summarized Table 4.2 and Figure 4.2.

Table 4.2: Independent Samples *t*-Test – Type-2 Alternating Unaccusatives by Scenario

Scenario	Experimental Group (n = 119)		Control Group (n = 23)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	86.41	20.92	98.55	6.95	50.49	< .001	-5.05 (105.943)†	< .001
P-I	71.61	27.33	92.75	14.06	7.20	< .001	-5.47 (60.21)†	< .001
I-I	81.79	24.64	98.55	6.95	52.29	< .001	-6.24 (123.193)†	< .001
I-P	67.79	34.36	98.55	6.95	30.07	< .001	-8.87 (139.674)†	< .001
C-C	88.52	18.38	100	.00	74.33	< .001	-6.82 (118)†	< .001

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.

Figure 4.2: Independent Samples *t*-Test – Type-2 Alternating Unaccusatives by Scenario



The results indicated unequal variances and significant differences between mean scores of the control and experimental groups for the five scenarios of the type-2 alternating unaccusatives (Control > Experimental, $p < .001$). (The degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups.) On average, the control group responded correctly to 98.55% of the items of the P-P, I-I, and I-P scenarios (*SD* = 6.95), 92.75% of the items of the P-I scenario (*SD* = 14.06), and 100% of the items of the C-C scenario. On the other hand, on average, the experimental group responded correctly to 86.41% of the items of the P-P scenario (*SD* = 20.92), 71.61% of the items of the P-I scenario (*SD* = 27.33), 81.79% of the items of the I-I scenario (*SD* = 24.64), 67.79% of the items of the I-P scenario (*SD* = 34.36), and 88.52% of the items of the C-C scenario (*SD* = 18.38).

4.2.2.3 Performance on Non-alternating Unaccusatives by Scenario

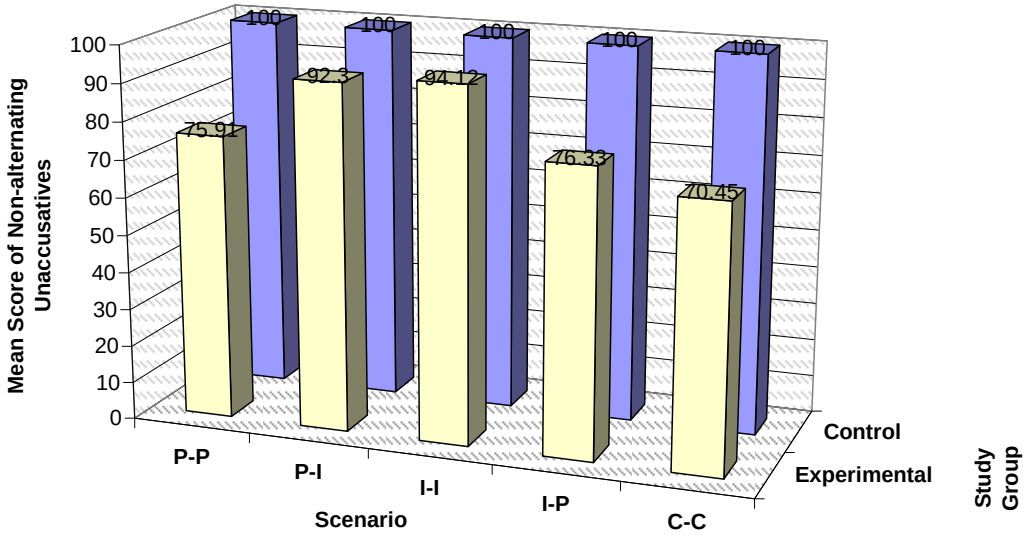
Two-sample *t*-test analyses were performed to compare between the control group's and experimental group's percent correct mean scores of the non-alternating unaccusative items by the five scenarios. The results are summarized in Table 4.3 and Figure 4.3.

Table 4.3: Independent Samples *t*-Test – Non-alternating Unaccusatives by Scenario

Scenario	Experimental Group (n = 119)		Control Group (n = 23)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	75.91	31.42	100	.00	68.62	< .001	-8.36 (118)†	< .001
P-I	92.30	16.78	100	.00	28.10	< .001	-5.01 (118)†	< .001
I-I	94.12	13.30	100	.00	27.26	< .001	-4.82 (118)†	< .001
I-P	76.33	32.29	100	.00	54.89	< .001	-8.00 (118)†	< .001
C-C	70.45	31.02	100	.00	69.38	< .001	-10.39 (118)†	< .001

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.

Figure 4.3: Independent Samples *t*-Test – Non-alternating Unaccusatives by Scenario



The results indicated unequal variances and significant differences between mean scores of the control and experimental groups for the five scenarios of the non-alternating unaccusatives (Control > Experimental, $p < .001$). (The degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups.) The control group performed perfectly in all scenarios ($M = 100\%$). On the other hand, on average, the experimental group responded correctly to 75.91% of the items of the P-P scenario ($SD = 31.42$), 92.30% of the items of the P-I scenario ($SD = 16.78$), 94.12% of the items of the I-I scenario ($SD = 13.30$), 76.33% of the items of the I-P scenario ($SD = 32.29$), and 70.45% of the items of the C-C scenario ($SD = 31.02$).

4.3 Research Question #2 (RQ #2)

Do Arabic native speakers distinguish between unaccusative and unergative verbs in English?

Taken to operate universally, the Unaccusative Hypothesis (Perlmutter, 1978) addresses the specific characteristics of intransitive verbs, dividing them into two classes: unaccusative and unergative. Unaccusatives (e.g. *die, disappear*) typically have non-agentive (non-volitional) subjects, contrasting with unergatives (e.g. *laugh, cry*), which have agentive (volitional) subjects. Despite the superficially identical representations of unaccusatives and unergatives (i.e. *S-V* pattern), they have different underlying structures. Unaccusatives represent a derived structure, with a D-structure object and no underlying subject, whereas unergatives represent a basic, canonical structure, taking a D-structure subject and no object. In terms of argument structure, the sole argument of unaccusatives is *Theme*, whereas the sole argument of unergatives is *Agent* (Hawkins, 2001; Levin & Rappaport Hovav, 1995).

The apparent mismatch between thematic roles and syntactic functions of unaccusatives (i.e. *Theme*, not *Agent*, maps to subject position) can be accounted for by two principles of Universal Grammar (UG): the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker, 1988) and the Case Filter (Vergnaud, 1977). According to the UTAH, a given thematic role consistently maps to the same syntactic position at D-structure; thus, the *Theme* thematic role consistently originates in the D-structure object position. Since an unaccusative verb does not assign accusative case to its sole, internal

argument (*Theme* in object position), the internal argument must move to the (derived) subject position, where it receives nominative case, thus satisfying the requirement of Case Filter (i.e. each overt NP must have Case).

In terms of learnability, it is argued that English unaccusatives pose a greater problem than unergatives for ANSs in English. Unergatives have nearly identical D- and S-structures and canonically map *Agent* to the subject position, whereas unaccusatives have different D- and S-structures with *Theme* mapped to the (derived) subject position.

If EFL ANSs are guided by innate UG principles, including the Unaccusative Hypothesis, Case Filter, and Uniformity of Theta Assignment Hypothesis, the prediction is that they will distinguish between English unergatives and unaccusatives because these two classes of verbs are represented differently at the level of argument structure in UG.

One source of evidence for this distinction can come from finding EFL ANSs performing well, but still differently, on tests that differentiate unaccusativity and unergativity. This issue was addressed in the second research question of the study using the following statistical analyses.

A two-sample *t*-test was performed to compare the mean score of the Arab participants' correct responses to the unergative items of the AJC task with that of the control group's. The results revealed that the variances of the two groups were different (Levene's Test: $F = 34.42$, $df = 1$, $p < .001$). Therefore, equal variances were not assumed, and the degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups. The results also revealed a significant

difference between the means of the two groups ($t = 9.99$, $df = 118$, $p < .001$). All control participants responded perfectly (100% correct) to the unergative items, whereas, on average, the ANSs responded correctly to 88.94% of these items ($SD = 12.08$). This means that the control group surpassed the Arab participants in performance on the unergative items.

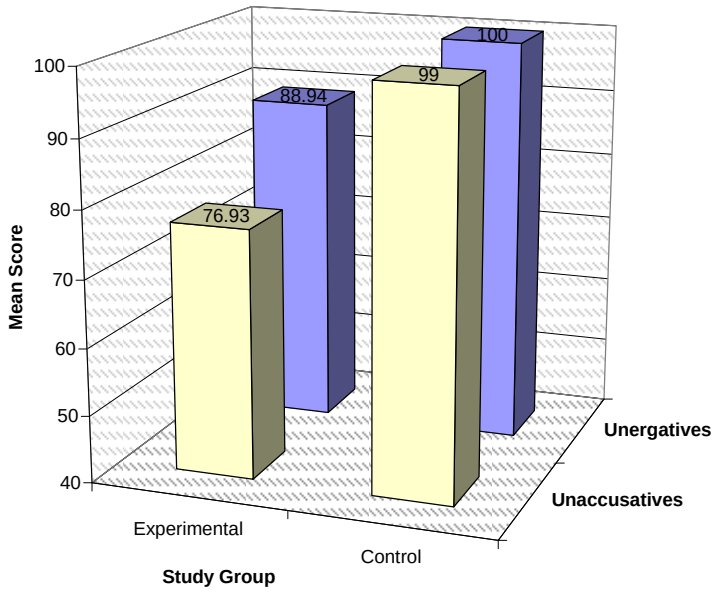
However, the Arab participants' performance on the unergative items was better than their performance on the unaccusatives; as reported in Section 4.1, their average correct response to unaccusatives was 76.93% ($SD = 11.05$). These results indicated that English unergatives posed less of a learnability problem for the Arab participants than English unaccusatives did. This discrepancy in performance on the two verb classes supports the hypothesis that the participants were sensitive to the unaccusative-unergative distinction, as these two verb classes are represented differently at the level of argument structure in Universal Grammar. The results from the two-sample *t*-test performed to compare between the control group's and experimental group's mean scores of unaccusatives and unergatives are presented in Table 4.4 and Figure 4.4.

Table 4.4: Independent Samples *t*-Test – Unaccusatives vs. Unergatives

Verb Class	Experimental Group ($n = 119$)		Control Group ($n = 23$)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
Unaccusatives	76.93	11.05	99	1.51	31.28	< .001	-20.81 (135.168)†	< .001
Unergatives	88.94	12.08	100	.00	34.42	< .001	-9.99 (118)†	< .001

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.

Figure 4.4: Independent Samples *t*-Test – Unaccusatives vs. Unergatives



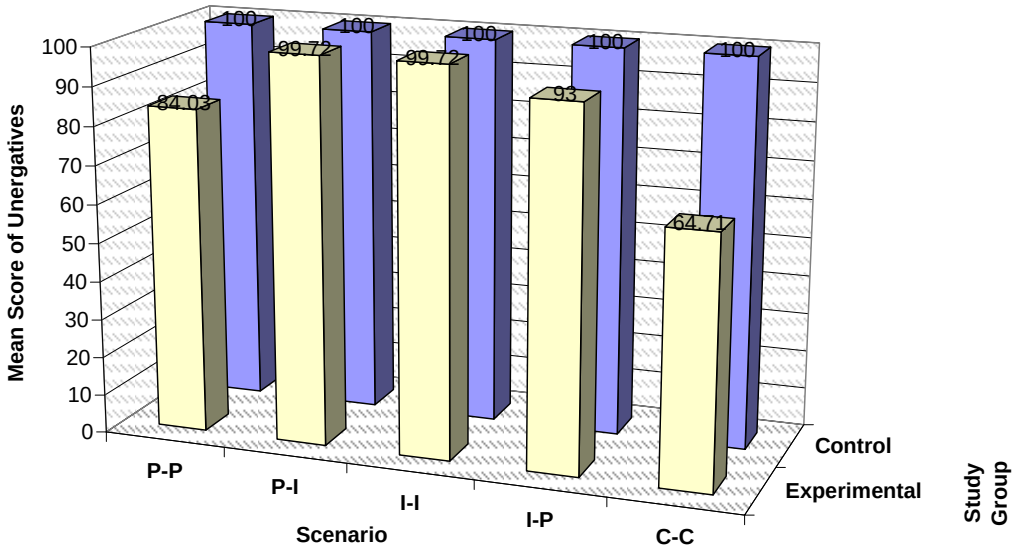
Furthermore, performance on unergatives by scenario was analyzed. Two-sample *t*-test analyses were performed in order to compare between the control group's and experimental group's percent correct mean scores of the unergative items by the five scenarios. The results are summarized in Table 4.5 and Figure 4.5.

Table 4.5: Independent Samples *t*-Test – Unergatives by Scenario

Scenario	Experimental Group (n = 119)		Control Group (n = 23)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	84.03	23.11	100	.00	73.87	< .001	-7.54 (118)†	< .001
P-I	99.72	3.06	100	.00	.78	.378	-.438 (140)††	.662
I-I	99.72	3.06	100	.00	.78	.378	-.438 (140)††	.662
I-P	93	19.83	100	.00	13.72	< .001	-3.85 (118)†	< .001
C-C	64.71	37.72	100	.00	56.18	< .001	-10.21 (118)†	< .001

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.
†† Equal variances were assumed ($df = n - 1$).

Figure 4.5: Independent Samples *t*-Test –Unergatives by Scenario



The results revealed unequal variances and significant differences between mean scores of the control and experimental groups for the P-P, I-P, and C-C scenarios of the unergatives (Control > Experimental, $p < .001$). (The degrees of freedom used for the *t*-test were calculated from the actual variances and the sample sizes in the groups.) The control group performed perfectly on the items of these three scenarios ($M = 100\%$), whereas, on average, the experimental group responded correctly to 84.03% of the items of the P-P scenario ($SD = 23.11$), 93% of the items of the I-P scenario ($SD = 19.83$), and 64.71% of the items of the C-C scenario ($SD = 37.72$). With respect to the other two scenarios (i.e. P-I and I-I), the results indicated equal variances and no significant differences between mean scores of the control and experimental groups. The control group performed perfectly on the items of both scenarios ($M = 100\%$), whereas, on

average, the experimental group responded correctly to 99.72% of the items of both scenarios (*SD* = 3.06).

4.4 Research Question #3 (RQ #3)

Are there L1 transfer effects on Arabic native speakers' acquisition of the English causative-inchoative alternation?

The first research question of the current study tested the hypothesis that the English causative-inchoative alternation poses a learnability problem for Arabic native speakers (ANSs). The Arab participants in this study performed less accurately than the native controls on the AJC task; while the controls performed very well on all verb types and scenarios of the task, some verb types and scenarios were more challenging than others to the Arab participants. An argument advanced in this study is that ANSs' learnability problem with this English alternation can be largely explained in terms of L1 (Arabic) transfer, since there are significant differences between English and Arabic with respect to how the two languages encode their causative-inchoative alternations. This hypothesis can be supported by results obtained from the analyses performed earlier in this chapter. These results will be discussed in detail in the following chapter; however, two sources of corroborating evidence for language transfer argument are presented below.

The acceptability judgment and correction (AJC) task included the following items:

(2) I was sitting in my house on a windy day. The front door opened.

(3) I walked into the elevator. Then the door closed automatically.

(4) My aunt had a beautiful vase, but it was cracked. Yesterday the vase broke.

(5) Jane forgot to put the ice cream back into the freezer. As it was a hot day, the ice cream melted in a few minutes.

(6) The weather was extremely cold yesterday. The river froze.

(7) The boat hit a big rock. The boat sank gradually.

Items (2-4) belong to the type-1 alternating unaccusative items for the I-I scenario, whereas items (5-7) belong to the type-2 alternating unaccusative items for the same scenario. As can be observed, all the underlined parts in the six items are contextually and grammatically acceptable; that is, their well-formed intransitive/ inchoative structures denote spontaneity promoted by the context (i.e. no specific agent involved in the event). Despite the similarity in scenario, the Arab participants were expected to judge these items differently, tending to reject items (2-4), but accept items (5-7). It was argued that L1 (Arabic) transfer played a significant role in this discrepancy in judgment.

While the labile pattern (i.e. identical forms for both alternants) is the predominant alternation pattern in English, Arabic mainly realizes its alternation either anticausatively (i.e. an affix is added to the causative form to derive the inchoative counterpart) or causatively (i.e. an affix is added to the inchoative form to derive the corresponding causative). The Arabic equivalents of the type-1 inchoatives (e.g. 2-4) are morphologically marked, while the Arabic equivalents of type-2 inchoatives (e.g. 5-7) are

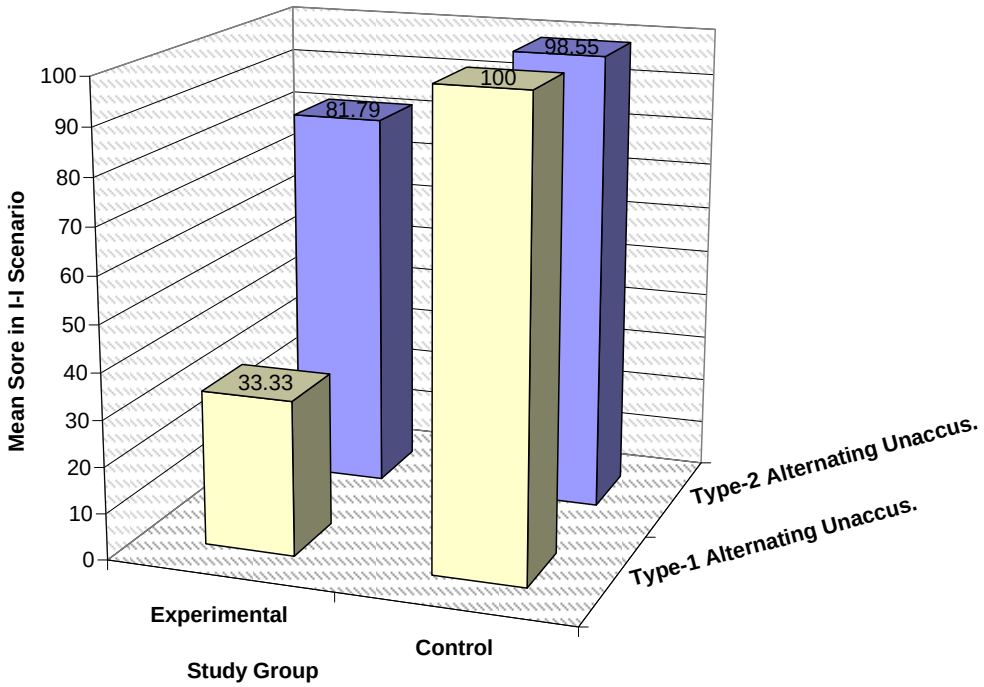
morphologically unmarked (simple). The results obtained from analyses (reproduced in Table 4.6 and Figure 4.6) support the L1 transfer hypothesis.

Table 4.6: Independent Samples *t*-Test – Performance on Alternating Unaccusatives by the I-I Scenario

Verb Class	Experimental Group (n = 119)		Control Group (n = 23)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
Type-1 Alternating	33.33	31.52	100	.00	41.23	< .001	-23.07 (118)†	< .001
Type-2 Alternating	81.79	24.64	98.55	6.95	52.29	< .001	-6.24 (123.193)†	< .001

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.

Figure 4.6: Independent Samples *t*-Test – Performance on Alternating Unaccusatives by the I-I Scenario



The results indicated statistically significant differences between the control and experimental groups' percent correct mean scores of the items of both types for the I-I scenario. The control participants performed very well on both verb types (type-1 alternating: $M = 100\%$; type-2 alternating: $M = 98.55\%$). However, the Arab participants performed well on the type-2 alternating items, that is, correctly accepting the well-formed items ($M = 81.79\%$, $SD = 24.64$), but very poorly on the type-1 alternating items, that is, incorrectly rejecting the well-formed items ($M = 33.33\%$, $SD = 31.52$). This significant difference in performance can be largely attributed to the effect of the Arab participants' native language on their acquisition of the English causative-inchoative alternation.

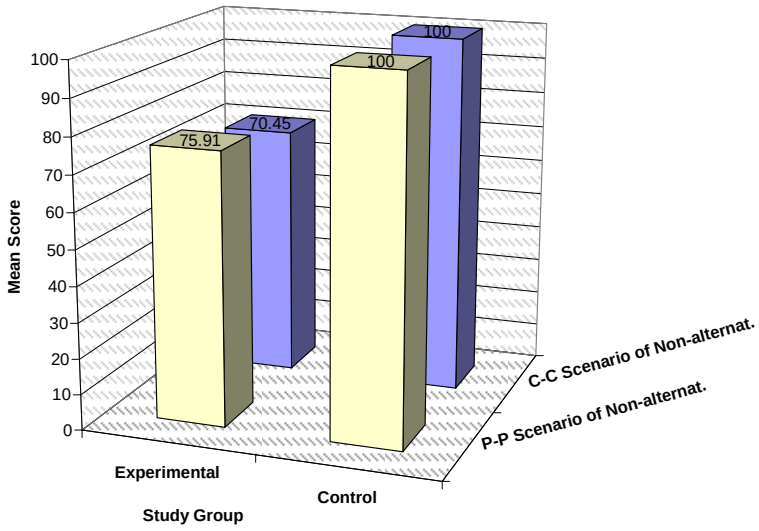
Similarly, the Arab participants' error rates in the P-P and C-C scenarios of the non-alternating items of the AJC task can also be largely attributed to the influence of their L1. The results from the two-sample *t*-tests (presented in Table 4.7 and Figure 4.7) revealed statistically significant differences between the control and experimental groups' percent correct mean scores. The control participants performed perfectly (100% correct) on both scenarios, whereas the Arab participants had an accuracy percentage of 75.91% ($SD = 31.42$) in the P-P scenario and 70.45 ($SD = 31.02$) on the C-C scenario.

Table 4.7: Independent Samples *t*-Test – Non-alternating Unaccusatives by P-P and C-C Scenarios

Scenario	Experimental Group (n = 119)		Control Group (n = 23)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	75.91	31.42	100	.00	68.62	< .001	-8.36 (118)†	< .001
C-C	70.45	31.02	100	.00	69.38	< .001	-10.39 (118)†	< .001

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.

Figure 4.7: Independent Samples *t*-Test – Performance on Alternating Unaccusatives by the I-I scenario



The verbs used in the two scenarios (*arrive, appear, happen*) are non-alternating; that is, they can only be used intransitively in English. Therefore, it is incorrect to use them in a passive structure (P-P scenario, e.g. *several accidents were happened*) or causative structure (C-C scenario, e.g. *the taxi arrived George on time*). However, the Arabic equivalents of these verbs do alternate, and consequently, allow passivization and

causativization, which accounts for the Arab participants' average error rates (i.e. failure to reject the ill-formed items of these scenarios).

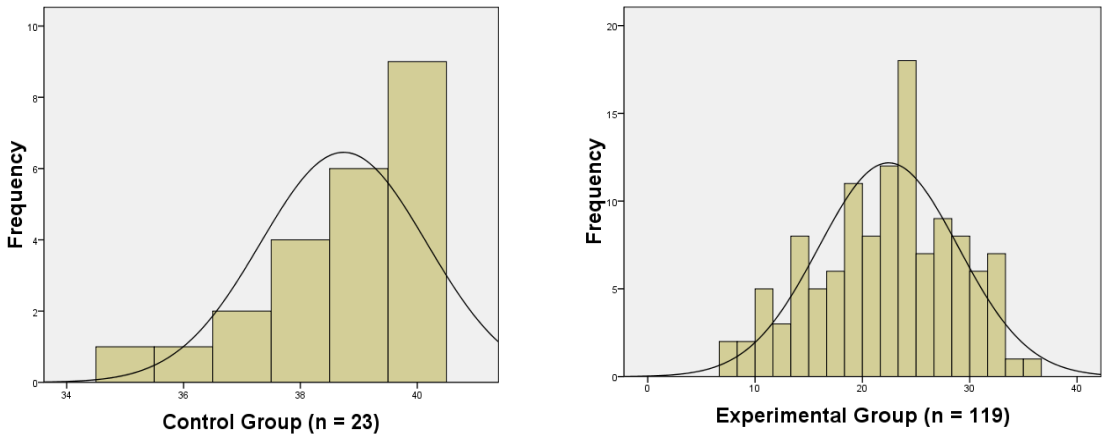
4.5 Research Question #4 (RQ #4)

Are there differences across English proficiency levels with respect to the answers to questions 1-3?

4.5.1 English Proficiency Levels

As noted, a 40-blank cloze test was used as an independent measure of the participants' English proficiency. The maximum possible score was 40. The histograms in Figure 4.8 represent the distributions of the test scores for the control and experimental groups.

Figure 4.8: Distribution of Cloze Scores for Control and Experimental Groups



While the two distributions of cloze scores are different, neither appears to be overly kurtotic (i.e. clustered around any particular point). The control group had a distribution that is negatively skewed; the lowest score was 35 and 9 participants had a score of 40 (the maximum possible score). On the other hand, the Arab participants'

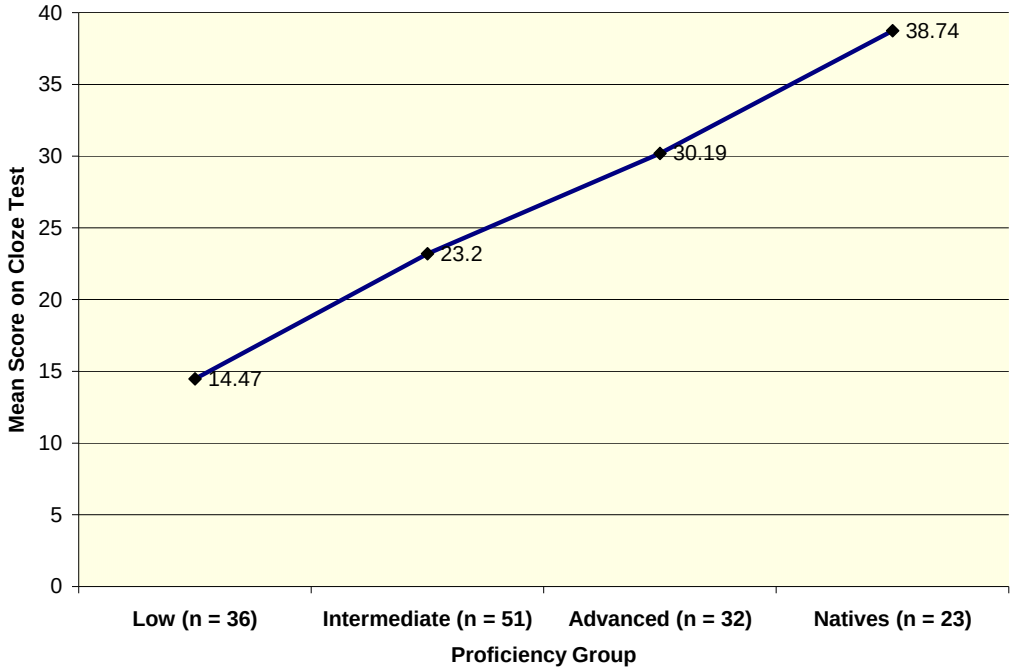
scores were normally distributed across a range of scores from 8 to 35. (Only one participant had a score of 35.)

Based on the cloze test scores, the control participants, being highly proficient, were classified as 'Natives', whereas the Arab EFL participants were grouped into three proficiency levels: Advanced (26 points and above), Intermediate (20-25 points), and Low (19 points and below). This classification was supported through statistical procedures. A one-way ANOVA was performed and the results revealed statistically significant differences in cloze test scores amongst proficiency groups (F (3, 138) = 546.05, $p < .001$). In order to test for the nature of the relationships between groups, the one-way ANOVA was followed by multiple comparison procedures using the Tukey post-hoc test; statistical significant differences were observed between all proficiency levels: Natives > Advanced > Intermediate > Low ($p < .001$). The results are presented in Tables 4.8 and Figure 4.9.

Table 4.8: One-Way ANOVA – Proficiency Groups' Cloze Scores

Experimental Group						Control Group			
Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
14.47	3.34	23.20	2.04	30.19	2.16	38.74	1.42	546.05	< .001

Figure 4.9: Proficiency Groups' Cloze Scores



In this study, it was hypothesized that development towards target-like behavior can be observed across ANSs' interlanguage stages with respect to their acquisition of the English causative-inchoative alternation (RQ #1) and their sensitivity to the unaccusative-unergative distinction in English (RQ #2); however, language transfer largely affects these phenomena (RQ #3). To test this hypothesis, the following analyses were performed.

4.5.2 Proficiency and Performance on Unaccusatives

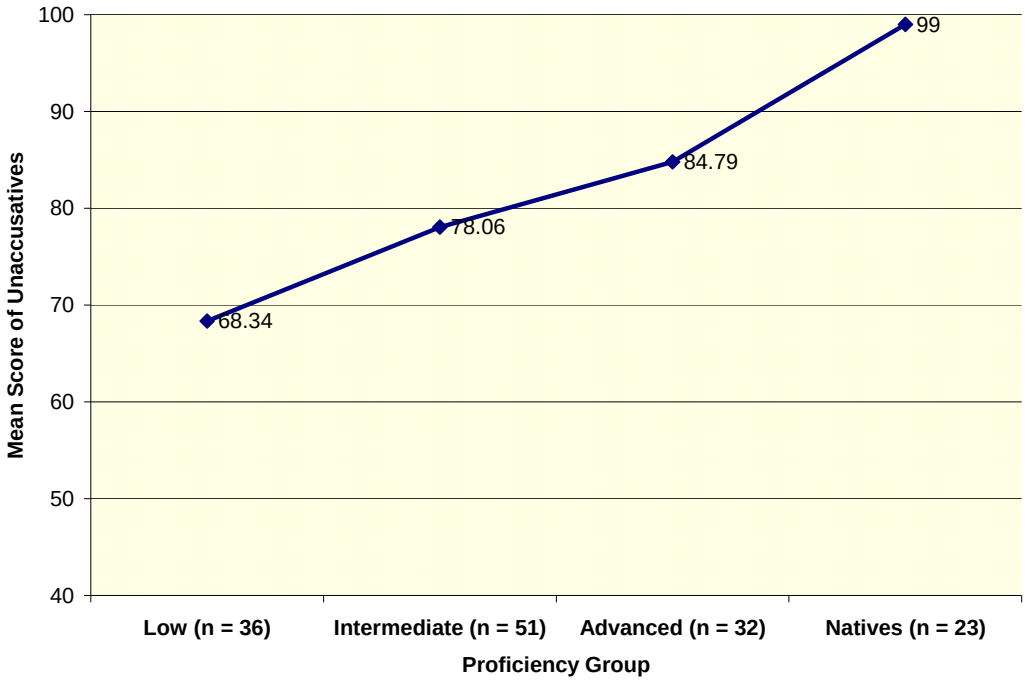
To test the effect of English proficiency on the Arab participants' acquisition of the English causative-inchoative alternation, a one-way ANOVA test was conducted on the percentage of correct responses on unaccusative verbs across proficiency groups. The

results indicated statistically significant differences among proficiency groups (F (3, 138) = 66.44, $p < 0.001$). The results are presented in Tables 4.9 and Figure 4.10.

Table 4.9: One-Way ANOVA – Proficiency and Performance on Unaccusatives

Experimental Group						Control Group			
Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
68.34	10.14	78.06	9.04	84.79	8.06	99.00	1.51	66.44	< .001

Figure 4.10: Performance on Unaccusatives



The one-way ANOVA was followed by post-hoc analysis using the Tukey test; results revealed that significant differences were observed across all proficiency levels ($p < .001$): Low < Intermediate < Advanced < Natives.

The effect of English proficiency on the Arab participants' acquisition of the English causative-inchoative alternation was further investigated by analyzing their performances on the unaccusative items with respect to the verb types (i.e. type-1 alternating, type-2, and non-alternating).

4.5.2.1 Proficiency and Performance on Unaccusatives by Verb Type

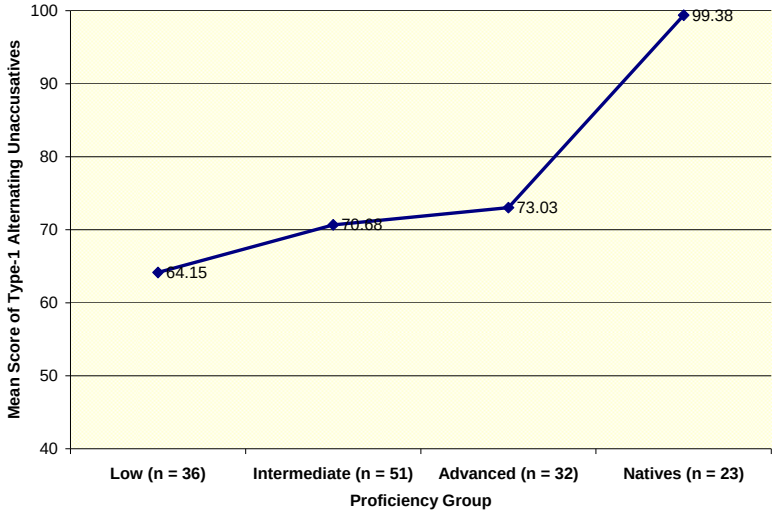
4.5.2.1.1 Proficiency and Performance on Type-1 Alternating Unaccusatives

One-way ANOVA analysis was conducted on the proficiency groups' performances on the type-1 subclass of verbs. The results revealed significant difference across proficiency groups' mean scores (F (3, 138) = 51.52, $p < .001$). The results are presented in Table 4.10 and Figure 4.11.

Table 4.10: One-Way ANOVA – Proficiency and Performance on Type-1 Alternating Unaccusatives

Experimental Group						Control Group			
Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
64.15	10.39	70.68	12.10	73.03	13.53	99.38	2.06	51.52	< .001

Figure 4.11: Performance on Type-1 Alternating Unaccusatives



To identify the nature of differences, multiple comparison procedures were also conducted using the Tukey post-hoc test. The results indicated that the control group was statistically significantly different from all three Arab proficiency groups ($p < .001$). The results also revealed that, while the Arab Low group was significantly different from both the Intermediate and Advanced groups (Low < Intermediate: $p = .037$; Low < Advanced: $p = .007$), the Intermediate group was not significantly different from the Advanced group ($p = .784$).

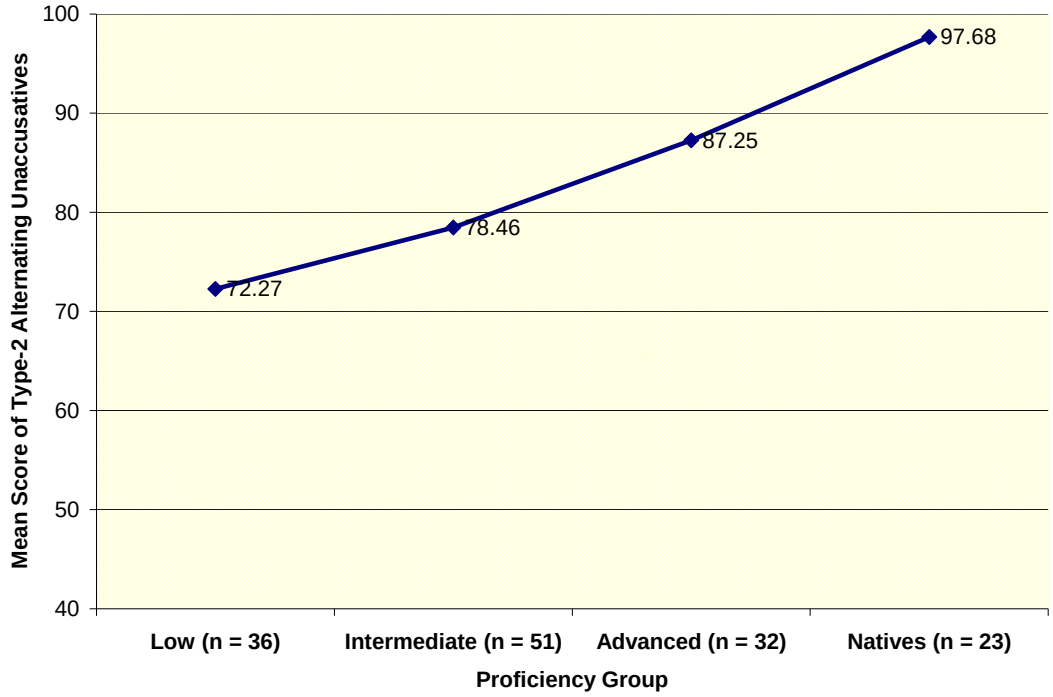
4.5.2.1.2 Proficiency and Performance on Type-2 Alternating Unaccusatives

A one-way ANOVA was performed to examine the proficiency groups' performances on the type-2 subclass of verbs. The results revealed statistically significant differences amongst proficiency groups (F (3, 138) = 26.44, $p < .001$). The results are presented in Table 4.11 and Figure 4.12.

Table 4.11: One-Way ANOVA – Proficiency and Performance on Type-2 Alternating Unaccusatives

Experimental Group						Control Group			
Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
72.27	14.57	78.46	11.97	87.25	10.48	97.68	4.32	26.44	< .001

Figure 4.12: Performance on Type-2 Alternating Unaccusatives



The one-way ANOVA was followed by a multiple comparison procedure in order to determine the nature of the relationships across proficiency groups. The results from the Tukey post-hoc analysis showed that the control group was statistically significantly different from the Low, Intermediate, and Advanced groups (Natives > Low: $p < .001$; Natives > Intermediate: $p < .001$; Natives > Advanced: $p = .007$). With respect to the experimental proficiency groups, the results indicated that the Advanced group was statistically significantly different from both the Low and Intermediate groups (Advanced > Low: $p < .001$; Advanced > Intermediate: $p = .005$). However, the Low group was not significantly different from the Intermediate group ($p = .070$).

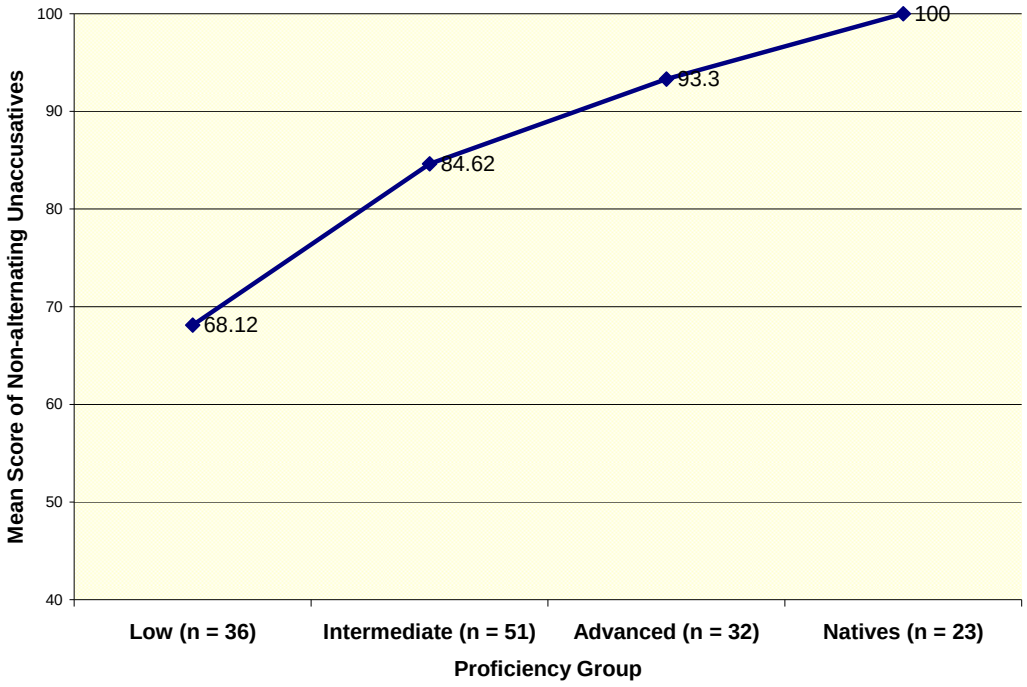
4.5.2.1.3 Proficiency and Performance on Non-alternating Unaccusatives

The proficiency groups' performances on the non-alternating unaccusative items were examined using one-way ANOVA. The results revealed statistically significant inequality of mean scores across proficiency groups. (F (3, 138) = 33.12, p < .001). The results are presented in Table 4.12 and Figure 4.13.

Table 4.12: One-Way ANOVA – Proficiency and Performance on Non-alternating Unaccusatives

Experimental Group						Control Group			
Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
68.12	17.56	84.62	14.69	93.30	9.73	100	.00	33.12	< .001

Figure 4.13: Proficiency and Performance on Non-alternating Unaccusatives



In order to identify the nature of differences, multiple comparison procedures were also conducted using the Tukey post-hoc test. The results indicated that the control group was statistically significantly different from both the Low and the Intermediate groups (Natives > Low: $p < .001$; Natives > Intermediate: $p < .001$), but not from the Advanced group ($p = .260$). On the other hand, the experimental proficiency groups were significantly different from one another: Low < Intermediate: $p < .001$; Low < Advanced: $p < .001$; Intermediate < Advanced: $p = .023$.

The following table summarizes the one-way ANOVA analyses of the proficiency groups' performances on the three different unaccusative verb types discussed above.

Table 4.13: One-Way ANOVA - Proficiency and Performance on the three Unaccusative Verb Types

	Experimental Group						Control Group			
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
Verb Type	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Type-1 Alt.	64.15	10.39	70.68	12.10	73.03	13.53	99.38	2.06	51.52	< .001
Type-2 Alt.	72.27	14.57	78.46	11.97	87.25	10.48	97.68	4.32	26.44	< .001
Non-alt.	68.12	17.56	84.62	14.69	93.30	9.73	100	.00	33.12	< .001

For further examination of the proficiency groups' performances on the unaccusative items, the five item scenarios for each verb type were considered.

4.5.2.2 Proficiency and Performance on Unaccusatives by Scenario

4.5.2.2.1 Proficiency and Performance on Type-1 Alternating Unaccusatives by Scenario

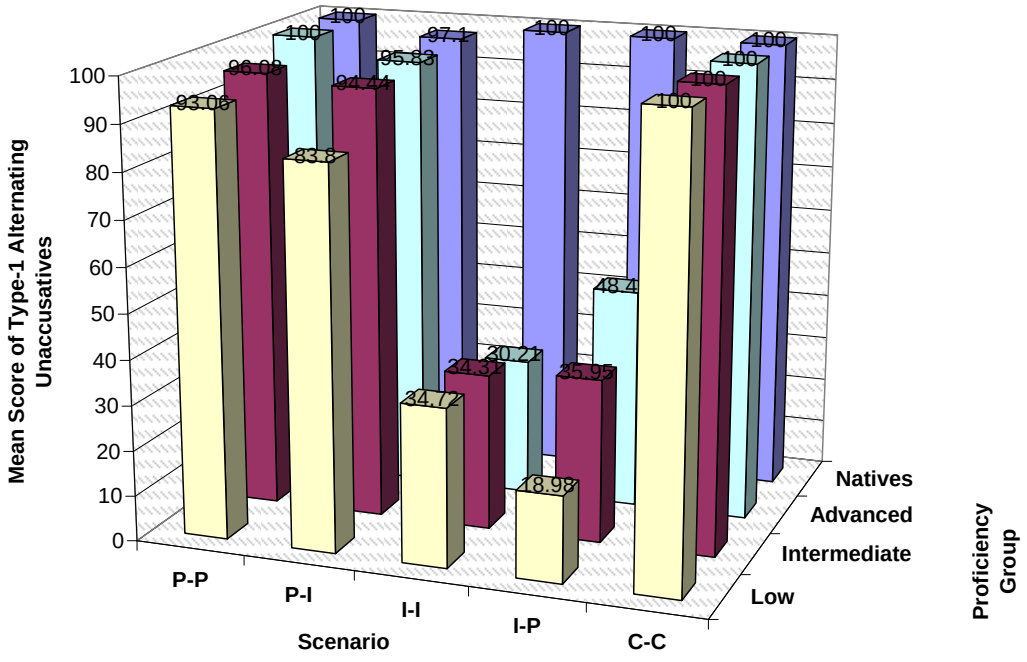
The proficiency groups' performances on the type-1 alternating unaccusative items by scenario were examined using one-way ANOVAs. The results of these analyses are presented in Table 4.14 and Figure 4.14.

Table 4.14: One-Way ANOVA – Proficiency and Performance on Type-1 Alternating Unaccusatives by Scenario

Scenario	Experimental Group									
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		Control Group (n = 23)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
P-P	93.06	21.22	96.08	13.56	100	.00	100	.00	2.02	.115
P-I	83.80	24.72	94.44	13.19	95.83	14.04	97.10	9.60	4.53	.005
I-I	34.72	30.44	34.31	33.07	30.21	30.95	100	.00	33.91	< .001
I-P	18.98	29.59	35.95	38.64	48.44	38.65	100	.00	29.89	< .001
C-C	100	.00	100	.00	100	.00	100	.00	†	†

† The *F*-ratio could not be computed in the C-C scenario because the standard deviations of all proficiency groups were 0.

Figure 4.14: Proficiency and Performance on Type-1 Alternating Unaccusatives by Scenario



The results revealed no statistically significantly differences between mean scores in the P-P and C-C scenarios. In the P-P scenario, the *F* and *p* values were: *F* (3, 138) =

2.015, $p = .115$, whereas all proficiency groups performed perfectly on the items of the C-C scenario of this subclass of verbs (Low = Intermediate = Advanced = Natives, $M = 100$).

However, the proficiency groups were significantly different in the P-I, I-I, and I-P scenarios (P-I scenario: $F(3, 138) = 4.53$, $p = .005$; I-I scenario: $F(3, 138) = 33.91$, $p < .001$; I-P scenario: $F(3, 138) = 29.89$, $p < .001$). Therefore, multiple comparison procedures using the Tukey post-hoc test were conducted in order to identify the differences across proficiency groups in these three scenarios. The results were as follows.

In the P-I scenario, the control group was significantly different from the Arab Low proficiency group (Natives > Low: $p = .017$), but not from either the Intermediate or the Advanced group (Natives/Intermediate: $p = .920$; Natives/Advanced: $p = .992$). On the other hand, when comparing the Arab proficiency groups with one another, it was found that the Low group was significantly different from both the Intermediate and the Advanced groups (Low < Intermediate: $p = .020$; Low < Advanced: $p = .018$), but the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: $p = .983$).

In the I-I scenario, the control group was significantly different ($p < .001$) from the three Arab proficiency groups: Natives > Low; Natives > Intermediate; Natives > Advanced. However, the Arab groups were not significantly different from one another: Low/Intermediate: $p = 1.000$; Low/Advanced $p = .919$; Intermediate/Advanced: $p = .924$.

In the I-P scenario, the control group was significantly different ($p < .001$) from all Arab proficiency groups: Natives > Low; Natives > Intermediate; Natives > Advanced. With respect to the Arab groups, the Intermediate group was not significantly different from either the Low or the Advanced group (Intermediate/Low: $p = .092$; Intermediate/ Advanced: $p = .343$); however, the Low group was significantly different from the Advanced group (Low < Advanced: $p = .002$).

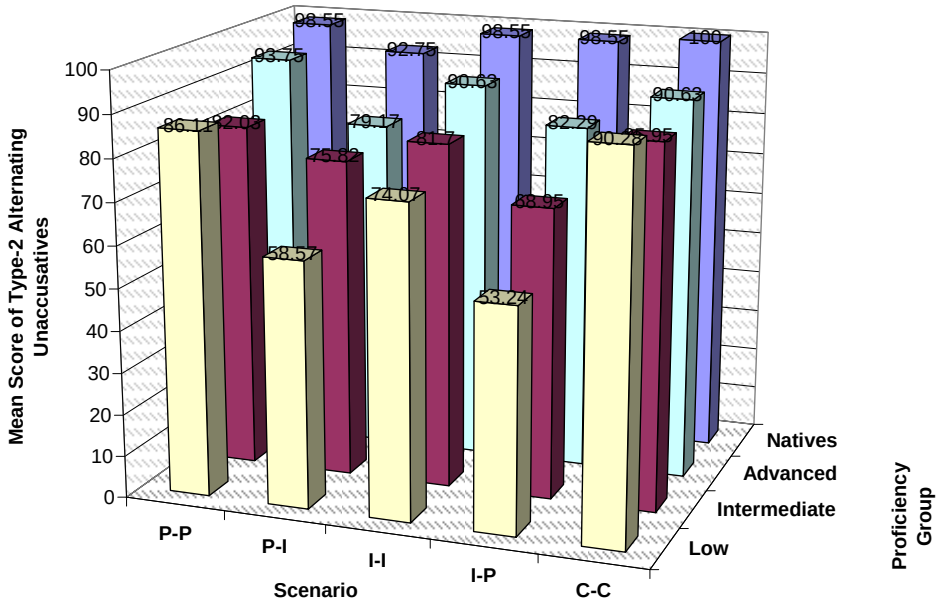
4.5.2.2.2 Proficiency and Performance on Type-2 Alternating Unaccusative by Scenario

One-way ANOVAs were conducted to test the effect of English proficiency on performance on the type-2 alternating unaccusative items by scenario. The results of these analyses are presented in Table 4.15 and Figure 4.15.

Table 4.15: One-Way ANOVA - Proficiency and Performance on Type-2 Alternating Unaccusatives by Scenario

Scenario	Experimental Group						Control Group (n = 23)			
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)					
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
P-P	86.11	22.71	82.03	22.57	93.75	13.22	98.55	6.95	5.10	.002
P-I	58.57	35.09	75.82	23.88	79.17	16.40	92.75	14.06	9.50	< .001
I-I	74.07	28.58	81.70	25.00	90.63	15.23	98.55	6.95	6.79	< .001
I-P	53.24	39.20	68.95	31.98	82.29	25.38	98.55	6.95	11.93	< .001
C-C	90.28	17.98	85.95	19.26	90.63	17.42	100	.00	3.67	.014

Figure 4.15: Proficiency and Performance on Type-2 Alternating Unaccusatives by Scenario



The one-way ANOVAs revealed inequality of mean scores in the five scenarios: P-P scenario: F (3, 138) = 5.10, p < .002; P-I scenario: F = 9.50, p < .001; I-I scenario: F = 6.79, p < .001; I-P scenario: F = 11.93, p < .001; C-C scenario: F = 3.67, p = .014. The nature of the relationships between the proficiency groups was determined through multiple comparison procedures using the Tukey post-hoc test.

In the P-P scenario, the control group was statistically significantly different from the Intermediate group (Natives > Intermediate: p = .004), but not from the Low or Advanced group (Natives/Low: p = .073; Natives/Advanced: p = .793). In addition, the Low group was not significantly different from either the Intermediate or the Advanced group (Low/Intermediate: p = .758; Low/Advanced: p = .353), and the Intermediate

group was significantly different from the Advanced group (Intermediate < Advanced: p = .036).

In the P-I scenario, the control group was statistically significantly different from both the Low and the Intermediate groups (Natives > Low: p < .001; Natives > Intermediate: p = .035), but not from the Advanced group (Natives/Advanced: p = .186). With respect to the experimental proficiency groups, the Low group was significantly different from both the Intermediate and the Advanced groups (Low < Intermediate: p = .009; Low < Advanced: p = .005), but the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: p = .931).

In the I-I scenario, the control group was statistically significantly different from both the Low and the Intermediate groups (Natives > Low: p < .001; Natives > Intermediate: p = .016), but not from the Advanced group (Natives/Advanced: p = .561). While the Intermediate group was not significantly different from either the Low or the Advanced group (Intermediate/Low: p = .395; Intermediate/Advanced: p = .286), the Low group was significantly different from the Advanced group (Low < Advanced: p = .014).

In the I-P scenario, the control group was statistically significantly different from both the Low and the Intermediate groups (Natives > Low: p < .001; Natives > Intermediate: p = .001), but not from the Advanced group (Natives/Advanced: p = .205). While the Intermediate group was not significantly different from either the Low or the Advanced group (Intermediate/Low: p = .084; Intermediate/Advanced: p = .209), the

Low group was significantly different from the Advanced group (Low < Advanced: p = .001).

Finally, in the C-C scenario, the control group was statistically significantly different from the Intermediate group (Natives > Intermediate: p = .006), but not from either Low or Advanced group (Natives/Low: p = .140; Natives/Advanced: p = .181). The Arab proficiency groups, however, were not significantly different from one another (Low/Intermediate: p = .641; Low/Advanced: p = 1.000; Intermediate/Advanced: p = .609).

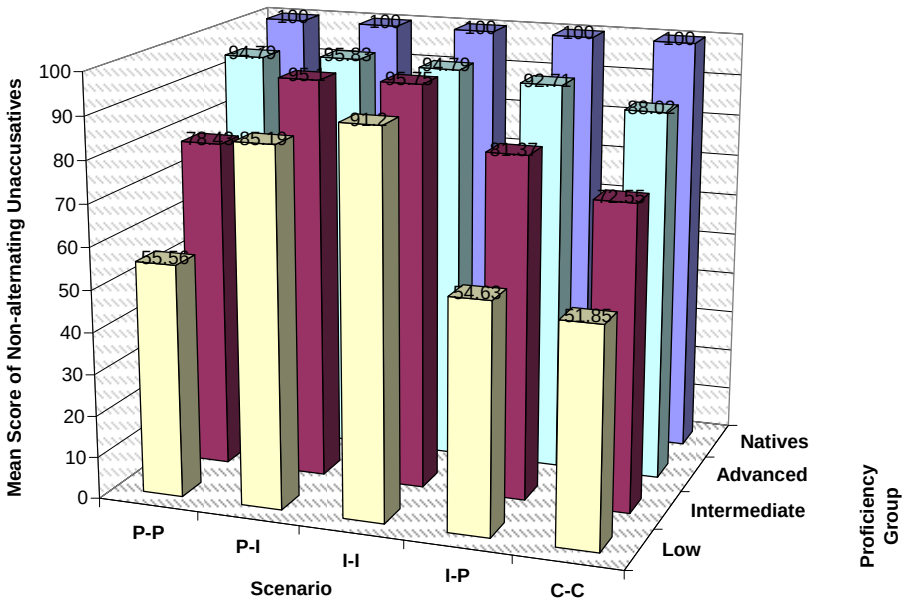
4.5.2.2.3 Proficiency and Performance on Non-alternating Unaccusatives by Scenario

One-way ANOVA analyses were performed to test for inequality of percent correct mean scores across proficiency groups with respect to performance in the five scenarios involving the non-alternating unaccusatives. The results revealed statistical significance: P-P scenario: F (3, 138) = 19.37, p < .001; P-I scenario: F = 5.66, p = .001; I-I scenario: F = 2.53, p = .060; I-P scenario: F = 17.99, p < .001; C-C scenario: F = 19.91, p < .001. Results from one-way ANOVAs are presented in Table 4.16 and Figure 4.16.

Table 4.16: One-Way ANOVA – Proficiency and Performance on Non-alternating Unaccusatives by Scenario

Scenario	Experimental Group						Control Group			
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
P-P	55.56	38.01	78.43	26.31	94.79	12.30	100	.00	19.37	< .001
P-I	85.19	21.74	95.10	14.26	95.83	11.20	100	.00	5.66	.001
I-I	91.20	15.68	95.75	11.95	94.79	12.30	100	.00	2.53	.060
I-P	54.63	38.96	81.37	26.38	92.71	16.36	100	.00	17.99	< .001
C-C	51.85	32.07	72.55	28.83	88.02	20.84	100	.00	19.91	< .001

Figure 4.16: Proficiency and Performance on Non-alternating Unaccusatives by Scenario



The one-way ANOVA tests were followed by multiple comparison procedures using the Tukey post-hoc test in order to determine the nature of relationships across proficiency levels in the five scenarios of non-alternating unaccusative items. The results were as follows.

In the P-P scenario, the control group was statistically significantly different from both the Arab Low and the Intermediate groups (Natives > Low: $p < .001$; Natives > Intermediate: $p = .005$), but not from the Advanced group (Natives/Advanced: $p = .878$). On the other hand, the three Arab proficiency groups were significantly different from one another: Low < Intermediate: $p < .001$; Low < Advanced: $p = .001$; Intermediate < Advanced: $p = .026$.

In the P-I scenario, the control group was statistically significantly different from the Low group (Natives > Low: $p = .002$), but not from either the Intermediate or the Advanced group (Natives/Intermediate: $p = .558$; Natives/Advanced: $p = .736$). The Low group was significantly different from both the Intermediate and the Advanced groups (Low < Intermediate: $p = .014$; Low < Advanced: $p = .020$); however, the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: $p = .996$).

In the I-I scenario, the control group was statistically significantly different from the Low group (Natives > Low: $p = .038$), but not from either the Intermediate or the Advanced group (Natives/Intermediate: $p = .508$; Natives/Advanced: $p = .401$). The three experimental groups, however, were not statistically significantly different from one another (Low/Intermediate: $p = .319$; Low/Advanced: $p = .619$; Intermediate/Advanced: $p = .985$).

In the I-P scenario, the control group was statistically significantly different from both the Low and Intermediate groups (Natives > Low: $p < .001$; Natives > Intermediate: $p = .029$), but not from the Advanced group (Natives/Advanced: $p = .744$). On the other

hand, while the Low group was significantly different from both the Intermediate and Advanced groups (Low < Intermediate: $p < .001$; Low < Advanced: $p < .001$), the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: $p = .231$).

Finally, in the C-C scenario, the control group was statistically significantly different from both the Low and Intermediate groups (Natives > Low: $p < .001$; Natives > Intermediate: $p < .001$), but not from the Advanced group (Natives/Advanced: $p = .324$). With regard to the relationships between the Arab proficiency groups, they were significantly different from one another: Low < Intermediate: $p = .002$; Low < Advanced: $p < .001$; Intermediate < Advanced: $p = .042$.

4.5.3 Proficiency and Unaccusative-Unergative Distinction

In order to examine the effect of ANSs' English proficiency on their sensitivity to the sensitivity to the unaccusativity-unergativity distinction in English (RQ #2), the following analyses were conducted.

A one-way ANOVA test was performed on the proficiency groups' percent correct responses to the unergative verb items. The results indicated statistically significant differences amongst proficiency groups (F (3, 138) = 20.67, $p < .001$). The one-way ANOVA A was followed by a multiple comparison procedure using the Tukey post-hoc test to determine the nature of the relationships between the proficiency groups; statistically significant differences were observed between these groups: The control group was statistically significantly different from both the Low and Intermediate groups

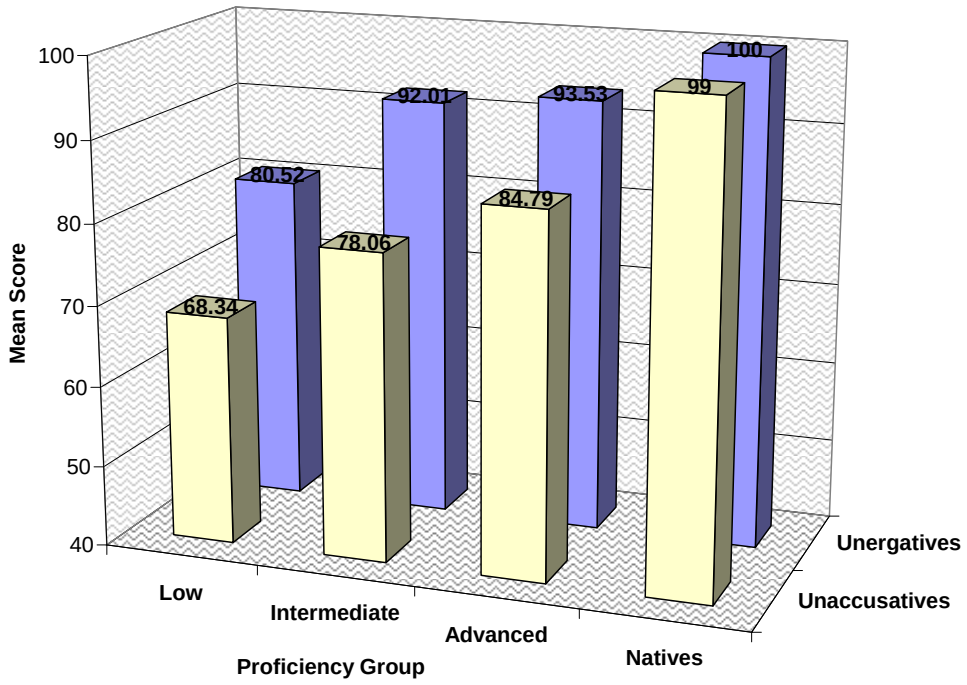
(Natives > Low: $p < .001$; Natives > Intermediate: $p = .009$), but not from the Advanced group (Natives/Advanced: $p = .083$). Regarding the experimental groups, results indicated that the Low group was significantly different from both the Intermediate and Advanced groups (Low < Intermediate: $p < .001$; Low < Advanced: $p < .001$); however, the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: $p = .904$).

The proficiency groups' performances on the unergative items were compared to their performances on unaccusatives analyzed above. Table 4.17 and Figure 4.17 compare between the proficiency groups' performances on the unaccusatives (reproduced from Table 4.9) and that on the unergatives.

Table 4.17: One-Way ANOVA – Proficiency and Performance on Unaccusatives and Unergatives

Verb Class	Experimental Group						Control Group (n = 23)			
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)					
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Unaccusatives	68.34	10.14	78.06	9.04	84.79	8.06	99	1.51	66.44	< .001
Unergatives	80.52	14.56	92.01	9.11	93.53	7.85	100	.00	20.67	< .001

Figure 4.17: Proficiency and Performance on Unaccusatives and Unergatives

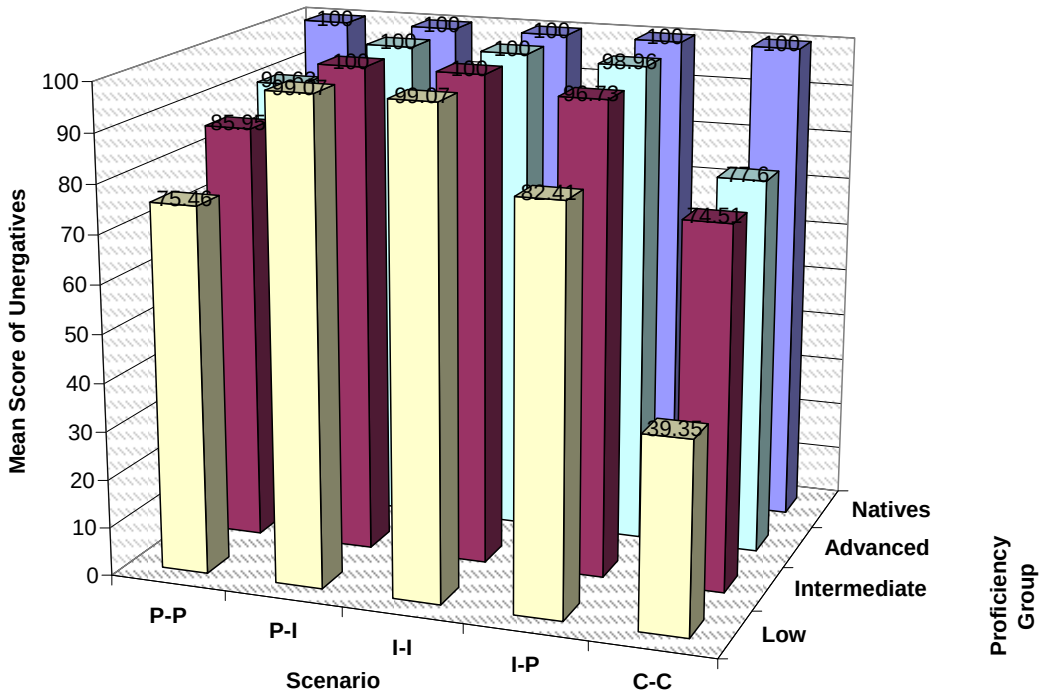


In Section 4.5.2.2 above, the participating proficiency groups' performances on the unaccusative items by scenario were analyzed. Similar analyses were performed to examine how well the proficiency groups performed on the unergative items by the five scenarios. The results from one-way ANOVAs indicated that there were no statistically significant differences between the percent correct mean scores of the proficiency groups in the P-I and I-I scenarios (P-I scenario: F (3, 138) = .981, p = .404; I-I scenario: F (3, 138) = .981, p = .404). However, the proficiency groups were significantly different in the P-P, I-P, and C-C scenarios (P-P scenario: F (3, 138) = 7.15, p < .001; I-P scenario: F (3, 138) = 7.76, p < .001; C-C scenario: F (3, 138) = 19.62, p < .001). The results are presented in Table 4.18 and Figure 4.18.

Table 4.18: One-Way ANOVA – Proficiency and Performance on Unergatives by Scenario

Scenario	Experimental Group						Control Group		*F*	*p*
	Low (*n* = 36)		Intermediate (*n* = 51)		Advanced (*n* = 32)		(*n* = 23)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*		
P-P	75.46	28.59	85.95	19.26	90.63	19.37	100	.00	7.15	< .001
P-I	99.07	5.56	100	.00	100	.00	100	.00	.981	.404
I-I	99.07	5.56	100	.00	100	.00	100	.00	.981	.404
I-P	82.41	28.16	96.73	15.28	98.96	5.89	100	.00	7.76	< .001
C-C	39.35	38.45	74.51	32.89	77.60	30.41	100	.00	19.62	< .001

Figure 4.18: Proficiency and Performance on Unergatives by Scenario



In order to identify the differences across proficiency groups in the three scenarios with significant *F*-ratios (i.e. the P-P, I-P, and C-C scenarios), multiple comparison procedures had to be conducted; the Tukey post-hoc tests revealed the following results.

In the P-P scenario, the control group was significantly different from both Arab Low and Intermediate proficiency groups (Natives > Low: $p < .001$; Natives > Intermediate: $p = .037$), but not from the Advanced group (Natives/Advanced: $p = .384$). On the other hand, when comparing the Arab proficiency groups with one another, it was found that the Intermediate group was not significantly different from either the Low or the Advanced group (Intermediate/Low: $p = .095$; Intermediate/Advanced: $p = .747$), but the Low group was significantly different from the Advanced group (Low < Advanced: $p = .016$).

In the I-P scenario, the control group was significantly different from the Low group (Advanced > Low: $p = .001$), but not from either the Intermediate or the Advanced group (Natives/Intermediate: $p = .872$; Natives/Advanced: $p = .996$). When comparing the Arab proficiency groups with one another, it was found that the Low group was significantly different from both the Intermediate and Advanced groups (Low < Intermediate: $p = .001$; Low < Advanced: $p = .001$), but the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: $p = .939$).

In the C-C scenario, the control group was significantly different from all three Arab proficiency groups (Natives > Low: $p < .001$; Natives > Intermediate: $p = .008$; Natives > Advanced: $p = .047$). However, comparing the Arab proficiency groups with one another indicated that the Low group was significantly different from both

Intermediate and Advanced groups (Low < Intermediate: $p < .001$; Low < Advanced: < .001), but the Intermediate group was not significantly different from the Advanced group (Intermediate/Advanced: $p = .972$).

4.5.4 Interaction of English Proficiency and Language Transfer

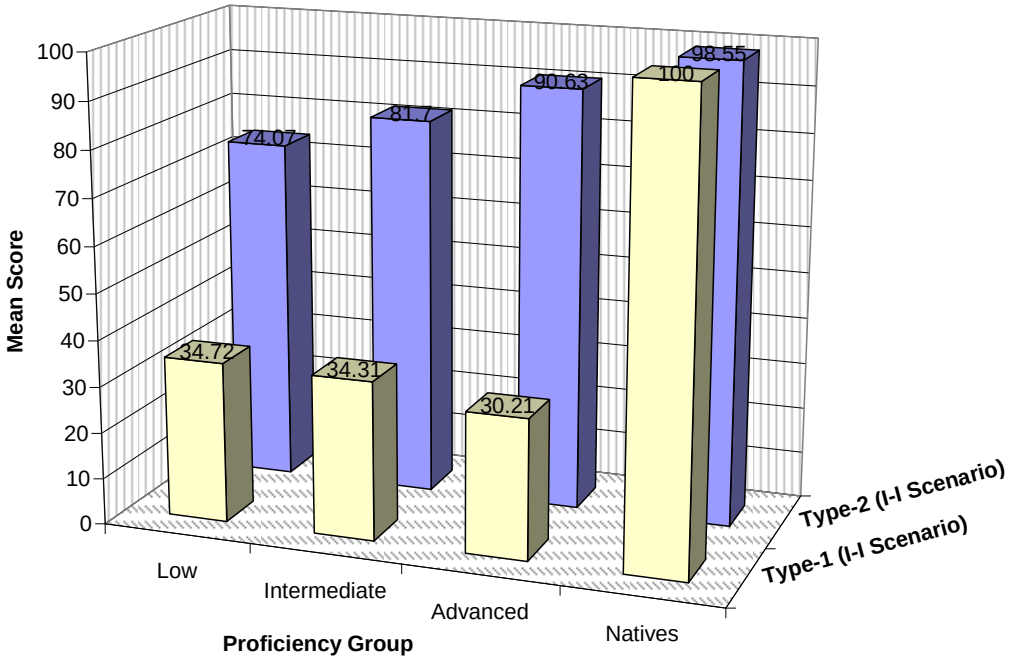
In Section 4.4, it was argued that language transfer played a significant role in the experimental group's discrepancy in performance on the type-1 and type-2 alternating unaccusative items in the I-I scenario and the non-alternating unaccusative items in the P-P and C-C scenarios. There are significant differences between English and Arabic with respect to how the two languages encode the alternating verbs addressed in these scenarios. In this section, the same items are analyzed to examine the interaction of English proficiency and L1 transfer, that is, whether a higher proficiency level predicts a higher degree of 'recovery' from the influence of mother tongue.

The proficiency groups' performances on the type-1 and type-2 alternating unaccusative items in the I-I scenario were analyzed using one-way ANOVAs and Tukey post-hocs. The results are reproduced in Table 4.19 and Figure 4.19.

Table 4.19: One-Way ANOVA – Proficiency and Performance on Alternating Unaccusatives by I-I Scenario

Verb Type	Experimental Group						Control Group			
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
Type-1 Alternating	34.72	30.44	34.31	33.07	30.21	30.95	100	.00	33.91	< .001
Type-2 Alternating	74.07	28.58	81.70	25.00	90.63	15.23	98.55	6.95	6.79	< .001

Figure 4.19: Proficiency and Performance on Alternating Unaccusatives by I-I Scenario



The results revealed that in the I-I scenario of the type-1 alternating unaccusatives, the control group was significantly different ($p < .001$) from the three Arab proficiency groups: Natives > Low; Natives > Intermediate; Natives > Advanced. However, the Arab groups were not significantly different from one another: Low/Intermediate: $p = 1.000$; Low/Advanced $p = .919$; Intermediate/Advanced: $p = .924$. On the other hand, in the I-I scenario of type-2 alternating unaccusatives, the control group was statistically significantly different from both the Low and Intermediate groups (Natives > Low: $p < .001$; Natives > Intermediate: $p = .016$), but not from the Advanced group (Natives/Advanced: $p = .561$). Moreover, while the Intermediate group was not significantly different from either the Low or the Advanced group (Intermediate/Low: $p =$

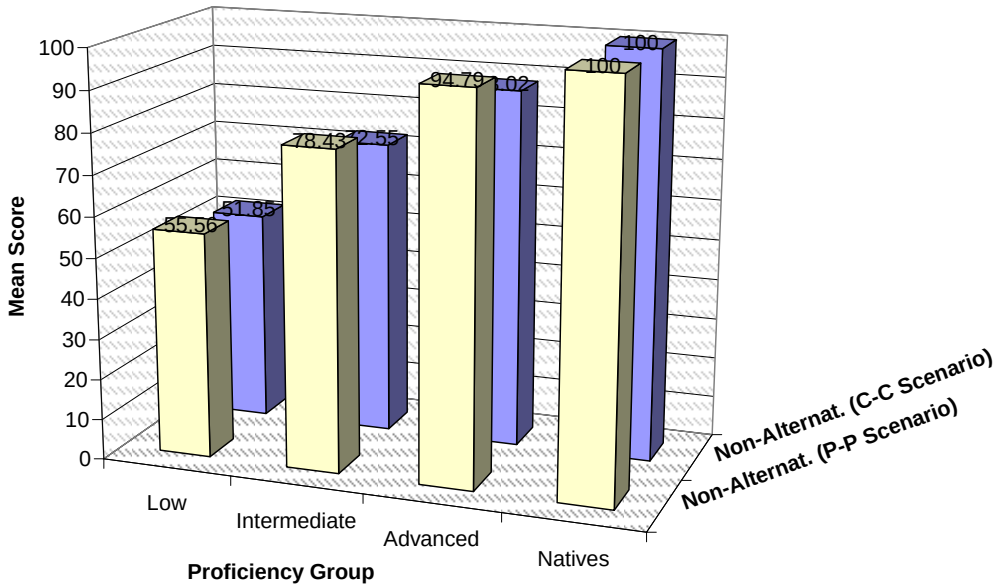
.395; Intermediate/Advanced: $p = .286$), the Low group was significantly different from the Advanced group (Low < Advanced: $p = .014$).

Similarly, one-way ANOVA and Tukey post-hoc tests were conducted to analyze the proficiency groups' performances on the non-alternating unaccusative items in the P-P and C-C scenarios. The results are reproduced in Table 4.20 and Figure 4.20.

Table 4.20: One-Way ANOVA – Proficiency and Performance on Non-alternating Unaccusatives by the P-P and C-C Scenarios

Scenario	Experimental Group						Control Group			
	Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
	M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
P-P	55.56	38.01	78.43	26.31	94.79	12.30	100	.00	19.37	< .001
C-C	51.85	32.07	72.55	28.83	88.02	20.84	100	.00	19.91	< .001

Figure 4.20: Proficiency and Performance on Non-alternating Unaccusatives by P-P and C-C Scenarios



The results indicated that in both scenarios, the control group was statistically significantly different from both the Arab Low and the Intermediate groups (P-P scenario: Natives > Low: $p < .001$; Natives > Intermediate: $p = .005$; C-C scenario: (Natives > Low: $p < .001$; Natives > Intermediate: $p < .001$), but not from the Advanced group (P-P scenario: Natives/Advanced: $p = .878$; C-C scenario: Natives/Advanced: $p = .324$). On the other hand, the three Arab proficiency groups were significantly different from one another in both scenarios (P-P scenario: Low < Intermediate: $p < .001$; Low < Advanced: $p = .001$; Intermediate < Advanced: $p = .026$; C-C scenario: Low < Intermediate: $p = .002$; Low < Advanced: $p < .001$; Intermediate < Advanced: $p = .042$).

Clear trends of development towards target-like behavior can be seen in the Arab proficiency groups' performances on the items of the I-I scenario of the type-2 alternating unaccusatives as well as the P-P and C-C scenarios of the non-alternating unaccusatives despite the fact that these items showed evidence of being influenced by language transfer. In other words, as proficiency increases, 'recovery' from the influence of L1 transfer also increases. However, the three Arab proficiency groups were not significantly different from one another in judgment of the I-I scenario items of the type-1 alternating unaccusatives. Regardless of proficiency level, most Arab participants failed to accept the well-formedness of inchoatives, favoring the passive instead. It is argued that language transfer works at a high degree in this particular scenario.

4.6 Additional Analyses

Three further issues were also worth investigation: (i) whether the Arab participants' English proficiency related to their indeterminate judgments, (ii) whether the Palestinian undergraduate participants performed on the AJC task differently from the Palestinian school teachers, and (iii) whether those who had the experience of studying English in an ESL setting performed differently from those who studied English solely in an EFL context.

4.6.1 English Proficiency and Degree of Indeterminacy

Each of the AJC task items had an underlined part, which the participants were required to judge as acceptable or unacceptable in terms of grammaticality and meaning within the context provided. In addition, the participants had to provide corrections for the items they judged as unacceptable. However, if unable to make a judgment, the participants were instructed to leave the space blank. In Section 3.4.3, three types of indeterminate judgments were discussed: a space was left blank, a space was marked with a cross but no correction was supplied, and a space was marked with a cross followed by a correction that was not possible to interpret. In this section, the participant' indeterminate judgments are examined with respect to their levels of English proficiency.

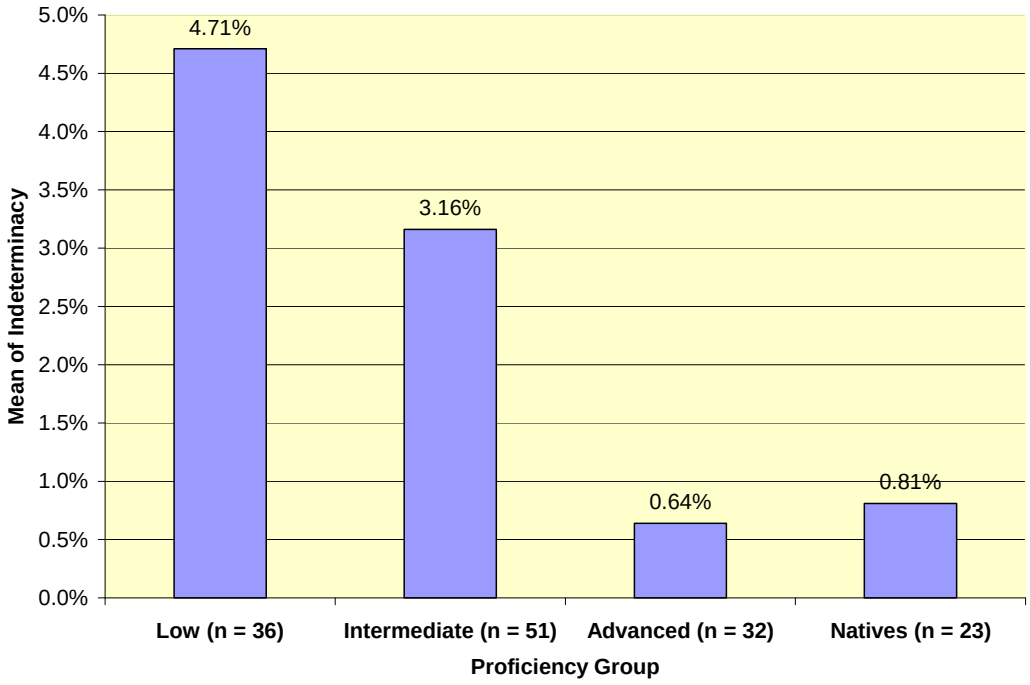
The participants' indeterminate judgments were calculated as percentages and coded as a new dependent variable. A one-way ANOVA was performed on this variable to investigate if there was a statistically significant difference amongst the proficiency groups. A significant *F*-ratio was yielded (F (3, 138) = 7.88, $p < .001$), indicating that

there were statistically significant mean differences among the proficiency groups with respect to their indeterminate judgments. The results are presented in Tables 4.21 and Figure 4.21.

Table 4.21: One-Way ANOVA – Proficiency Groups' Indeterminate Judgments

Experimental Group						Control Group			
Low (n = 36)		Intermediate (n = 51)		Advanced (n = 32)		(n = 23)			
M	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*	*F*	*p*
4.71	5.56	3.16	4.55	.64	1.03	.81	1.13	7.88	< .001

Figure 4.21: Proficiency Groups' Indeterminate Judgments



In order to identify the nature of differences in indeterminacy between the proficiency groups, multiple comparison procedures using the Tukey post-hoc test were

performed. The results indicated that the control group was statistically significantly different from the Low group (Natives > Low, $p = .002$), but not from either the Intermediate or the Advanced groups (Naives/Intermediate: $p = .091$; Natives/Advanced: $p = .999$). When comparing the Arab proficiency groups with one another, however, it was found that the Advanced group was significantly different from both the Low and Intermediate groups (Advanced > Low: $p < .001$; Advanced > Intermediate: $p = .028$), but the Low group was not significantly different from the Intermediate group (Low/Intermediate: $p = .281$). These results corroborate the hypothesis that indeterminacy decreases as language proficiency grows (Davies & Kaplan, 1998).

4.6.2 EFL Undergraduates vs. School EFL Teachers

Two EFL groups with distinct demographics participated in the present study: Palestinian undergraduates majoring in English ($n = 71$) and Palestinian School EFL Teachers ($n = 48$). The school teachers experienced the process of learning English as an additional language and also shared the same language and cultural background as their students. Sharing such attributes is an advantage as it enables teachers to anticipate their students' linguistic problems (Phillipson, 1996). However, one argument advanced in the present study is that, despite their considerable degree of proficiency, Arab EFL instructors may not model certain English structures in their classrooms, such as the causative-inchoative alternation. In order to test this argument, an analysis of the performance of the two EFL participating groups was conducted.

4.6.2.1 EFL Undergraduates' and Teachers' English Proficiency

The following table presents the distribution of the two EFL participating groups with respect to their levels of English proficiency.

Table 4.22: EFL Undergraduates' and Teachers' English Proficiency

Proficiency Level	EFL Undergraduates (n = 71)	EFL Teachers (n = 48)
Low	$n = 28$	$n = 8$
Intermediate	$n = 31$	$n = 20$
Advanced	$n = 12$	$n = 20$

4.6.2.2 EFL Undergraduates' and Teachers' Performances on Unaccusatives

A two-sample *t*-test was performed to compare the mean score of the undergraduates' correct responses to the unaccusative items with that of the teachers'. The results revealed unequal group variances (Levene's Test: $F = 8.34$, $df = 1$, $p = .005$) and significant differences between mean scores ($t = 2.09$, $df = 116.719$, $p = .039$). The two groups' percent correct mean scores and standard deviations are presented in Table 4.23.

Table 4.23: EFL Undergraduates' and Teachers' Mean Scores and Standard Deviations of Unaccusatives

Group	Mean	Std. Deviation
EFL Undergraduates (n = 71)	75.32	12.21
EFL Teachers (n = 48)	79.32	8.64

Similarly, two-sample t-tests were used to determine if there were statistically significant differences between the two groups' mean scores on unaccusatives by verb

type (type-1 alternating, type-2 alternating, and non-alternating). The results are summarized I Table 4.24.

Table 4.24: Independent Samples *t*-Test – EFL Undergraduates' and Teachers' Performances on Unaccusatives by Verb Type

Verb Type	EFL Undergraduates (n = 71)		EFL Teachers (n = 48)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
Type-1 Alternating	70.14	12.79	68.15	11.94	.51	.476	.86 (117)†	.394
Type-2 Alternating	77.03	14.11	81.80	12.40	.73	.396	-1.90 (117)†	.060
Non-alternating	78.38	19.69	87.27	11.76	18.12	< .001	-3.08 (115.480)††	.003

† Equal variances were assumed ($df = n - 1$).
†† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.

The results revealed equal group variances and no significant differences between mean scores of the undergraduate and teacher groups with respect to their performances on the type-1 alternating unaccusatives (t = .86, df = 117, p = .394) and the type-2 alternating unaccusatives (t = -1.90, df = 117, p = .060). However, the teachers performed significantly differently from the undergraduates on the non-alternating unaccusatives (Teachers > Undergraduates: t = -3.08, df = 115.480, p = .003). The two groups' performances on the non-alternating unaccusatives were further investigated with respect to the five scenarios. The results from the two-sample *t*-test analyses are presented in Table 4.25.

Table 4.25: Independent Samples *t*-Test – EFL Undergraduates' and Teachers' Performances on Non-alternating Unaccusatives by Scenario

Scenario	EFL Undergraduates (n = 71)		EFL Teachers (n = 48)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	68.08	35.16	87.50	20.19	23.90	< .001	-3.82 (114.411)†	< .001
P-I	90.85	18.21	94.44	14.31	5.18	.025	-1.20 (114.271)†	.231
I-I	93.43	14.22	95.14	11.89	2.14	.147	-.69 (117)††	.493
I-P	71.36	36.53	83.68	23.19	11.01	.001	-2.25 (116.611)†	.026
C-C	67.14	33.45	75.35	26.63	3.27	.073	-1.42 (117)††	.158

† Equal variances were not assumed, so the degrees of freedom were calculated from the actual variances and the sample sizes in the groups.
†† Equal variances were assumed ($df = n - 1$).

The results showed unequal group variances for the P-P, P-I, and I-P scenarios of the non-alternating unaccusatives (Levene's Test: the P-P scenario: $F = 23.90$, $p < .001$; the P-I scenario: $F = 5.18$, $p = .025$; the I-P scenario: $F = 11.01$, $p = .001$), but equal group variances for the I-I and C-C scenarios (Levene's Test: the I-I scenario: $F = 2.14$, $p = .147$; the C-C scenario: $F = 3.27$, $p = .073$). In addition, statistically significant differences in group mean scores were found for the P-P and I-P (the P-P scenario: Teachers > Undergraduates, $t = 3.82$, $df = 114.411$, $p < .001$; the I-P scenario: Teachers > Undergraduates, $t = 2.25$, $df = 116.611$, $p = .026$); however, no statistically significant differences were found between the two groups' mean scores with respect to the other three scenarios (the P-I scenario: Teachers/Undergraduates, $t = 1.20$, $df = 114.271$, $p = .231$; the I-I scenario: Teachers/Undergraduates, $t = .69$, $df = 117$, $p = .493$; the C-C scenario: Teachers/Undergraduates, $t = 1.422$, $df = 117$, $p = .158$).

4.6.2.3 EFL Undergraduates' and Teachers' Performances on Unergatives

The two EFL groups' performances on the unergative verb items were also examined, using a two-sample t-test. The results indicated that the variances of the two groups were significantly different (Levene's Test: $F = 9.56$, $df = 1$, $p = .002$). Therefore, equal variances were not assumed. However, the differences in the two means were still significant ($t = -3.11$, $df = 115.125$, $p = .002$). On average, the undergraduates responded correctly to 86.44% of the unergative items ($SD = 13.66$), whereas the teachers responded correctly to 92.64% of these items ($SD = 8.05$). The two groups' performances on unergatives by scenario were further investigated using two-sample *t*-test analyses. The results are presented in Table 4.26.

Table 4.26: Independent Samples *t*-Test – EFL Undergraduates' and Teachers' Performances on Unergatives by Scenario

Scenario	EFL Undergraduates ($n = 71$)		EFL Teachers ($n = 48$)		Levene's Test for Equality of Variances		*t*-test for Equality of Means	
	M	*SD*	*M*	*SD*	*F*	*p*	*t* (*df*)	*p*
P-P	80.52	25.66	89.24	17.70	12.86	< .001	-2.19 (116.939)	.030
P-I	99.53	3.96	100	.00	2.78	.098	-1.00 (70)	.321
I-I	99.53	3.96	100	.00	2.78	.098	-1.00 (70)	.321
I-P	90.14	23.50	97.22	11.57	15.78	< .001	-2.18 (108.453)	.032
C-C	56.81	40.49	76.39	29.94	9.23	.003	-3.03 (116.005)	.003

The results showed unequal group variances and significant differences between the two groups' mean scores (Teachers > Undergraduates) for the P-P, I-P, and C-C scenarios of the unaccusative items (the P-P scenario: Levene's Test: $F = 12.86$, $p < .001$, $t = 2.19$, $df = 116.939$, $p = .030$; the I-P scenario: Levene's Test: $F = 15.78$, $p < .001$, $t =$

2.18, *df* = 108.453, *p* = .032; the C-C scenario: Levene's Test: *F* = 9.23, *p* = .003, *t* = 3.03, *df* = 116.005, *p* = .003), but equal group variances and no significant differences between the two groups' mean scores for both the P-I and the I-I scenarios (the P-I scenario and the I-I scenario: Levene's Test: *F* = 2.78, *p* = .098, *t* = 1.00, *df* = 70, *p* = .321).

4.6.3 ESL Experience

ESL refers to learning English (by non-native speakers of English) in an English speaking country like the USA and UK, whereas EFL refers to learning English in a non-English speaking country such as Palestine, the site of this dissertation project.

As noted earlier, the Arab participants (*n* = 119) were either EFL undergraduates studying English in an EFL context or school EFL Teachers who also had studied English in an EFL context. However, an inspection of the participants' demographic information indicated that two Arab participants had the experience of staying in an English-speaking country: one participant (Participant #86) had stayed in India for 6 years and the other (Participant #110) in the USA for 15 years, and while staying there, they had courses in English language where the teacher was a native speaker of English. The first participant had a cloze score of 34 and was classified as 'Advanced', whereas the other had a cloze score of 25 and was classified as 'Intermediate'. The two participants' performances on the AJC task were examined; their percent correct scores on the task items by verb class and verb type are presented in Table 4.27.

Table 4.27: Performance on Items by Verb Class and Type (Participants #86, #110)

Verb Class/Type	Participant #86	Participant #110
Unaccusatives	84.09	72.73
Unergatives	86.67	100
Type-1 Alternating Unaccusatives	57.14	57.14
Type-2 Alternating Unaccusatives	93.33	73.33
Non-alternating Unaccusatives	100	86.67

The results indicated that the type-1 alternating unaccusatives posed the greatest issue for the two participants. The two participants' performances on this verb type by scenario were further analyzed; the results are presented in Table 4.28.

Table 4.28: Performance on Type-1 Alternating Items by Scenario (Participants #86, #110)

Scenario	Participant #86	Participant #110
P-P	100	100
P-I	100	100
I-I	0	0
I-P	0	0
C-C	100	100

As can be seen, while both participants did very well on the P-P, P-I, and C-C scenarios of the type-1 alternating unaccusatives, they, interestingly, failed to provide correct judgments for any item in the I-I or I-P scenario, (the scenario that posed the greatest learnability problem for the Arab participants overall).

4.7 Summary

The data obtained from the acceptability judgment and correction task were examined; the task items were analyzed by verb class, verb type, and scenario. Several descriptive and inferential statistical analyses were performed, and the results revealed significant support for the hypotheses addressed by the central research questions. Three further issues were also investigated: the relation between the Arab participants' English proficiency and their indeterminate judgments, a comparison between the performances of the two EFL participating groups (i.e. undergraduates and school teachers), and the effect of ESL experience on the acquisition of the English causative-inchoative alternation. These results, as well as avenues for future work and pedagogical implications, are discussed in the next chapter.

CHAPTER FIVE

DISCUSSION

5.0 Organization

This concluding chapter proceeds as follows: First, the major findings in relation to the central research questions are discussed. Next, some limitations of the study and avenues for future research are outlined. Finally, pertain pedagogical implications are addressed.

5.1 Major Findings

In this study, an empirical approach was followed to provide a deeper understanding of Arabic native speakers' (ANSs) mental representation of the English causative-inchoative alternation. In this section, the major findings derived from the acceptability judgment and correction (AJC) task are discussed with reference to the central research questions.

5.1.1 Learnability Problem

The first research question (i.e. *Does the English causative-inchoative alternation pose a learnability problem for Arabic native speakers?*) was tested by analyzing the performance on the acceptability judgment and correction (AJC) task of the control group (23 English native speakers) and the experimental group (119 ANSs). The results from the two-sample *t*-test analyses revealed statistically significant differences[1] between the two groups' mean scores in terms of verb class (unaccusatives and unergatives) and unaccusative verb type (type-1 alternating, type-2 alternating, and non-alternating). The

[1] In all results reported in this study, the mean difference is significant at the 0.05 level.

results also revealed that the type-1 alternating subclass of unaccusatives posed the greatest learnability problem for the Arab participants, while the non-alternating unaccusative subclass posed the least difficulty.

In order to arrive at a deeper understanding of this acquisitional difficulty, the two groups' performances on the AJC task were examined with respect to the five scenarios[2] (P-P, P-I, I-I, I-P, and C-C, discussed in Section 3.3.3.3). The results revealed that not all scenarios of a given verb type posed the same learnability problem for the Arab participants. For example, these participants had almost no learnability problem with the type-1 alternating unaccusatives in the P-P scenario (i.e. accepting a well-formed passivized structure) or the P-I scenario (i.e. rejecting an ill-formed passivized structure), and no problem at all in the C-C scenario (i.e. accepting a well-formed causative structure). However, for the same verb type, the results showed a very low rate of accuracy in the I-I scenario (i.e. accepting a well-formed inchoative structure) and the I-P scenario (i.e. rejecting an ill-formed passivized structure).

Further analysis revealed that the Arab participants' learnability problem with the causative-inchoative alternation was manifested in four major non-target behaviors exhibited in their responses to the items of the AJC task: overpassivization, overcausativization, underpassivization, and undercausativization. In the following subsections, each non-target behavior is explored in detail in the context of the first

[2] Recall that each target sentence was preceded by a sentence functioning as an introductory context. In addition, the verbs tested here differ in meaning insofar as the argument of an unergative verb is an *Agent*, whereas the argument of an unaccusative verb is a *Theme*—that is, their argument structure properties can be taken to be derived from their meaning.

research question; however, the causes of these errors are discussed in Section 5.1.3 (with respect to the third research question).

5.1.1.1 Overpassivization

Overpassivization was the most common error made by the Arab EFL participants. This type of error refers to the overuse of the pattern *BE V-en*, which results in either ungrammatical or unnatural structures. Illustration is provided below.

5.1.1.1.1 Ungrammatical Overpassivization

Ungrammatical overpassivization is the use of unpassivizable verbs (e.g. intransitives) in a *BE-V-en* pattern. Instances of this non-target behavior were observed in the Arab participants' responses to the non-alternating unaccusative and unergative items of the AJC task. Consider the following example.

(1) It was not safe to let children go to school alone. Many children were arrived in their parents' cars.

The underlined part in (1) *many children were arrived* has the passive pattern *BE V-en*, a string that was intended to be judged unacceptable. The verb *arrive* is a non-alternating unaccusative verb; that is, it does not have a causative counterpart, and consequently, does not allow passivization. Therefore, using it in a passive structure as in (1) results in ungrammaticality. While all native English controls in this study rejected the erroneous passive *many children were arrived*, 28.32% of the Arab participants incorrectly accepted this overpassivized form. The participants' acceptable corrections included the use of *arrive* intransitively (*many children arrived*) or the use of the passive

with a different, passivizable verb (*many children were taken/brought/delivered/ collected/given a ride*).

The example above demonstrates the P-P scenario of the non-alternating unaccusatives, where the context encourages the use of passive, and the structure (mistakenly, in these cases) is passive. The other instances of this scenario included in the AJC task were *he was appeared* and *A flood was happened*. The results obtained from the two-sample *t*-test analysis revealed a statistically significant discrepancy in mean judgment between the control and experimental groups. While the former performed perfectly in this scenario (100% correct), the later, on average, responded correctly to 75.91% of the items (*SD* = 31.42).

Ungrammatical overpassivization was also exhibited in the Arab participants' responses to the items of the I-P scenario of the non-alternating unaccusatives of the AJC task. These items were intended to elicit unacceptability, since the scenario promoted the use of intransitivity, but the structure was erroneously passive. Consider (2) for illustration of this non-target behavior.

(2) Yesterday the weather was very foggy. Several accidents were happened.

The verb *happen* is a non-alternating unaccusative verb, that is, an intransitive verb with no corresponding causative form. Therefore, using this non-passivizable verb in a passive structure as in (2) results in ungrammaticality. No native English participant accepted the ill-formed structure *several accidents were happened*; however, the overpassivized form was mistakenly accepted by 31.09% of the Arab participants. The

acceptable corrections supplied included intransitivity (*several accidents happened*), or passivization with a passivizable verb (s*everal accidents were caused/made*).

Other instances of ungrammatical passive in the I-P scenario of the non-alternating unaccusative subclass were *fire fighters were arrived* and *our house was appeared*. The results revealed that no inaccurate judgment was provided by any of the native controls, indicating a statistically significant difference between the control and experimental groups' mean accuracy in this scenario. On average, the Arab participants correctly responded to 76.33% (*SD* = 32.29) of the items of this scenario (i.e. their average error rate was 23.67%).

Instances of ungrammatical overpassivization were also observed in the Arab participants' responses to the unergative items of the AJC task, both in the P-P and I-P scenarios, as illustrated below.

(3) Mary was very depressed, and her friends wanted to help. To make her feel better, Mary was laughed.

The underlined part in (3) has the passive pattern *BE V-en*, which was intended to elicit unacceptability. Like other English unergatives, *laugh* does not alternate; that is, it has no causative counterpart, and consequently, cannot be passivized. In the scenario of (3), the context encourages the use of passive, and the structure is passive (the P-P scenario). Despite the agent-oriented context set by the adverb of purpose *to make her feel better*, it is illicit in English to use the passive *Mary was laughed* with a non-passivizable (unergative) verb. While none of the native English controls accepted this

overpassivized structure (100% accuracy), 28.18% of the Arab participants incorrectly accepted it. Corrections provided included the use of the verb *laugh* in a periphrastic causative structure (*they made her laugh; they tried to make her laugh*) or intransitive structure (*Mary laughed*), or using the passive structure with another passivizable verb (*Mary was amused/cheered up; Mary was forced/obliged to laugh; *Mary was made laugh; Mary was told some jokes to laugh*)[3].

Other instances of ungrammatical overpassivization belonging to the P-P scenario of the unergative items were *the daughter was cried* and *the child was swum*. The results obtained from the two-sample *t*-test analysis revealed a statistically significant discrepancy in mean judgment between the control and experimental groups. The control group performed perfectly in this scenario (100% accurate rejection), whereas, on average, the experimental group responded correctly to 84.03% of the items (*SD* = 23.11).

Ungrammatical overpassivization was also exhibited in the Arab participants' responses to the items of the I-P scenario of the unergative items. Again, the items of this scenario were intended to be judged unacceptable, since non-passivizable unergative verbs were erroneously used in a passive pattern (*BE V-en*): *all the students were laughed; she was cried; she was swum*. The results from the two-sample *t*-test analysis conducted on the performances on the scenario items revealed a statistically significant

[3] The asterisk represents ill-formedness; while the verb *make* can be passivized (e.g. *an effort was made*), it is illicit to passivize the periphrastic causative. However, the correction **Mary was made laugh* ensured that the participant responded to the item in a relevant way, that is, she rejected the passivization of the verb *laugh*.

difference between the control and experimental groups' percent correct mean scores: no inaccurate judgment was provided by any of the native controls (100% accurate rejection), whereas, on average, the Arab participants correctly responded to 93% of the items of this scenario (*SD* = 19.83).

As can be seen, the Arab participants' average error rate of ungrammatical passive of unergatives in the P-P scenario differed from that in the I-P scenario (15.97% and 7%, respectively). When comparing these error rates to the ungrammatical overpassivization error rates observed in the Arab participants' responses to the non-alternating unaccusatives (the only unaccusative verb type manifesting this error), it was found that this non-target behavior was more frequent in unaccusatives than in unergatives[4]. (This finding supports the argument that the participants were sensitive to the unaccusative-unergative distinction as a piece of evidence for their access to Universal Grammar, an issue discussed in detail in Section 5.1.2 below).

5.1.1.1.2 Unnatural Overpassivization

Unnatural overpassivization is the use of the passive pattern (*BE V-en*) with verbs that allow this pattern, where English native speakers, within the context given, would use the inchoative/intransitive structure. For illustration, consider the following example.

(4) My aunt had a beautiful vase, but it was cracked. Yesterday the vase broke.

[4] As noted above, the Arab participants' average error rates of ungrammatical overpassivization in the P-P and I-P scenarios of the non-alternating unaccusatives were 24.09% and 23.67%, respectively.

The verb *break* is an alternating unaccusative verb; that is, it can be used either transitively (in a causative structure) or intransitively (in an inchoative structure). The context in (4) encourages the use of *broke* intransitively in order to denote an event occurring spontaneously. All native English participants correctly accepted the naturalness of this structure; however, 79.31% of the Arab EFL participants incorrectly rejected the inchoative form and used the passive instead (*the vase was broken*).

The example (3) above belongs to the I-I scenario of the type-1 alternating unaccusative items of the AJC task. This verb type had other instances of natural passive (*The front door opened*; *the door closed*). The scenario items were intended to elicit acceptability. However, while all native controls accepted the naturally passivized structures of this scenario, the Arab participants exhibited a high rate of incorrect rejection (66.67%).

The Arab participants' responses to the type-2 alternating unaccusatives of the I-I scenario exhibited instances of unnatural overpassivization, but with a much lower average error rate than that observed in the same scenario of the type-1 alternating unaccusatives. In the contexts given, three inchoative structures (*the ice cream melted; the river froze; the boat sank*) were intended to be judged as acceptable. The results indicated that the average judgment accuracy was 98.55% for the control participants and 81.79% for the Arab participants. Those who rejected the natural inchoatives erroneously corrected them using the passive structure[5]. It should be noted that the difference in

[5] Interestingly, one native speaker incorrectly rejected the natural structure *the river froze* and corrected it as *the river was frozen*. This correction might indicate that *frozen* was understood as

average error rate between the Arabs' performance on the I-I scenario items of the type-1 and type-2 unaccusatives (66.67% vs. 18.21%) indicated that the Arab participants treated the two subclasses differently. We will return to this point in Section 5.3.

The I-P scenario of the type-1 and type-2 alternating unaccusatives differs from their I-I scenario. As illustrated above, their I-I scenario was intended to elicit acceptability by virtue of the fact that the underlined structure is intransitive fitting the natural inchoative meaning of the item. On the other hand, the I-P scenario of both verb types was intended to elicit unacceptability because the context entails spontaneity while the underlined structure implies agentivity. For illustration, (5) is an item from the AJC task representing the I-P scenario of the type-1 alternating unaccusatives.

(5) I stayed at a modern hotel. When I walked towards the automatic gate, it was opened by itself.

Open is an alternating unaccusative verb that allows, based on the context, both inchoative/intransitive structure (*S-V* pattern) and causative/transitive structure (*S-V-O*). The context of opening the gate in (5) does not involve agentivity; thus, the underlined part *it was opened* exemplifies unnatural overpassivization (intended to elicit unacceptability). In order to express the situation as occurring spontaneously, the inchoative structure *it opened* must be used instead. The unnatural use of passive in this item was rejected by all control participants. However, only 35.34% of the Arab participants provided an accurate judgment (i.e. their average error rate on this item was

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adjectival passive rather than as verbal passive. However, following the scoring criteria, the participant did not get a point for this judgment.

64.66%). Those who accurately rejected the overpassivized structure *it was opened* corrected it inchoatively (i.e. *it opened*).

Other instances of overpassivization addressed in the I-P scenario of the type-1 alternating unaccusatives were *the door was closed* and *the pencil was broken*, and those of the type-2 alternating unaccusatives were *all the snow was melted*; *the juice was frozen*; and *the ship was sunk*.

The results obtained from the two-sample *t*-test analysis conducted on the participants' performance on the I-P scenario items of both alternating verb types revealed statistically significant differences in mean accuracy between the control and experimental groups. The control group performed perfectly in the I-P scenario for both verb types (M = 100%). However, the Arab participants' average accuracy in the scenario was 34.17% (SD = 37.57) on the type-1 items and 67.79% (SD = 34.36) on the type-2 items. Therefore, the Arab participants' average error rate of unnatural overpassivization in the I-P scenario was 65.83% for the type-1 alternating unaccusatives and 32.21% for the type-2 alternating unaccusatives. The difference in error rate on the two alternating subclasses of verbs will be discussed in more detail in Section 5.1.3.

5.1.1.2 Overcausativization

Another common error committed by the Arab participants was overcausativization, which refers to the incorrect use of the *S-V-O* pattern with intransitive verbs, as illustrated in (6), an example taken from the AJC task.

(6) Last Tuesday, George had an exam and decided to take a taxi. <u>The taxi arrived</u>

George on time.

Arrive is a non-alternating unaccusative verb; that is, it is an intransitive verb that has no causative counterpart. The underlined part in (6), *the taxi arrived George*, has a causative structure (*S-V-O* pattern) and was intended to elicit unacceptability. All control group participants rejected this incorrect structure; however, on average, 66.96% of the Arab participants rejected the item (that is, their average error rate was 33.04%). Those who accurately rejected the verb *arrive* to be overcausativized supplied a correction using a periphrastic causative structure (*the taxi made George arrive*), an intransitive structure (*George/the taxi arrived*), or a causative structure with a different verb that allows transitivity (*the taxi delivered/brought George*).

The example (6) above belongs to the C-C scenario of the non-alternating unaccusative items of the AJC task. Other instances of overcausativization addressed under this scenario were *he appeared a bird* and *he happened an accident*. All items of this scenario were intended to be judged unacceptable. There was a statistically significant difference in mean score between the control and experimental groups. While all control group participants correctly rejected the erroneously overcausativized parts (100% accuracy), on average, the Arab participants failed to reject 29.55% of them (*SD* = 31.02).

Other instances of overcausativization were observed in the Arab participants' responses to the C-C scenario unergative items of the AJC task, as illustrated below.

(7) Many onions were cut for the big meal yesterday. Unfortunately, the onions cried

the cook.

Cry is an unergative unaccusative verb, which does not alternate in English (i.e. an intransitive verb with no causative counterpart). The underlined part in (7), *the onions cried the cook*, has a causative structure (*S-V-O* pattern) and was intended to elicit rejection. No control group participants accepted this incorrect structure; however, on average, only 67.96% of the Arab participants rejected the item (that is, their average error rate was 32.04%). Those who accurately rejected the overcausativization of the verb *cry* supplied a correction using a periphrastic causative structure (*the onions made the cook cry*) or an intransitive structure (*the cook cried (because of onions)*).

The example (7) above demonstrates the C-C scenario of the unergative items of the AJC task. Other instances of overcausativization addressed under this scenario were *the clown laughed the children* and *the teacher swam the children*. All items of this scenario were intended to be judged unacceptable. There was a statistically significant difference in mean score between the control and experimental groups. While all control group participants correctly rejected the erroneously overcausativized parts (100% accuracy), on average, the Arab participants failed to reject 35.29% of them (*SD* = 37.72).

5.1.1.3 Underpassivization

A third, and less frequent error made by the Arab EFL participants was underpassivization, which refers to cases where a correctly passivized verb (*BE-V-en*

pattern) is rejected. For illustration, consider the following example taken from the AJC task.

(8) The ship was about to fall in the hands of the enemy. To prevent this, the ship was sunk.

Sink is an alternating unaccusative verb; it can be used intransitively and transitively. In (8), the adverb of purpose (*to prevent this*) sets the purpose addressed by the verb *sink*, indicating agentivity that is implicitly expressed by the passive structure *the ship was sunk*. This use of the agent-oriented structure was intended to be judged acceptable. This expectation was met by all native English participants, but only by 79.46% of the Arab participants. The erroneous rejection of the verb *sink* in a passive structure represents a non-target behavior of underpassivization. Those who made this error (i.e. 20.54% of the Arab participants) provided a correction using the verb *sink* intransitively (*the ship sank*) or using another verb (*the ship has to flee away/escaped/was saved/was moved*).

The example (8) above belongs to the P-P scenario of the type-2 alternating unaccusative items of the AJC task (i.e. within the context provided, the passive structure was intended to elicit acceptability). The other well-formed passives in this category were *The butter was melted* and *The other half was frozen*), which were corrected using an intransitive structure (*The butter melted*; *The other half froze*). The results from the analyses of the performances on this scenario revealed an accuracy percentage of 100% for the control group and, on average, of 86.41% (*SD* = 20.92) for the Arab participants.

5.1.1.4 Undercausativization

While still less common than overpassivization and overcausativization, the fourth important error observed in the Arab participants' responses to the AJC task is undercausativization. This type of error refers to cases where a well-formed lexically causativized verb (i.e. *S-V-O* pattern) is rejected. This non-target behavior is illustrated in (9).

(9) The fishermen jumped into the sea before the enemy attacked their boat. However, a rocket sank the fishing boat.

As already pointed out, *sink* is an alternating unaccusative verb; it is permissible to use it in an inchoative/intransitive structure (*S-V* pattern) or in a causative/transitive structure (*S-V-O* pattern). The causative structure in (9) denotes what caused the fishing boat to sink, an item intended to elicit acceptability. All native controls accepted this well-formed structure; however, on average, only 73.45% of the Arab participants accepted it. Those who rejected the structure corrected it using the verb *sink* in a periphrastic causative structure (*a rocket made/caused the fishing boat sink*), the verb *sink* in an intransitive structure (*the fishing boat sank* (*because of a rocket*)), or a different transitive verb (*a rocket hit/destroyed/damaged/drowned/*striked*[6]*/drew the fishing boat*).

The example (9) above is classified as a C-C scenario of the type-2 alternating unaccusative, a scenario that encourages the use of causative and the structure is

[6] The verb *strike* is an irregular verb; *striked* is ungrammatical as a simple past form. Still, the correction **a rocket striked the fishing boat* indicated that the participant did not accept the transitive use of the verb *sank*, favoring another transitive verb.

causative, thus, intended to elicit acceptability. Additional items belonging to this scenario were *she melted some butter* and *she froze the meat*. The results obtained from the two-sample *t*-test revealed a statistically significant difference in percent correct mean score between the control and experimental groups' performances on the items of this scenario. All native controls accepted the well-formed causative structures of the scenario (*SD* = .00), but, on average, the Arab participants accepted 88.52% of these structures (*SD* = 18.38), or an 11.48% average error rate of undercausativization.

The non-target behaviors discussed above are largely attributed to the influence of the participants' first language. For details, see Section 5.1.3 below.

5.1.2 Access to Universal Grammar

The second research question of this study (i.e. *Do Arabic native speakers distinguish between unaccusative and unergative verbs in English?*) concerned the availability of Universal Grammar (UG) in EFL ANSs' interlanguage. Within the generative grammar framework, UG is assumed to involve principles and parameters that characterize the mind of every child and constrain language acquisition (Chomsky, 1981; 1982; 1986a; 1986b, 1993; 1995). Principles of UG are proposed to be operative in all natural languages, whereas parameters are proposed to account for cross-linguistic variation and are understood to be set to a particular value in a particular language.

In a considerable body of second language acquisition (SLA) research, it is argued that adults learning a second language still have access to UG; that is, their interlanguage grammars during the course of development are constrained by the UG

principles (Schwartz & Sprouse, 1994; 1996). Three UG principles relevant to the present study are the Unaccusative Hypothesis (UH) (Perlmutter, 1978; Burzio, 1986), the Case Filter (Vergnaud, 1977), and the Uniformity of Theta Assignment Hypothesis (UTAH) (Baker, 1988).

Taken to be true for all languages, the UH distinguishes between the two classes of intransitive verbs: unergatives and unaccusatives. Unaccusatives (e.g. *the vase broke*) are verbs that denote unwilled or non-volitional acts, and represent a derived structure, with a D-structure object and no underlying subject (i.e. with a subject originating in direct object position). By contrast, unergatives (e.g. *the children laughed*) are verbs that denote willed or volitional acts, and represent a basic, canonical structure, taking a D-structure subject and no object (Hawkins, 2001; Levin & Rappaport Hovav, 1995).

It has been noted that, canonically, an *Agent* thematic role maps to the syntactic subject position, whereas *Theme* maps to the direct object position (Perlmutter & Postal, 1984; Baker, 1997). While this canonical mapping is realized in transitives and unergatives (e.g. *Agent* maps to the subject position *the children* in *the children laughed*), there is a non-canonical mapping between thematic roles and syntactic functions in passives and unaccusatives (e.g. *the vase* in *the vase broke* functions as a subject, but it has a *Theme* thematic role).

This apparent mismatch of English unaccusatives, however, can be explained by the UTAH and Case Filter. According to the UTAH, a particular thematic role consistently maps to the same syntactic position at D-structure. The subject of unaccusative verbs (the sole internal argument) originates in direct object position (e.g.

[$_{IP}$ e [$_{VP}$ broke the vase]]), so it has a *Theme* thematic role. At S-structure, however, this internal-*Theme* argument moves to the specifier of the IP (the grammatical subject position), where it receives nominative case, satisfying the Case Filter requirement (i.e. each overt NP must have Case).

Therefore, in terms of learnability, it is argued that ANSs have a greater problem with English unaccusatives than unergatives: unergatives exhibit the default *Agent-Subject* mapping, whereas unaccusatives involve a non-canonical argument structure with a *Theme* thematic role mapping to the subject position.

A major argument advanced in this study (and tested in the second research question) is that, if ANSs are guided by innate UG principles, including the Unaccusative Hypothesis, Case Filter, and Uniformity of Theta Assignment Hypothesis, they will distinguish between English unergatives and unaccusatives because these two classes of verbs are represented differently at the level of argument structure in UG.

One source of evidence for this distinction in the interlanguage grammar comes from the finding that EFL ANSs performed well, but still significantly differently, on unaccusative and unergative verbs. That is, they show better performance with unergatives structures than with unaccusatives. The results obtained from the analysis of the AJC task items indicated that the Arab participants treated the English unaccusatives and unergatives differently. On average, they responded correctly to 76.93% (*SD* = 11.05) of the unaccusative items and 88.94% (*SD* = 12.08) of the unergative ones. (As expected, the native English controls surpassed the Arab participants in performance on both verb classes, having 99% average accuracy (*SD* = 1.51) with the unaccusatives and

100% with the unergatives). The Arab participants' higher proportion of more non-target responses to the unaccusatives than to the unergatives supports the hypothesis that the two verb classes are represented differently at the level of argument structure in their interlanguage grammar, as would be expected if ANSs still have access to the innate mechanisms of UG while acquiring English. L2 learners' sensitivity to the unaccusative-unergative distinction was observed in previous second language acquisition studies (e.g. Hirakawa, 2003; Matsunaga, 2007; Oshita, 1997; Kondo, 2009).

5.1.3 Language Transfer

In this study, it was observed that ANSs had a learnability problem with the English causative-inchoative alternation. The third research question (i.e. *Are there L1 transfer effects on Arabic native speakers' acquisition of the English causative-inchoative alternation?*) addresses whether the learnability problem arises from transfer effects.

Arabic lexical argument structure is hypothesized to play a key role in the EFL ANSs' interlanguage grammars, especially as Arabic is significantly different from English in terms of how to encode the causative-inchoative alternation. English predominantly realizes the causative-inchoative alternation following the labile pattern; that is, no overt argument-changing morphology is involved, resulting in an identical form for the causative verb and its inchoative counterpart (e.g. *Tom broke the cup* vs. *The cup broke*). In addition, very few English verbs participate in the alternation suppletively, assigning a different root to each alternant (e.g. *kill-die, drop-fall, bring-come, teach-learn*).

On the other hand, Arabic has two major morphological patterns to mark the causative-inchoative alternation: anticausative and causative. For example, verbs that mean 'break', 'open', and 'close' have the anticausative pattern; that is, their transitive form is morphologically simple (or unmarked) and the intransitive/inchoative form is morphologically complex (or marked). However, verbs that mean 'melt', 'freeze', and 'sink' have the causative pattern; that is, their intransitive/inchoative form is morphologically simple, while the transitive counterpart is morphologically marked. As noted before, the labile and suppletive patterns are not common in Arabic. The verb *ghala* 'boil' exemplifies the labile pattern, whereas *qatala* 'killed' and *mata* 'died' make a suppletive pair.

Therefore, if these properties are transferred, the prediction is that EFL ANSs will behave differently in assessing English alternating unaccusative verbs, depending on the pattern to which the verb belongs in Arabic. For example, ANSs are likely to reject English constructions where the verbs *break, open,* and *close* are used inchoatively, and favor the passive structure instead (i.e. unnatural overpassivization). One explanation for this non-target behavior is that the inchoative forms of these verbs are unmarked (simple) in English, but their Arabic equivalents are marked (i.e. type-1 alternating unaccusatives). However, ANSs are predicted not to reject the inchoative use of the verbs *melt, freeze,* and *sink* because these English verbs and their Arabic counterparts are unmarked in the inchoative construction (i.e. type-2 alternating unaccusatives).

Likewise, L1 knowledge is predicted to affect areas related to the acquisition of the English causative-inchoative alternation, namely, non-alternating unaccusatives and

unergatives; while the verbs in these subclasses do not alternate in English, most of their Arabic counterparts do alternate. Consequently, ANSs' observed errors may include overpassivization and overcausativization of verbs like *happen* (non-alternating unaccusative) and *cry* (non-alternating unergative). The argument for language transfer is further illustrated below with reference to the four major non-target behaviors exhibited in the Arab participants' responses to the items of the AJC task (discussed in Section 5.1.1).

5.1.3.1 Overpassivization

5.1.3.1.1 Ungrammatical Overpassivization

As noted, ungrammatical overpassivization is the use of unpassivizable verbs (e.g. intransitives) in a *BE-V-en* pattern. This type of error was exhibited in the Arab participants' responses to the non-alternating unaccusative and unergative items in both P-P and I-P scenarios of the AJC task. Three English non-alternating unaccusative verbs (*arrive, appear,* and *happen*) and three unergatives (*laugh, cry,* and *swim*) were used in the task. None of these verbs alternates in English, thus disallowing the passive structures in the P-P and I-P scenarios, which were intended to elicit unacceptability (e.g. *many children were arrived*; *Mary was laughed*). However, the Arabic counterparts of these verbs alternate—through overt morphology added to the intransitive form to derive the causative form—thus allowing passivization. This cross-linguistic difference between English and Arabic could account for the Arab participants' incorrect judgments in these scenarios. Their average error rates of ungrammatical overpassivization in both P-P and

I-P scenarios for the non-alternating unaccusatives were 24.09% and 23.67%, respectively, and for the unergatives 15.97% and 7%, respectively[7].

While L1 transfer is argued to play a significant role in this non-target behavior, the difference in average error rate between the two subclasses of verbs (non-alternating unaccusatives and unergatives) lends support to the argument for ANSs' sensitivity to the unaccusative-unergative distinction. That is, observing fewer instances of ungrammatical overpassivization in the Arab participants' responses to the unergatives than the (non-alternating) unaccusatives indicates that these participants treated the two verb types differently, arguably because they are represented differently at the level of argument structure in UG; unaccusative subjects are base-generated in object position (with a *Theme* thematic role), whereas unergative subjects (like transitive subjects) are projected in subject position (with an *Agent* thematic role). (See Section 5.1.2.)

5.1.1.3.2 Unnatural Overpassivization

As illustrated earlier, unnatural overpassivization is the use of the passive pattern (*BE V-en*) with verbs that allow this pattern, where English native speakers within the context given, would use the inchoative/intransitive structure (for an example, see (4)). This type of error was observed in the Arab participants' responses to the alternating unaccusative items, specifically in the I-I and I-P scenarios. These items addressed six English unaccusative verbs of two alternating types: type-1 alternating (*open, close,* and *break*) and type-2 alternating (*melt, freeze,* and *sink*).

[7] In contrast, the control group participants performed perfectly (100% correct) on all items of the two subclasses of verbs.

Recall that this classification was based on the Arabic counterparts of these verbs in order to test for L1 transfer effect. Type-1 alternating unaccusatives have Arabic equivalents that follow the anticausative pattern; that is, overt morphology is required to derive the inchoative/intransitive form from its causative/transitive counterpart. On the other hand, type-2 alternating unaccusatives have Arabic equivalents that follow the causative pattern; that is, overt morphology is required to derive the causative/transitive form from its inchoative/intransitive counterpart.

In the I-I scenario of the two subclasses of verbs, the context encourages the use of the intransitive/inchoative and the structure is intransitive/inchoative. All underlined parts are contextually and grammatically acceptable; that is, their well-formed intransitive/inchoative structures denote spontaneity promoted by the context. Despite the similarity in scenario, the Arab participants judged these items differently. The results indicated that these participants performed well on the type-2 alternating items; on average, they had an 81.79% accurate acceptance rate (*SD* = 24.64) on the well-formed inchoative structures (e.g. *the ice cream melted*). By contrast, they performed very poorly on the type-1 alternating items; on average, their acceptance rate was only 33.33% accurate acceptance (*SD* = 31.52) on the well-formed inchoative structures (e.g. *the vase broke*). Those who failed to accept the well-formed items supplied corrections including unnatural overpassivization (e.g. *the vase was broken*).

With respect to the I-P scenario of the two subclasses of verbs, all underlined parts in the items were intended to be judged unacceptable due to the mismatch between their passive structures and the contexts that encourage the use of the inchoative; that is,

the situation is conceived as occurring spontaneously. Despite the similarity in scenario of the items of the two types, the Arab participants had different average accuracy. On average, their accurate rejection of the unnatural passive was 67.79% for the type-2 alternating unaccusatives (*SD* = 34.36), and 34.17% for the type-1 alternating unaccusative (*SD* = 37.57)[8].

It is argued that this significant difference in performance can be largely attributed to the effect of the Arab participants' native language on their acquisition of the English causative-inchoative alternation. English type-1 inchoatives are unmarked (simple), but their Arabic equivalents are morphologically marked (i.e. derived through overt morphology); on the other hand, English type-2 inchoatives and their Arabic equivalents are morphologically unmarked. Due to these cross-linguistic differences, the Arab participants had a much lower average rate of acceptance of the well-formed inchoatives of the type-1 alternating unaccusatives in the I-I scenario than of the type-2 ones in the same scenario (33.33% vs. 81.79). They also had a much lower average rate of rejection of the ill-formed (unnatural) passive of the type-1 alternating unaccusatives in the I-P scenario than of the type-2 ones in the same scenario (34.17% vs. 67.79%).

5.1.3.2 Overcausativization

Overcausativization, or the incorrect use of the *S-V-O* pattern with intransitive verbs, was exhibited in the Arab participants' responses to the non-alternating unaccusative and unergative items in the C-C scenario, where the context encourages the use of causative

[8] The control group had 100% accuracy on all items of the I-I and I-P scenarios of both verb types.

structure, and the structure—mistakenly, in these cases—is causative. Although the scenario was intended to elicit unacceptability (an expectation met by all control group participants), on average, the Arab participants failed to reject 29.55% of the erroneous non-alternating unaccusative items (*SD* = 31.02) and 35.29% of the erroneous unergatives. Thus, overcausativization appears to be another clear effect of L1 transfer.

The English non-alternating verbs used in the AJC task are *arrive, appear,* and *happen*, and the unergatives were *laugh, cry,* and *swim*. None of these verbs alternate in English; therefore, using any of them in the *S-V-O* pattern results in illicit overcausativization (e.g. *the taxi arrived George*; *the onions cried the cook*). However, as mentioned above, the Arabic counterparts of these verbs have causative alternants derived by adding an affix to the intransitive form, thereby allowing causativization. Therefore, it is hypothesized that this cross-linguistic difference between English and Arabic played a significant role in the Arab participants' overcausativization errors.

It should be noted that, contrary to the ungrammatical overpassivization findings, the Arab participants' average overcausativization error rate on the unergatives was higher than on the non-alternating unaccusatives.

5.1.3.3 Underpassivization and Undercausativization

The Arab participants' rejection of well-formed passivized structures (underpassivization) and their rejection of well-formed lexically causativized structures (undercausativization) can also be explained in terms of L1 transfer. These two non-target behaviors were less common than the overpassivization and overcausativization

errors discussed above. The most striking examples of underpassivization and undercausativization in the Arab participants' responses to the items of the AJC task that involved the verb *sink*, as illustrated in (8) and (9) above. *Sink* is an alternating unaccusative verb; it can be used intransitively and transitively, and thus allowing passivization and causativization. Its use in a passive structure in (8) (*the ship was sunk*) and in a causative structure in (9) (*a rocket sank the fishing boat*) was intended to be judged acceptable. All native English participants accepted these structures as well-formed; however, 20.54% of the Arab participants rejected the passive structure, and 26.55% of them rejected the causative structure.

One explanation for the underpassivization and undercausativization examples above is that there seem to be two different verbs in Arabic which are conflated in English as *sink*: *ghasa*, a non-alternating verb that means 'opposite of float', and *ghariqa*, an alternating verb that means 'drown' (overt morphology is required to derive the causative form *aghraqa* 'cause to drown'). For ANSs, if someone sinks a ship, it is effectively like drowning it rather than making it not float. This interpretation is supported by the large number of corrections provided by those who judged these items to be well-formed. Those who rejected the passive *the ship was sunk* provided a correction using the verb *sink* intransitively (*the ship sank*) or using another verb (*the ship has to flee away/escaped/was saved/was moved*), and those who rejected the causative *a rocket sank the fishing boat* corrected it using the verb *sink* in a periphrastic causative structure (*a rocket made/caused the fishing boat sink*), the verb *sink* in an intransitive

structure (*the fishing boat sank* (*because of a rocket*)), or a different transitive verb (*a rocket hit/destroyed/damaged/drowned/*striked/drew the fishing boat*).

5.1.3.4 No Transfer, Modular Transfer, or Full Transfer?

It has been reported in the literature that the English causative-inchoative alternation poses a challenging learnability problem for L2 learners of various L1 backgrounds, a result that matches those found in the present study. The non-target behaviors exhibited in this linguistic phenomenon have been the subject of considerable debate. Some researchers (e.g. Balcom, 1997; Ju, 2000; Zobl, 1989) argue that L2 learners' overgeneralization errors are observed regardless of L1. Other researchers (e.g. Montrul, 1997; 2000) suggest that L1 transfer is modular (i.e. selective) in that it implicates morphology but not argument structure. Still, other researchers (e.g. Kondo, 2009; Matsunaga, 2007; Whong-Barr, 2005) argue for 'full' L1 transfer that targets not only morphology, but argument structure as well.

Accounting for L2 English learners' overpassivization errors, Zobl (1989) and Balcom (1997) argue that L1 plays no role in this non-target behavior as L2 English learners subsume unaccusatives under passivization and add passive morphology when moving the unaccusative NP to subject position. Similarly, Ju (2000) argues against the existence of L1 effects, taking the source of overpassivization errors to be "the availability of conceptualizable agents in the discourse" rather than L1 transfer (p. 86).

Although different factors (e.g. nonstructural factors, socio-cultural factors) may be at work in determining the acquisition of the English causative-inchoative alternation

by ANSs', the findings from this study support the hypothesis that the Arab participants' non-target behavior arises, at least in part, from L1 transfer. The overpassivization errors reflected cross-linguistic differences between English and Arabic regardless of the contextual factors (or what Ju called "conceptualizable agents in the discourse"). For example, the AJC task included the contextually correct inchoative structures *the ice cream melted* and *the vase broke*. Despite the similarity in the scenario of the two items (i.e. the context encouraged the use of inchoative and the structure is inchoative), the Arab participants judged them differently; while 88.24% of Arab participants accepted *the ice cream melted*, only 20.69% of them accepted *the vase broke* (and those who rejected the well-formed items provided erroneous overpassivized structures instead: *the ice cream was melted; the vase was broken*). This discrepancy in judgment (and overpassivization production) was largely due to the difference in encoding the alternation of the Arabic counterparts of *break* and *melt* (type-1 vs. type-2 alternating unaccusatives). In addition, if Ju's view of "conceptualizable agents in the discourse" holds, it is expected to find overpassivization errors with unergatives to the same extent as unaccusatives, which is incompatible with the argument for sensitivity to the unaccusative-unergative distinction and access to UG. As discussed above, the findings from this study revealed difference in overpassivization errors in the two classes of verbs.

If language transfer is assumed to play a significant role in the non-target behaviors exhibited in the Arab participants' performance on the AJC task, one critical question is whether L1 transfer is modular (or selective), in the sense that it only implicates the morphological level of the causative-inchoative alternation (Montrul,

1997; 2000) or 'full'; that is, L1 transfer operates not only on morphology, but on argument structure as well (Kondo, 2009; Matsunaga, 2007). In the remaining part of this section, support is given to full transfer, a view within Schwartz and Sprouse's (1994, 1996) hypothesis of Full Transfer/Full Access (FT/FA).

Arguing against an unrestricted formulation of the Full Transfer hypothesis, Montrul (2000) claims that "UG and L1 knowledge may not affect all linguistic domains in the same way at a given stage of development" (p. 229), and that L1 transfer is modular in that it implicates morphology but not argument structure. Attempting to account for L2 English learners' non-target behavior in the area of the causative-inchoative alternation, Montrul (2000) says, "[b]ecause one pattern matches the target language, this is what they transfer" (p. 260).

If this modular view of transfer holds, it is predicted that Arabic native speakers (ANSs) will transfer their L1 morphological patterns, accepting English morphologically unmarked forms where the equivalent verb in Arabic is morphologically unmarked, and rejecting English morphologically unmarked forms where the equivalent verb in Arabic is morphologically marked. Therefore, it is predicted that (i) ANSs will accept English causative structures like *He broke a window* because the English causative form *broke* is unmarked and its Arabic causative counterpart (*kasara*) is also unmarked (i.e. accurate judgment), and (ii) they will reject inchoative structures like *the vase broke* because the English inchoative form *broke* is unmarked, but its Arabic inchoative counterpart (*inkasara*) is marked (i.e. inaccurate judgment). Similarly, on the basis of Montrul's account, it is predicted that (iii) ANSs will reject English causative structures like *she*

melted some butter because the English causative form *melted* is unmarked, but its Arabic causative counterpart (*athaba*, or *sayyha*) is marked (i.e. inaccurate judgment), and (iv) they will accept inchoative structures like *the ice cream melted* because the English inchoative form *melted* is unmarked, and its Arabic inchoative counterpart (*thaba* or *saha*) is also unmarked (i.e. accurate judgment). The findings from the present study support the predictions (i, ii, and iv), but not (iii). Confirming Montrul's predictions, all Arab participants correctly accepted the causative structure *He broke a window*; 79.31% of them (incorrectly) rejected the inchoative structure *the vase break*; and 88.24% of them (correctly) accepted the inchoative structure *the ice cream melted*. However, contrary to Montrul's predictions, there was a very low rate of rejection of the causative structure *she melted some butter*; only 3.42% of the Arab participants (incorrectly) rejected it. Although *she melted some butter* does not match the Arabic causative pattern (i.e. *She caus-melted some butter*), most Arab participants accepted the English causative structure. Such findings are problematic for Montrul's morphological model of transfer; that is, despite the fact that the causative variants of the type-2 alternating verbs are morphologically marked in Arabic, almost none of the Arab participants transferred this L1 pattern into English, correctly accepting the well-formed causative structures[9]. Since the anticausative pattern causes a trouble with alternating English unaccusatives, but the causative pattern does not, it indicates that Montrul's modular/morphological view of transfer can account for some non-target behaviors but not others. Therefore, it can be

[9] Recall, however, that, compared to the other items of the type-2 alternating unaccusatives, the verb *sink* was incorrectly rejected by 26.55% in the causative structure (C-C scenario) for reasons arguably related to the semantics of its equivalent in Arabic. (See Section 5.1.3.3.)

argued that what is transferred is not just morphology; in order to account for the non-target behaviors observed in this study, transfer must be taken to target not only morphology, but argument structure as well.

Recall that, in the Arabic causative pattern, the causative (or *Agent-Theme*-argument) form of the type-2 alternating unaccusatives is derived by adding a morpheme to the inchoative counterpart (i.e. *Theme*-argument verb). It is argued that ANSs transfer the concept of alternation (i.e. argument structure) into English, in which causativization is realized by the canonical pattern *Subject-Verb-Object* (SVO), where *Agent* maps to the subject position and *Theme* to the direct object position. Although there is no morpheme added to the intransitive/inchoative form (e.g. *melt*) to derive the causative counterpart, ANSs tend to accept the canonically expressed causative structures, such as *she melted some butter*. In other words, if *melt*, for example, is one of the verbs that can be causativized; then, a sentence with the pattern *Subject-melt-Object* is likely to be judged acceptable. Therefore, what really transfers is not just morphology, but the argument structure as well. In this sense, this study supports Whong-Barr's (2005) suggestion that "from a derivational view of syntax, transfer of morphology and transfer of argument structure do not stand in opposition, but instead are complementary processes" (p. 281).

5.1.4 Interlanguage Development

The fourth research question of this study (i.e. *Are there differences across English proficiency levels with respect to the answers to questions 1-3?*) addresses the role of ANSs' English proficiency in their acquisition of the English causative-inchoative alternation (RQ #1) and their sensitivity to the unaccusative-unergative distinction in

English (RQ #2), along with the interaction of their Arabic language in these phenomena (RQ #3). The results obtained indicated that development towards target-like behavior can be observed across ANSs' interlanguage stages, yet language transfer largely affects their acquisition of the English causative-inchoative alternation.

Recall that a cloze test was used as an independent measure of the participants' English proficiency. The control group participants (n = 23) were highly proficient and classified as 'Natives'. On the other hand, the Arab participants' scores were normally distributed and were divided into three proficiency groups: Advanced (n = 32), Intermediate (n = 51), and Low (n = 36).

One-way ANOVA and Tukey post-hoc tests were used to analyze the proficiency groups' performances on the AJC task in terms of verb class (unaccusatives and unergatives), unaccusative verb type (type-1 alternating, type-2 alternating, and non-alternating), and scenario (P-P, P-I, I-I, I-P, and C-C). The results revealed that the control group (Natives) performed consistently very well on the AJC task. On the other hand, as expected, none of the Arab proficiency groups surpassed the Natives in performance. Overall, the proficiency groups' performances reflected trended to show improvement with increasing English proficiency. In order to explore these trends, the proficiency groups are compared with one another below, focusing on the instances where there are statistically significant differences between the groups.

(i) Natives vs. Advanced: Compared to the control group, the Advanced group was statistically different (Advanced < Natives) in performance only on one verb type of the

AJC task, that is, the type-1 alternating unaccusatives. Specifically, the I-I and I-P scenarios of this verb type were the only challenging parts for the Advanced group.

(ii) Natives vs. Intermediate: Compared to the control group, the Intermediate group was statistically different (Intermediate < Natives) in performance on the items of unaccusatives (as a verb class); I-I and I-P scenarios of the type-1 alternating unaccusatives; P-P, I-P, and C-C scenarios of the non-alternating unaccusatives; P-P and C-C scenarios of the unergatives.

(iii) Natives vs. Low: Compared to the control group, the Low group was statistically different (Low < Natives) in performance on the items of all verb types and scenarios, *except* the P-P and C-C scenarios of both type-1 and type-2 alternating unaccusatives as well as the P-I and I-I scenarios of unergatives.

(iv) Advanced vs. Intermediate: Compared to the Intermediate group, the Advanced group was statistically significantly different (Advanced > Intermediate) in performance on the items of the unergative (verb class); type-1 and type-2 alternating unaccusatives; all scenarios of type-1 alternating unaccusatives except P-P scenario, P-I, I-I, and I-P scenarios of non-alternating unaccusatives; and all scenarios of unergatives.

(v) Advanced vs. Low: Compared to the Low group, the Advanced group was statistically significantly different (Advanced > Low) in performance on the items unaccusative and unergatives (as verb classes); all unaccusative verb types (alternating and non-alternating); P-I and I-P scenarios of the type-1 alternating unaccusatives; P-I, I-I, and I-P

scenarios of the type-2 alternating unaccusatives; P-P, P-I, I-P, and C-C scenarios of non-alternating unaccusatives; and P-P, I-P, C-C scenarios of unergatives.

(vi) Intermediate vs. Low: Compared to the Low group, the Intermediate group was statistically significantly different (Intermediate > Low) in performance on the items of unaccusatives and unergatives (as verb classes); type-1 alternating unaccusatives; non-alternating unaccusatives; P-I scenario of both type-1 and type-2 alternating unaccusatives; P-P, P-I, I-P, and C-C scenarios of non-alternating unaccusatives; and P-P, P-I, and I-I scenarios of unergatives.

In addition to the results above, the participants' English proficiency was examined with respect to their indeterminate judgments, that is, uninterpretable responses to the items of the AJC task. (See Section 4.6.1.) The results obtained from one-way ANOVA and Tukey post-hoc test support the hypothesis that indeterminacy decreases as language proficiency grows (Davies & Kaplan, 1998).

5.1.5 Summary

The following points summarize the major findings section.

1. The English causative-inchoative alternation poses a learnability problem for Arabic native speakers.
2. The Arab participants' responses to the items of the AJC task manifested different non-target behaviors, such as overpassivization, overcausativization, underpassivization, and undercausativization.

3. Clear interlanguage developmental stages were observed across the Arab proficiency groups; that is, the higher their English proficiency, the more confident in judgment they were and the better they performed. The Arab Advanced group, for example, had the fewest non-target behaviors.

4. Sensitivity to the unaccusative-unergative distinction in English was observed across all proficiency groups (including Natives), which supports the argument for access to the innate mechanisms of Universal Grammar.

5. The challenge the Arab participants had with the AJC task varied in degree depending on the verb type and scenario.

    a. In some cases, the three Arab proficiency groups were not statistically significantly different from the control group. This can be observed in the proficiency groups' performances on the items of the P-P and C-C scenarios of the type-1 alternating unaccusatives as well as the items of the P-I and I-I scenarios of the unergatives. It indicates that the items of these four scenarios posed no challenge to any proficiency group.

    b. In other cases, one or more Arab proficiency groups were statistically significantly different from the control group, but the three Arab groups were not significantly different from one another; two diverging pictures emerge:

        i. The three Arab proficiency groups performed fairly well (but not as well as the control group). This can be observed in the groups' performances on the items

of the C-C scenario of the type-2 alternating unaccusatives and I-I and C-C scenarios of the non-alternating unaccusatives.

ii. The three Arab proficiency groups performed (equally) poorly. This can be observed in the groups' performances on the items of the I-I scenario of the type-1 alternating unaccusatives. Recall that this scenario manifested unnatural overpassivization errors, that is, rejecting well-formed inchoative structures like *the vase broke* and using the passive instead *the vase was broken*.

6. The non-target behaviors discussed earlier can largely be attributed to the influence of the Arab participants' L1.

7. Language transfer sometimes (e.g. in the I-I scenario of the type-1 alternating unaccusatives) seems to be highly influential, regardless of English proficiency, experience in teaching English (see Section 4.6.2), and/or the environment where English is acquired (i.e. EFL or ESL) (see Section 4.6.3).

5.2 Limitations of the Study and Avenues for Future Research

The present study is an attempt to fill a gap in the literature, since no research has specifically investigated the acquisition of the English causative-inchoative alternation by ANSs. Despite the significance of the findings obtained, this study has certain limitations that need to be taken into account when considering its contributions. In this section, these limitations are acknowledged, some of which can be seen as possible avenues for future research under the same theme.

One limitation lies in the design of the outcome measure (i.e. AJC task). Each of the 60 items of this task had a pair of sentences. The first sentence functioned as a short introductory context, and the second sentence, which was a continuation to the first, had an underlined part. The participants were required to read both sentences in each item carefully and decide whether they thought that the underlined part in the second sentence would be acceptable (that is, grammatical and meaningful within the context provided). They were instructed to put a tick (✓) in the space provided if they felt sure that the underlined part was acceptable, or a cross (✗) if they felt sure that it was not acceptable. However, if they could not decide, they should leave the space blank. In addition to judging the underlined parts on the task for acceptability (i.e. grammaticality and meaningfulness), the participants were also required to supply English corrections for the parts they judged as unacceptable (using the space provided beneath each of the task items). The corrections the participants provided helped to ensure that they responded in a relevant way to the task items they marked with a cross (✗). However, it was not possible to ensure that their responses to the items they marked with a tick (✓) represented relevant acceptances. Further instructions targeting acceptance bias (e.g. paraphrasing or providing reasons for acceptance) can be a useful addition to this instrument.

Moreover, although the results obtained from the AJC task, along with the proficiency measure (i.e. cloze test) and demographic questionnaires, made it possible to gain a preliminary understanding of ANSs' interlanguage representation with respect to the English causative-inchoative alternation, utilizing other data collection

methods, including qualitative research (e.g. personal interviews with several participants) might provide additional perspective on ANSs' acquisition of the English alternation[10].

Furthermore, the sample of the Arabic-speaking participants of the study was restricted to EFL undergraduates (n = 71) and EFL teachers (n = 48); all were selected from the Gaza Strip, Palestine. (In addition, 23 American English native speakers served as controls.) This sample is limited in that it is relatively small and represents somewhat narrowly-defined population (Palestinian ANSs, EFL teachers and undergraduates). Generalizing the findings to EFL Arabs from other careers should be approached with caution. As such, future research should include more EFL ANSs from different careers to extend the generalizability of the findings. Similarly, the Arab participants in this study were of the same diglossic background; that is, they all speak Palestinian Arabic (PA) as their colloquial Arabic (CoA) variety, whereas they use Modern Standard Arabic (MSA) in formal situations. Therefore, in order to examine the diglossic effects on ANSs' acquisition of the English causative-inchoative alternation, future research should include EFL ANS participants from different Arab countries (i.e. with different Arabic dialects[11]).

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[10] It should be noted that two of the instruments used in the study (cloze test and AJC task) were demanding for the Arab participants and took them a relatively long time to complete.

[11] As noted earlier, however, my personal observations of ANSs from different Arab countries (with relatively advanced levels of English proficiency) revealed similar observations. For example, when visiting an Arab university outside of Palestine, I told the director of a graduate program in English about my dissertation, and the statement of the problem (i.e. that my Palestinian university students reject the English inchoatives and prefer the passive instead). She, surprisingly, responded, "Me too!"

A further limitation of this study is that it involved only native speakers of a single L1, but concludes that L1 transfer plays a significant role in ANSs' acquisition of the English causative-inchoative alternation. Recall that this argument was tested by administering the AJC task to a group of ANSs (n = 119) selected from the Gaza Strip, Palestine. The AJC task included two verb types of English unaccusatives distinctively classified with respect to their Arabic equivalents (i.e. the type-1 and type-2 alternating unaccusatives). Both English verb types have the same morphological pattern (i.e. labile, or zero-morphology pattern); however, the Arabic equivalents are encoded differently: the type-1 unaccusative verbs follow the anticausative pattern, whereas the type-2 verbs follow the causative pattern. The fact that the Arab participants behaved differently on these two English verb types offered the potential to test L1 influence on the acquisition of the alternation. In some sense, Arabic functions as two L1s with different morphological patterns. However, further research with participants from different L1 backgrounds would be useful in corroborating the L1 transfer argument advanced in this study.

Similarly, it could be meaningful to investigate whether the acquisition of Arabic causative-inchoative alternation poses a learnability problem for native speakers of English.

Another avenue for future research is to test the Unaccusative Hierarchy (Sorace, 1993a; 1993b; Sorace & Shomura, 2001) in ANSs' acquisition of the English causative-inchoative alternation. According to this hierarchy, unaccusative verbs fall into semantically definable subtypes with different degrees of unaccusativity (e.g. change of

location, change of state, appearance). Although examining the role of the Unaccusative Hierarchy was beyond the scope of the present study, it merits further investigation.

In addition, Theakston (2004) argues that "verb frequency plays an important and continuing role in determining a speaker's choice of verb argument structure[12]" (p. 15). The influence of ANSs' familiarity with individual English verbs (i.e. frequency in their input) on their acceptance/rejection of unaccusative/unergative items was not addressed in the present study, an issue that would be worth pursuing in future research.

Furthermore, there is potentially a difference in the plausibility of contexts in which *the ice melted* (spontaneously) and *the vase broke* (spontaneously), insofar as the former represents a more easily imagined situation. This may relate to the conceptual difference between melting and breaking, and might be a productive means of analyzing the difference between *melt* and *break* verb types within the grammar of MSA. The implications of these observations must be reserved for future research.

Moreover, research in first language acquisition has explored the acquisition of the causative-inchoative alternation by children from different L1 backgrounds (e.g. English (Bowerman, 1982; 1990; Lord, 1979), Hebrew (Berman, 1982; 1993), Japanese (Morikawa, 1991), Inuktitut (Allen, 1996), and French (Naigles & Lehrer, 2002)). However, no research has examined Arabic-speaking children's acquisition of the causative-inchoative alternation in their first language. Investigating this issue may

[12] For more details, see the *entrenchment hypothesis* in Section 2.2.2.3.

provide insights into ANSs' acquisition of this alternation in English (and other languages).

Finally, the differences between MSA and CoA introduce a possible confounding factor in the acquisition of the English causative-inchoative alternation, insofar as it is ultimately important to determine the extent to which the observed transfer effects originate from CoA or MSA. Therefore, other questions worthy of exploration in future research are: How does the diglossic situation influence ANSs' acquisition of the English causative-inchoative alternation (and other English structures)? When acquiring the English alternation, do ANSs transfer the alternation (i) from their CoA with no effect of their MSA; (ii) from their MSA with no effect of their CoA?; or (iii) from their CoA via MSA (thereby, they have three languages: CoA as their L1; MSA as their L2; and English as their L3)? If so, what does this situation inform us about the role of L2 in the acquisition of L3?

5.3 Pedagogical Implications

This study provided empirical support for the argument that the English causative-inchoative alternation poses a learnability problem for ANSs. The major non-target behaviors (e.g. overpassivization) were explored. Given that there was a strong influence of L1 transfer on even the high proficiency participants for certain test conditions, it is argued that the subtleties involved in this linguistic phenomenon require that EFL ANSs receive effective explicit instruction, or consciousness-raising (Ellis, 2002; Kim, 2004;

Richards, Plat, & Plat, 1992; Rutherford, 1987; Sharwood-Smith, 1981; White, 1990; Yip, 1994). According to Richards, Plat, and Plat (1992), consciousness-raising is

> an approach to the teaching of grammar in which instruction in grammar (through drills, grammar explanation, and other form-focused activities) is viewed as a way of raising learner's awareness of grammatical features of the language. This is thought to indirectly facilitate second language acquisition. A consciousness-raising approach is contrasted with traditional approaches to the teaching of grammar in which the goal is to instill correct grammatical patterns and habits directly (p. 78).

Testing the significance of consciousness-raising in the acquisition of English unaccusative verbs, Kim (2004) administered an experiment to two groups of Korean EFL university students; one group was assigned to explicit instruction (*n*=25), and the other to implicit instruction (n=25). The two groups were pretested and posttested on the target structures. Both groups received focus-on-form instruction by the same instructor in two different ways for about 10 weeks after the pretest. In the case of implicit instruction, the participants' attention was implicitly drawn to the target structures by means of repeating, underlining, circling, or highlighting the verbs. By contrast, explicit instruction focused on rule explanation and negative feedback[13] on the use of unaccusative verbs, supplemented by small amounts of translation from English into Korean. The results showed that the learners who received explicit instruction learned better than those who received implicit instruction in the learning of English unaccusative verbs.

[13] Negative feedback is "drawing the learner's attention to the fact that certain forms are non-occurring, or ungrammatical, in the target language" (White, 1990, p. 274).

Ellis (2002) divides consciousness-raising tasks into inductive and deductive. In the case of the former, the learners are provided with data and asked to construct an explicit rule to describe the grammatical feature illustrated by the data. In the case of the latter, the learners are given a rule that they use to carry out some task.

Ellis (2002) argues that "consciousness-raising facilitates the acquisition of the grammatical knowledge needed for communication" (p. 171).Within this approach to teaching grammar, having ANSs become aware of the factors that may impede their acquisition of the English causative-inchoative alternation can help them use the target structures appropriately, and consequently, improve their English communicative skills. The following pedagogical implications can be deduced from the present study.

First, although ANSs may subconsciously distinguish between the two classes of intransitives (i.e. unaccusatives and unergatives) as a result of their access to Universal Grammar, it is suggested that the distinction be explicitly emphasized in both L1 (Arabic) and L2 (English) classrooms. Appropriate pedagogical materials should be developed to deal with this distinction. Classroom activities should include explicit instruction focused on rule explanation and negative feedback (Kim, 2004) on the use of unaccusative and unergative verbs. EFL ANSs should consciously recognize that unergative verbs like *swim* and *laugh* (and their equivalents in Arabic) have volitional, or agentive subjects, whereas unaccusatives verbs like *die* and *disappear* (and their equivalents in Arabic) have non-volitional, or non-agentive subjects (i.e. the subject of an unaccusative is semantically similar to the direct object of a transitive verb).

Second, EFL ANS classroom instruction should also explicitly address the differences between causativization, inchoativization, and passivization, so that ANSs can discover the specific relationship between these linguistic constructions and their communicative functions. EFL ANSs should be explicitly taught that a causative structure (e.g. *Tom broke the cup*) denotes a bringing about of change of state and can be paraphrased in terms of 'cause' (Tom caused the cup to break), while an inchoative structure (e.g. *the cup broke*) only denotes a change of state and can be paraphrased in terms of 'become' plus an adjective (the cup became broken). Similarly, consciousness-raising tasks (both inductive and deductive) should deal with the crucial differences between the passive and inchoative structures. The passive has a linguistically implied agent (external argument), whereas the inchoative lacks this linguistic component; that is, we conceive the inchoative situation as occurring spontaneously. Explicit instruction on the difference in agentivity between the passive and inchoative can help ANSs avoid overpassivization as a major non-target behavior, and consequently improve their communication. Instruction may include explicit emphasis on the fact that the variation in agentivity accounts for how passives and inchoatives differ in the licensing of certain expressions. For example, passives but not inchoatives allow agentive (*by*-) phrases, agent-oriented adverbs, and purpose clauses. On the other hand, non-agent oriented adverbs, such as *spontaneously*, *by itself* and *on its own* are licensed in inchoatives, but not in passives; see Section 1.5.3.3 for illustrative examples in both English and MSA. Moreover, it may be useful to refer to the diglossic situation in the Arab world as a possible confounding factor in the learnability problem posed by the causative-inchoative alternation. As noted earlier

(Section 1.5.4), MSA has two distinct morphological structures for passive and inchoative, whereas CoA—represented in this study by PA—usually collapses the two forms. Specifically, PA passivizes its transitive verbs and its unmarked causatives by following the anticausative morphological pattern. As a result, the anticausative inchoative and the passive are superficially identical in PA, which seems to be the case in other varieties of CoA. By becoming consciously aware of this subtle difference between MSA and CoA, EFL ANSs can gain a better understanding of the passive-inchoative distinction.

Third, EFL ANSs' attention should be drawn to the salient linguistic differences between English and Arabic in terms of how the two languages encode the causative-inchoative alternation. English predominantly realizes the alternation by having an identical form for the causative verb and its inchoative counterpart. However, most Arabic verbs that enter this alternation require some kind of overt morphology to distinguish between the alternant forms. In addition, while some English verbs do not participate in this alternation (e.g. *arrive, happen*), their counterparts in Arabic do alternate. These cross-linguistic variations are argued to largely account for ANSs' non-target behaviors in the English alternation at hand. The findings from the present study, in turn, could assist in developing effective teaching materials. For example, if EFL ANSs are found to strongly transfer in a certain linguistic domain, remedial pedagogical explicit instruction strategies could be considered.

Fourth, results obtained from Section 4.6.2 indicated that the EFL teacher participants had overall better performance on the AJC task than the EFL undergraduates;

however, the two groups were not statistically significantly different in certain test conditions (e.g. the type-1 alternating unaccusatives). This indicates that the English causative-inchoative alternation poses a learnability problem even for EFL ANS teachers (though to a lesser degree than for students). An implication deduced from this finding is that pedagogy policy-making bodies in the Arab countries should consider strengthening EFL pre- and in-service teachers' linguistic knowledge in the area of the English causative-inchoative alternation. It may be useful for teachers to understand the non-target behaviors discussed above (i.e. overpassivization, overcausativization, underpassivization, and undercausativization) and provide a rationale for assigning priority to errors and when to provide explicit feedback. Since student achievement correlates highly with teacher quality (Darling-Hammond, 2000), the more insights EFL ANS instructors can gain into the linguistic phenomenon at hand, the more likely it is that they will be able to address it effectively in their classrooms.

Fifth, in a corpus analysis of *Interchange* (a popular series of ESL textbooks), Juffs (1998) explores the frequency of verbs and their syntactic requirements, concluding that ESL materials may under-represent some of the verb classes that are known to pose acquisitional difficulty (e.g. inchoatives). If this is true for the causative and inchoative alternants addressed in English (as well as Arabic) textbooks that are currently used to teach ANSs, syllabus designers can create a richer lexical environment for ANSs' learning through a higher frequency of selected verb classes. As Juffs (1998) suggests, "the relationship between a verb's meaning and its syntactic frame is a good candidate for

an instructional intervention which increases the frequency and variety of syntactic structures of verb classes that are known to be problematic" (p. 119).

Finally, while the present study explored the acquisition of the English causative-inchoative alternation by ANSs in an EFL context, it can be argued that similar findings may be found when recruiting ANS participants who study English in ESL contexts[14]. Consequently, findings from this study may help equip ESL teachers to address the constructions under discussion in classrooms with Arabic-speaking students.

5.4 Conclusion

This study showed that the English causative-inchoative alternation poses a learnability problem for ANSs. The results derived from an acceptability judgment and correction task, administered to ANSs (from the Gaza Strip, Palestine) of differing English proficiency levels, with American native speakers of English as controls. The ANSs exhibited four major non-target behaviors: overpassivization (both ungrammatical and unnatural), overcausativization, underpassivization, and undercausativization. These errors can largely be attributed to L1 transfer, since Arabic is significantly different from English in terms of how the causative-inchoative alternation is encoded. The results also revealed sensitivity to the unaccusative-unergative distinction in English, which supports the hypothesis that ANSs have access to the innate mechanisms of Universal Grammar. Moreover, while interlanguage development towards target-like behavior was observed

[14] From personal communication with different ANSs studying in the in the USA, I observed that they were reluctant to accept grammatical English inchoative sentences like *the door opened*, *the window closed*, and *the cup broke*, favoring the passive instead.

across proficiency groups, there was a strong influence of L1 transfer on even the high proficiency participants for certain test conditions.

The study fills a previously existing gap in the literature, since no prior research had specifically investigated the acquisition of the English causative-inchoative alternation by ANSs.

Through investigation of this specific area of language acquisition, it was possible to reach certain pedagogical conclusions as well: explicit attention to instruction on this linguistic phenomenon is needed, as even highly proficient ANSs have non-target-like judgments in the absence of consciousness-raising.

تمت بحمد لله

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Appendix A
Cloze Passage

Please fill in the blanks in the following passage. **Each blank must have one and only one word**.

Joe came home from work on Friday. It was payday, but he wasn't _____ excited about it. He knew that _____ he sat down and paid his _____ and set aside money for groceries,_____ for the car and a small _____ in his savings account, there wasn't _____ much left over for a good _____.

He thought about going out for _____ at his favorite restaurant, but he _____ wasn't in the mood. He wandered _____ his apartment and ate a sandwich. _____ a while, he couldn't stop himself _____ worrying about the money situation. Finally, _____ got into his car and started _____. He didn't have a destination in _____, but he knew that he wanted _____ be far away from the city _____ he lived.

He drove onto a quiet country _____. The country sights made him feel _____. His mind wandered as he drove _____ small farms and he began to _____ living on his own piece of _____ and becoming self-sufficient. It had always _____ a dream of his, but he _____ never done anything to make it _____ reality. Even as he was thinking, _____ logical side was scoffing at his _____ imaginings. He debated the advantages and _____ of living in the country and _____ his own food. He imagined his _____ equipped with a solar energy panel _____ the roof to heat the house _____ winter and power a water heater. _____ envisioned fields of vegetables for canning _____ preserving to last through the winter. _____ the crops had a good yield, _____ he could sell the surplus and _____ some farming equipment with the extra _____.

Suddenly, Joe stopped thinking and laughed _____ loud, "I'm really going to go _____ with this!"

Appendix B
Acceptability Judgment Task

INSTRUCTIONS

1. Each of the following items has a pair of sentences. Please read both sentences carefully.
2. Focus on the **underlined part** in the second sentence and judge it within the context provided by marking the space provided on the left of the item. Do one of the following:
   - Put a tick (✓) if you think the underlined part is **natural** (that is, grammatical **and** meaningful)
   - Put a cross (✗) if you think the underlined part is **unnatural** (that is, unacceptable in terms of grammar **or/and** meaning)
   - Leave the space blank if you cannot decide.
3. If you think that an underlined part is unnatural, supply its correct form in the space provided underneath the item.
4. **Please, do not go back and change your answers. (Your first decision is the one we want.)**

Examples

Example 1

My uncle likes fishing.
__✗__ Yesterday he catches a big fish.
he caught a big fish

Example 2

Mr. Ibrahim is an excellent teacher.
__✗__ So, his students dislike him.
his students like him

Example 3

The weather was very hot last weekend.
__✓__ As a result, many people went to the sea.

1. The comedian's story was very funny.
_____ Everybody laughed.

2. The swimming teacher was obeyed.
_____ Fortunately, the teacher swam the children expertly.

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

3. The boat hit a big rock.
_____ The boat sank gradually.

4. The new captain had little experience.
_____ The ship went in the wrong direction, and a collision happened.

collision تصادم

5. Many onions were cut for the big meal yesterday.
_____ Unfortunately, the onions cried the cook.

6. I stayed at a modern hotel.
_____ When I walked towards the automatic gate, it was opened by itself.

7. The child was reading a storybook.
_____ The story was so funny that he laughed a lot.

8. Henry was driving his car carelessly.
_____ As a result, he happened an accident.

9. Our teacher emphasizes punctuality.
_____ Yesterday he got angry because two students arrived late.

punctuality الالتزام بالوقت

10. Bill was having a picnic when he heard a noise.
_____ Suddenly, a brown rabbit appeared.

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

11. The greedy men planned to collect the ship insurance money.
_____ Therefore, the ship sank.

greedy طماع | insurance تأمين

12. Bob joined the swimming team.
_____ The coach was strict, and Bob swam twice a day.

coach مدرب

13. The teacher arrived on time.
_____ At the teacher's instruction, the books were opened.

14. It snowed two days ago.
_____ This morning the weather was warm, and all the snow was melted on its own.

15. Mary put some orange juice into the freezer.
_____ The juice was frozen gradually.

16. Suddenly there were a lot of flies outside.
_____ So, all the windows were closed very quickly.

flies ذباب

17. Huda returned home from work.
_____ Realizing that she had left her purse in the taxi, she cried.

18. The magician performed several tricks.
_____ In one of the tricks, he appeared a bird from the box.

magician ساحر

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

19. There was a hole in the old ship, but nobody noticed it.
_____ The ship was sunk slowly.

---

20. Jennifer got seriously ill.
_____ Her husband called an ambulance, and soon she arrived at the hospital.

---

21. The man was angry with his daughter.
_____ He shouted loudly and the daughter was cried.

---

22. Jane forgot to put the ice cream back into the freezer.
_____ As it was a hot day, the ice cream melted in a few minutes.

---

23. The fog went away gradually.
_____ After half an hour, our house was appeared.

---

24. John was teaching his very young child to swim, but the swimming pool was crowded.
_____ To avoid other swimmers, the child was swum carefully.

---

25. Tom was playing football yesterday.
_____ He accidentally broke a window.

---

26. Yesterday the weather was very foggy.
_____ Several accidents were happened.

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

27. Last Tuesday, George had an exam and decided to take a taxi.
_____ The taxi arrived George on time.

28. I walked into the elevator.
_____ Then the door closed automatically.

elevator مصعد

29. We had a lot of meat last Eid.
_____ To preserve the meat, it froze.

preserve يحفظ

30. Pablo studied very hard, but he got a low grade.
_____ He cried when he heard the news.

31. Harry left the back door open.
_____ Because it was a windy day, however, the door was closed by itself.

32. A clown amused the children with magic tricks.
_____ They laughed when a rabbit appeared in the hat.

clown مهرّج

33. The woman followed a recipe from the newspaper.
_____ The butter was melted in a frying pan in order to cook the food.

recipe طريقة طهي

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

34. My aunt had a beautiful vase, but it was cracked.
_____ Yesterday the vase broke.

vase مزهرية

35. The house was on fire.
_____ Within ten minutes, fire fighters were arrived at the house.

36. After cooking the food, the kitchen was smelly.
_____ In order to refresh the air, the window opened.

smelly ذو رائحة منفرة

37. Last night, Tamara missed the last train and could not get to her friend's wedding.
_____ She was cried quietly at the station.

38. The woman cooked half of the turkey she bought yesterday.
_____ The other half was frozen for later use.

turkey ديك رومي

39. Peter was annoyed by the noise from the outside.
_____ So, he closed the door.

40. Janet wanted to fry three eggs.
_____ So, she melted some butter in a frying pan.

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

41. It was not safe to let children go to school alone.
_____ Many children were arrived in their parents' cars.

42. The child had a bad pencil.
_____ While he was writing yesterday, the pencil was broken by itself.

43. Mary was very depressed, and her friends wanted to help.
_____ To make her feel better, Mary was laughed.

44. The fishermen jumped into the sea before the enemy attacked their boat.
_____ However, a rocket sank the fishing boat.

rocket صاروخ

45. The weather was extremely cold yesterday.
_____ The river froze.

46. The jeweler was very sad.
_____ Last night a robbery happened at his shop.

robbery سرقة

47. Last July, Johanna visited her aunt who lives near the sea.
_____ Johanna sometimes went to the beach, and she was swum in the sea.

48. The teacher has a sense of humor.
_____ Yesterday he told the students a funny joke, and all the students were laughed.

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

49. The ship was about to fall in the hands of the enemy.
_____ To prevent this, the ship was sunk.

50. A robbery took place while the family was on vacation.
_____ A window broke so that the thief could get into the house.

robbery سرقة

51. Two customers complained about their food.
_____ To improve the taste, some butter melted on the fish.

52. My sister was excited about the letter.
_____ So, she opened the envelope immediately.

53. The neighbor upstairs left his water running.
_____ A flood was happened.

flood (= overflowing of water) فيض – سيل

54. Ali likes swimming.
_____ In the summer, Ali swims in the sea every day.

55. Many children went to the theater to see the famous clown.
_____ As expected, the clown laughed the children.

clown مهرّج

(✓) = the underlined part is natural (grammatical **and** meaningful)
(✗) = the underlined part is unnatural (unacceptable in terms of grammar **or/and** meaning)

56. All the students had left.
_____ To protect the property, <u>the gate closed</u>.

57. I was sitting in my house on a windy day.
_____ <u>The front door opened</u>.

58. The criminal was arrested.
_____ The following day, <u>he was appeared</u> in court.

criminal مجرم

59. Susan was washing the dishes after the meal.
_____ <u>One of the new plates was broken</u> accidentally.

60. My mother bought some meat and chicken.
_____ She cooked the chicken, but <u>she froze the meat</u>.

Thank you very much for your time and effort!
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